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DEPARTMENT OF THE INTERIOR,
V4
CENSUS OFFICE.

FRANCIS A. WALKER, Superintendent,
Appointed April 1, 1879; resigned November 3, 1881.

CHAS. W. SEATON, Superintendent,
Appointed November 4, 1881.

# THE NEWSPAPER AND PERIODICAL PRESS,

BY

S. N. D. NORTH.

# ALASKA: ITS POPULATION, INDUSTRIES, AND RESOURCES,

BY

IVAN PETROFF.

# THE SEAL ISLANDS OF ALASKA,

BY

HENRY W. ELLIOTT.

# SHIP-BUILDING INDUSTRY IN THE UNITED STATES,

BY

HENRY HALL.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1884.

# LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
CENSUS OFFICE,
*Washington, D. C., April* 1, 1884.

Hon. H. M. TELLER,
*Secretary of the Interior.*

SIR: I have the honor to transmit herewith the eighth volume of the quarto series comprising the final report on the Tenth Census. This volume, miscellaneous in character, contains a report (1) on the Newspaper and Periodical Press, by S. N. D. North; (2) on the Population, Industries, and Resources of Alaska, by Ivan Petroff; (3) on the Seal Islands of Alaska, by Henry W. Elliott; and (4) on the Ship-building Industry in the United States, by Henry Hall. The four subjects herein treated were confided to special agents, the results of whose investigations and studies are contained in these reports.

I have the honor to be, very respectfully, your obedient servant,

C. W. SEATON,
*Superintendent of Census.*

# HISTORY AND PRESENT CONDITION

OF THE

# NEWSPAPER AND PERIODICAL PRESS

OF THE

# UNITED STATES,

WITH A

## CATALOGUE OF THE PUBLICATIONS OF THE CENSUS YEAR.

BY

S. N. D. NORTH,
SPECIAL AGENT.

# LIST OF ILLUSTRATIONS.

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- No. 2.—Delaware, Maryland, West Virginia, Virginia, North Carolina, Ohio, Kentucky, Tennessee, Indiana, Illinois
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- No. 8.—Colorado, New Mexico, Utah, Arizona
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- No. 10.—Idaho, Washington, Oregon, and part of Montana

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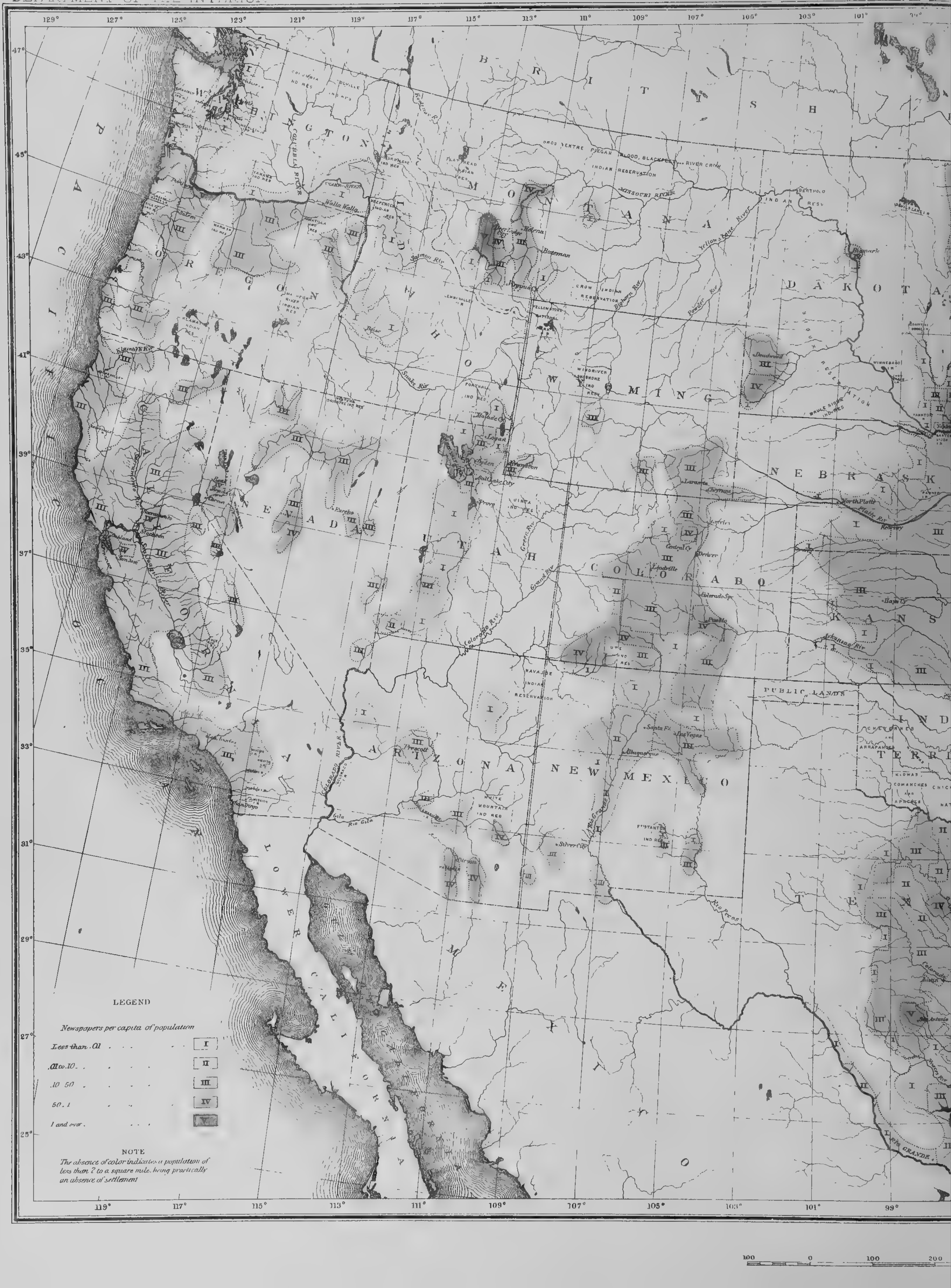
LEGEND
Newspapers per capita of population
Less than .01 . . . . . I
.01 to .10 . . . . . II
.10 .50 . . . . . III
.50 . 1 . . . . IV
1 and over . . . . V
NOTE
The absence of color indicates a population of less than 2 to a square mile, being practically an absence of settlement
BRITISH
WASHINGTON
OREGON
CALIFORNIA
PACIFIC OCEAN
IDAHO
MONTANA
WYOMING
NEVADA
UTAH
COLORADO
ARIZONA
NEW MEXICO
DAKOTA
NEBRASKA
KANSAS
TEXAS
LOWER CALIFORNIA
MEXICO
PUBLIC LANDS
Salt Lake City
Denver
Santa Fe
Bismarck
Deadwood
Helena
San Diego
Oakland
Sacramento
Stockton
Leadville
Pueblo
Cheyenne
Laramie
Prescott
Albuquerque
Las Vegas
Silver City
San Antonio
Austin
Missouri River
Colorado Riv.
Rio Grande
Rio Pecos
Snake Riv.
Platte Riv.
Yellowstone River
129° 127° 125° 123° 121° 119° 117° 115° 113° 111° 109° 107° 105° 103° 101° 99°
47° 45° 43° 41° 39° 37° 35° 33° 31° 29° 27° 25°
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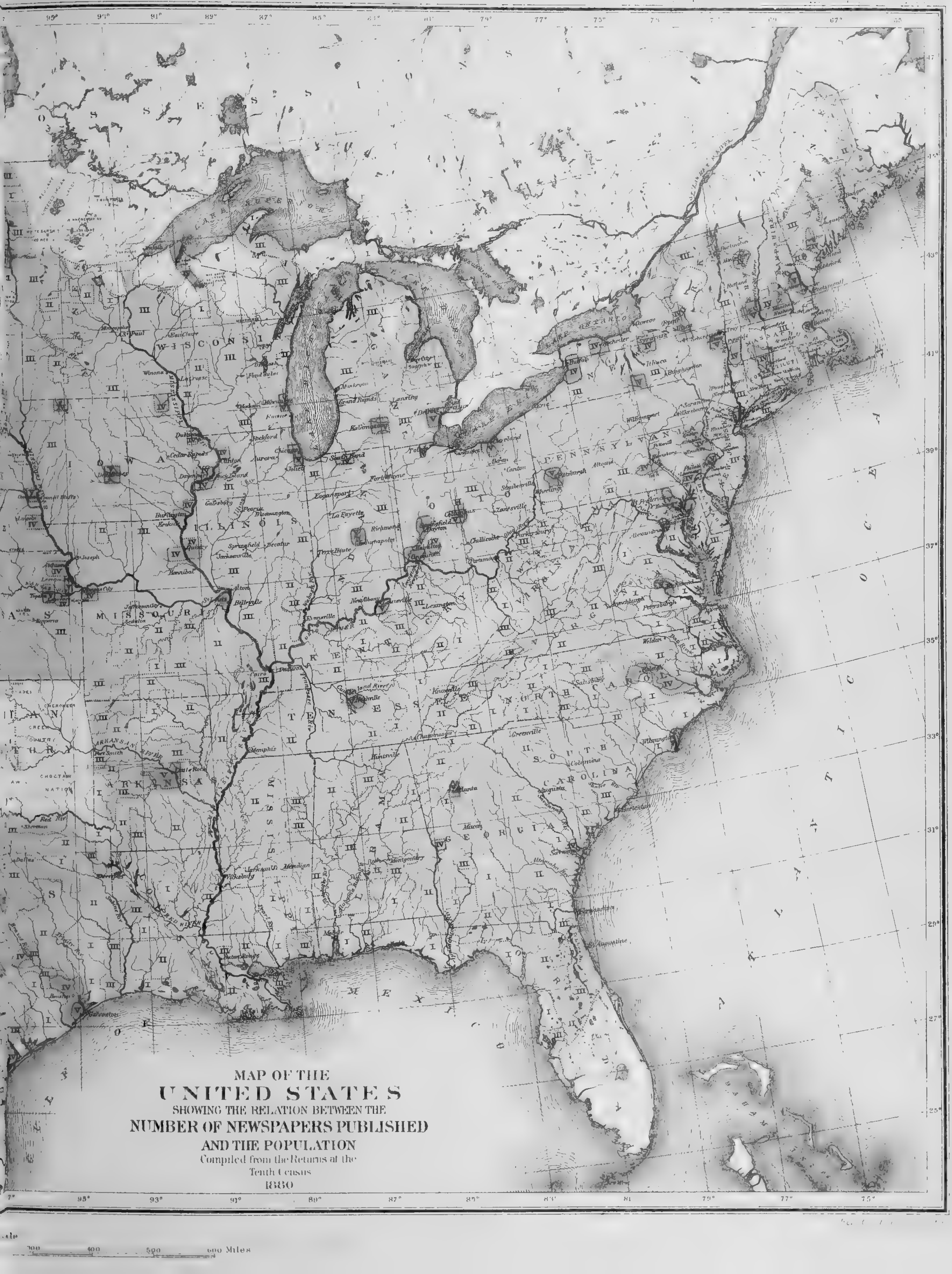

MAP OF THE
UNITED STATES
SHOWING THE RELATION BETWEEN THE
NUMBER OF NEWSPAPERS PUBLISHED
AND THE POPULATION
Compiled from the Returns at the
Tenth Census
1880

# LETTER OF TRANSMITTAL.

UTICA, N. Y., *October* 1, 1881.

Hon. FRANCIS A. WALKER,
*Superintendent of Census.*

SIR: I transmit herewith a Report upon the Newspaper and Periodical Press of the United States for the Tenth Census. The collection and preparation of the statistics of this branch of inquiry were intrusted to my care, as a special agent of the Census Office, on May 21, 1880. The report is divided into four parts, as follows:

I. A history of the newspaper and periodical press from 1639 to 1880.

II. Statistical tables.

III. A catalogue of periodical publications issued during the census year.

IV. A chronological history of the newspaper press of the United States.

The tables separately submitted are fifteen in number, and embody the essential facts and figures bearing upon the number, the character, the circulation, the earnings, the manufacture, and the comparative growth by census decades of the newspaper and periodical press. A number of minor tabular statements, illustrative of several of these features, are included in the body of the report.

The first portion of the report is an attempt to briefly sketch the history of newspaper and periodical publication in the United States, which was suggested by you as a proper complement to a report upon the present condition of this interesting industry. Private ventures in the direction of such a history have been few and unsatisfactory. The most important is Isaiah Thomas' *History of Printing*, which brings the subject down to the year 1810, covering in a very complete manner the history of printing in the United States up to that date. It was republished in 1875, with many valuable foot-notes and additions, by the American Antiquarian Society, of Worcester, Massachusetts, of which Mr. Thomas was the founder. *Journalism in the United States from* 1690 *to* 1872, by the late Frederic Hudson, of the New York *Herald*, preserves in desultory and unchronological form a great mass of important data relating to the subsequent development of the American press. In addition to the information supplied by these sources, much has been added from pamphlets, occasional addresses, scattered gazetteers, newspaper files, and personal correspondence. Notwithstanding the pains taken to complete the historical record, this portion of the work is at points incomplete and unsatisfactory; but care has been taken to supply all the statistics of any moment heretofore published respecting the publication of newspapers in the United States, and the groundwork here exists upon which hereafter may be constructed the full and complete history of the American press.

This history naturally divides itself into three periods, namely, the colonial, which carries the American newspaper to the close of the war of the revolution; the transitional, which brings the history down to that point of time when, by the perfection of printing machinery, the establishment of telegraphs and railroads, and the operation of other causes, the American press took on its present distinguishing characteristics, inaugurating the third period.

In considering the development of the press in this third era I have chosen to treat the historical data in direct association with the statistics elicited by the Tenth Census, and this consideration forms the third section of the report. The chronological method of treating such a topic is so unsatisfactory that it has been avoided, and in an appendix to the report has been gathered together, in chronological order, such data respecting the origin and growth of the press in each state and territory as was attainable.

The second portion of the report consists of a series of statistical tables.

The third section of the report, being the catalogue of the American press in the census year, has been prepared directly from the schedules forwarded to the Census Office by the several publishers, and is submitted in the belief that it is valuable, not only for current reference, but as an historical record. A complete file of the newspaper and periodical press as it existed in the census year was also collected at your suggestion, arranged alphabetically by states and territories, and also by classes, and has been deposited in the Library of Congress, where it will be properly bound, and remain a unique memorial of the periodical literature of the census year.

It has not seemed fit, in a report of this character, to enter into any disquisition upon the character, the power, or the influence of the press as a factor in American civilization. The data for deductions of that nature are supplied for the use of others. Neither has it seemed proper to color an official report with allusions to the personal services of any of the distinguished gentlemen who have done so much in the past, and who are doing so much at present, to build up the press, to develop its resources, to extend its usefulness, and to elevate its general character and influence.

In conclusion, permit me to express the obligation I am personally under to yourself and the chiefs of the several divisions of the Census Office for unvarying courtesies and facilities during the progress of this investigation. Mr. Benjamin M. Lewis, of Utica, New York, who has served as assistant agent from the beginning of the investigation, is entitled to especial praise for the zeal, care, and intelligence with which he has forwarded the work. Acknowledgment is also due of the services of many private gentlemen, and especially to the corresponding secretaries of several historical societies, and to Dr. Henry A. Homes, the accomplished librarian of the New York state library, for valuable assistance in the collection of data.

Very respectfully, yours,

S. N. D. NORTH,
*Special Agent.*

# THE NEWSPAPER AND PERIODICAL PRESS.

## FIRST PERIOD: 1639–1783.

# THE NEWSPAPER AND PERIODICAL PRESS OF THE UNITED STATES.

## FIRST PERIOD.

### INTRODUCTION OF PRINTING IN AMERICA.

The development of printing contemporaneous with that of America.

Printing in Mexico.

The history of the United States of America is contemporaneous with the real development of the art of printing. The first known specimen of printing in the English language, the presumable handiwork of William Caxton, bears the date 1471, less than a quarter of a century before the discovery of America. The progress of the art in England and on the continent was quite as slow as the progress of discovery and settlement in America. The popular demand for the services of the printing press was not marked until after the publication at Antwerp in 1526 of Tyndale's translation of the Testament, and of Luther's Bible, which followed it, in 1534. There is positive evidence that a printing press was established in Mexico as early as 1540, (*a*) and John R. Bartlett alludes to the fact that "readers familiar with early books relating to Mexico have seen mention of a book printed there as early as 1535". (*a*) He continues that in the year 1532 the viceroy, D. Antonio de Mendoza, carried printing to Mexico. The first printer was Juan Pablos, and the first book printed in the New World was that written by St. John Climacus, entitled *Spiritual Ladder to Ascend to Heaven.* (*b*) He adds the titles of ninety-three books printed in Mexico prior to and including the year 1600, and of seven books printed in Peru before 1600. These books were mostly on religious subjects, the governments strictly prohibiting printing without license; but the list also includes many works which treat of history, morals, and classics, as well as grammars and dictionaries for the use of the aborigines. A royal printing house was established in Port au Prince, on the French part of the island of Santo Domingo, as early as 1650, and several other presses existed in neighboring towns at dates more recent, but previous to the eighteenth century. There was also printing in Portuguese America previous to the opening of the eighteenth century.

Gazettes in Mexico and Peru.

Gazettes were also printed in both Mexico and Peru at a very early date; but whether anterior to the first New England newspapers is a matter of some doubt, although the probabilities favor that view. Several authorities state that they existed before the close of the seventeenth century. Dr. Robertson thus describes the contents of the *Gazetta de Mexico* for the years 1728, 1729, and 1730, printed in quarto:

> It is filled almost entirely with accounts of religious functions, with descriptions of processions, consecrations of churches, beatifications of saints, festivals, *auto da fés*, etc. Civil or commercial affairs, and even the transactions of Europe, occupy but a small corner of this monthly magazine of intelligence. (*c*)

Even such a gazette, it should be added, was superior to anything published in the colonies until near the time of the revolution.

---

*a* Thomas' *History of Printing*, Appendix A. The references in this report are to the second edition of Isaiah Thomas' *History of Printing in America*, published in 1874 as volumes V and VI of the *Transactions and Collections of the American Antiquarian Society*, of Worcester, Massachusetts, under the joint editorial supervision of Samuel F. Haven, Nathaniel Paine, and Joel Munsell.

*b* *Ibid.*, vol. i, p. 367.

*c* In Spanish America the first newspaper was founded in Chili in 1712. * * * * In Mexico the oldest newspaper is *El Siglo XIX*, which is published daily, and supports liberal principles. * * * * In the present British-American colonies the credit of establishing the earliest newspaper belongs to the island of Barbadoes, where Keimer founded the *Barbadoes Gazette* in 1731. Thirty-one years afterward, in 1762, appeared the *Barbadoes Mercury*, which continued till 1845. In the other British West India islands newspapers were introduced as follows: Grenada, 1742; Antigua, 1748; St. Kitts, 1748; Dominica, 1765; St. Vincent, 1784. In July of the latter year the *Bermuda Gazette* was founded. In Canada the Quebec *Gazette* appeared in 1765, and the Montreal *Gazette* in 1775. In Nova Scotia the Halifax *Gazette* appeared in 1751, but was not firmly established till 1760. In New Brunswick two or three newspapers were published at St. John in 1782.—Appleton's *American Cyclopædia*.

First press in Massachusetts.

First books written in the colonies.

The founders of the colony of Massachusetts arrived at Salem in 1628, and in January, 1639, the first printing was done in what is now the United States. (*a*) Previous to the establishment of this first press at Cambridge a number of manuscripts originating in the colonies had been sent to England for publication, and there is evidence that this practice continued for some eighty years afterward. (*b*) Moses Coit Tyler makes the first book written in America Captain John Smith's *True Relation of Such Occurrences as might have Happened in Virginia*, etc., which was composed in 1607 and published in London the following year. The second book written in the colonies was Smith's letter to the English proprietors, and the third his *Map of the Bay and the Rivers*, which was not printed until 1612, at Oxford. In 1610 Sir Thomas Gates wrote *A True Repository of the Wrack and Redemption of Sir Thomas Gates*, which he sent to England to be printed. George Sandys, also of Virginia, wrote a translation of *Ovid*, which was sent to London for publication in 1626. There are records of a number of other volumes, chiefly of a religious character, which were written in this country and sent to England for publication prior to the establishment of the first press at Cambridge, in 1639. Thomas says in his *History of Printing in America* that "from a variety of causes it happened that many original works were sent from New England—Massachusetts in particular—to London to be printed. Among these causes the principal were: 1, the press at Cambridge had generally full employment; 2, the printing done there was executed in an inferior style; 3, many works on controverted points of religion were not allowed to be printed in this country".

As a matter of fact, up to this period, and for a long time after, there was almost no demand for printed matter in the colonies, and very few London publications of any character were sold in this country. The first regular bookseller of whom there is any account was Hezekiah Usher, who is not known to have been in business earlier than 1652. The British books that found their way to the colonies were generally kept in shops with other wares. Benedict Arnold sold drugs and books. Later in the development of the colonies the occupations of printer, bookbinder, and bookseller were generally combined in one.

Printing in Virginia.

Although there was considerable culture and learning among the early settlers of Virginia, and several of them were book writers, as we have seen, the feasibility of doing their own printing does not appear to have occurred to any one in the colony until 1681, seventy-four years after the first settlement was made. Some explanation of the delay clearly lies in the celebrated declaration of Sir William Berkeley, governor of the colony, in his answer to the inquiries of the Lords of the Committee for the Colonies in 1671:

> I thank God we have not free schools nor printing, and I hope we shall not have these hundred years; for learning has brought disobedience and heresy and sects into the world, and printing has divulged them and libels against the government. God keep us from both.

The licensing of printing in the colonies.

The pious protest of the governor against "free schools and printing" nearly forty years after the founding of Harvard university and the establishment of the first printing press in the younger colony of Massachusetts has been held to illustrate the difference between the cavalier civilization of Virginia and the Puritan civilization of New England. When the first printing press was introduced into Virginia, in 1681, its adventuresome proprietor, one John Buckner, (*c*) was promptly called before the governor and council and ordered to enter into bond "not to print anything hereafter until his majesty's pleasure shall be known". This was an actual suppression of the press, and thus differed materially from the regulation of it by the appointment of licensers, which had in the meanwhile been sanctioned by law in Massachusetts. But it was simply the carrying out of royal instructions, and therefore not a test of Virginia civilization. The licensing of printing was still in vogue in the mother country, nor was it formally abandoned there until 1694, on the accession of William and Mary. It continued, even after the revolution of 1688, to be assumed by the crown as one of the rights of the prerogative in all the American colonies, as claimed and exercised under the Stuarts. The royal governors

---

[a] The funds for the purchase of this press in England were contributed or collected by the Rev. Joseph Glover, a wealthy dissenting clergyman. The press appears to have been particularly provided for the benefit of the academy then founded there, and also for Harvard college, which was founded soon after. The records of the latter institution contain this entry: "Mr. Joss Glover gave to the college a font of printing letters, and some gentlemen of Amsterdam gave toward furnishing of a printing press with letters forty-nine pounds, and something more." Mr. Glover died on the voyage across the Atlantic in 1638, and the press was set up and managed for ten years by one Stephen Daye, who was employed by Mr. Glover in England to come to this country and serve in the capacity of a practical printer. The first press remained at Cambridge "upward of sixty years", and for about thirty years printing in the British North American colonies was exclusively conducted in this town. The first publication from this press was *The Freeman's Oath*, which bears the imprint 1639; the second was an almanac; and the third, printed in 1640, was *The Psalms in Metre, Faithfully Translated for the Use, Edification, and Comfort of the Saints in Publick and Private, especially in New England*, crown 8vo., 300 pages. Thomas gives a list of nine books or pamphlets known to have been published from this press while it continued under the management of Daye. He adds that "many others were printed by Daye, but no copies of them are now to be found".

[b] Thomas' *History of Printing*, vol. i, p. 15.

[c] *Ibid.*, vol. i, p. 331.

of the American colonies under William and Mary were vested with the censorship over the press. (*a*) The instructions to these governors read as follows, as quoted from the commission of a New York governor:

> And forasmuch as great inconvenience may arise by the liberty of printing within our province of New York, you are to provide by all necessary orders that noe person keep any press for printing, nor that any book, pamphlet, or other matters whatsoever bee printed without your especial leave and license first obtained. (*b*)

Mr. Bancroft insists that, in spite of these instructions, "the press generally was as free in America as in any part of the world." To accept this view we must be convinced that the imposition of a license does not work a greater comparative repression in a country crude and unsettled, without expert mechanics, and with few ambitious of the printer's honors, where the art of printing has not yet obtained a footing, than in countries where, under even severer discipline, it had yet made steady headway for more than a century. At the same time it is to be borne in mind that the press sprang up in several of these colonies while these instructions were yet nominally in force, and in practical defiance of them. Yet, as long as the British authority remained unchallenged, there was continual interference with the press on the part of the government, and notably in the three colonies of Massachusetts, Pennsylvania, and New York, where it had taken hardiest root. No single event in the colonial annals of the continent attracted more general attention, both in America and England, than the trial of John Peter Zenger, publisher of the New York *Gazette*, in 1735—thirty years later than the establishment of the first American newspaper—for the publication of "false, scandalous, malicious, seditious libels" against the royal government of the colony of New York; a trial in which the government persisted, by information, after the grand jury had refused to indict; a trial in which all the authority of the crown, all the weight of the court, and all the power of the English common law of libel failed to coerce a verdict of guilty from the jury. The trial of Zenger was the first real struggle of the colonial press for freedom of speech against the government, and laid the deep and broad foundation of the liberty of the press in America. But it was twenty years later (January 25, 1755) that the Rev. William Smith, first and last provost of the College of Pennsylvania, was arrested by order of the Pennsylvania assembly and sent to jail, where he remained six months, for translating and publishing in one of the German newspapers a pamphlet reflecting on the government. It was in 1771 that Thomas was annoyed by the Massachusetts governor and council very much as Zenger had been in New York, except that he was not imprisoned, and the attempt to proceed against him by information was abandoned on account of the popular opposition; and in 1769 General Alexander McDougall, of New York, reputed to be the author of a pamphlet, privately printed, which the assembly of that colony resolved to be a "false, seditious, and infamous libel on the government", was arrested, imprisoned from December to April, when the grand jury found an indictment against him, and was finally brought before the assembly and required to answer whether he was guilty or not. McDougall refused to answer, on the ground that he was under indictment for the alleged offense and was entitled to an unprejudiced trial before a jury of his peers. He was finally adjudged guilty of a breach of the privileges of the house, and committed again to prison, where he remained several months. The annals of the colonies are full of somewhat similar instances of the severity with which the authorities of this country, in imitation of those of Great Britain, dealt with the printers and those who participated in political discussion through the instrumentality of the newspaper or printed page.

The trial of Zenger.

The only direct legislation of Great Britain against the colonial press was the stamp act of 1765, aimed quite as much against other pursuits as against printing, but more direct in its influence upon the newspaper press than upon any other colonial enterprise. A considerable number of the newspapers, particularly in the south, were driven to suspend publication until the stamp act was repealed. More opulent but equally cautious publishers, when the act was to take effect, dressed their journals in mourning, and for a few weeks omitted to publish them. Others, less cautious, but apprehensive of the consequences of publishing newspapers without stamps, omitted the titles altogether, or altered them as an evasion. Those publishers who continued to print without reference to the stamp took a risk which proved how thoroughly imbued they were with the spirit out of which grew the revolution. The stamp act was but a temporary check to newspaper growth; but it must be regarded as the manifestation of a spirit which these early printers knew to be ever present, the spirit to coerce the press into more circumspect allusion to the causes of friction between the colonies and the mother country. The colonial governments in the colonies of Massachusetts and New York also resorted to stamp acts as a means of raising revenue. Such an act was passed in Massachusetts in 1755, and a similar act by the assembly of New York in 1756, which was continued until January, 1760. During this period the papers then published in that colony sometimes appeared with stamps and sometimes without them. These acts were plainly modeled upon the English parliamentary law, which then bore so heavily upon the press of the mother country. The fact that there were but two, and that they lasted so short a time, may be accepted as the evidence that the American colonists early recognized the press as an instrument of popular education and civilization, which was entitled to exemption from the burdens of taxation.

The stamp act of 1765.

Colonial stamp acts.

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*a* Bancroft's *History of the United States*, vol. ii, p. 279, edition of 1876.

*b* *Documents relating to Colonial History of New York.* See Instructions to Governors Dongan, Sloughter, Fletcher, Bellomont, and Hunter, 1686 to 1709.

It is worthy of remark that since the revolution only two American states have attempted a direct tax upon the products of the press. In 1785 the legislature of Massachusetts passed an act imposing duties upon licensed vellum, parchment, and paper, and laid a duty of two-thirds of a penny upon newspapers and a penny upon almanacs, which were to be stamped. This act became at once so odious that it was repealed before it went into effect, but in the July following another act was passed which imposed a duty on all advertisements inserted in the newspapers of the commonwealth. This latter enactment was denounced by Isaiah Thomas, then publisher of the Worcester *Spy*, and by many of his contemporaries, as placing an improper restraint upon the press, and in consequence of it he discontinued the publication of the *Spy* during the two years in which it was in operation. One of the sources of revenue in the state of Virginia as recent as 1848 was a tax on newspapers, the revenue from which in that year amounted to $355. (*a*)

## MECHANICAL DIFFICULTIES ATTENDING THE INTRODUCTION OF PRINTING IN AMERICA.

Printing presses.

It is difficult at this distance in time to realize the mechanical obstacles which retarded and embarrassed the introduction of printing in colonial America. Everything in the shape of materials was of necessity imported from the mother country, at an outlay which must be made at the risk of small and doubtful return. The earliest printing press known to have been manufactured in this country was made for Christopher Sower, jr., the Germantown printer, in 1750; but it was not until the eve of the revolutionary war that good printing presses were manufactured as a business in the colonies. In 1775 such presses were made in Hartford, Philadelphia, and elsewhere, modeled almost wholly on the English press; and after that date the importation of hand presses gradually ceased. Thomas says that the great improvements perfected by Adam Ramage in the prevailing press led to the entire cessation of importation as early as 1800; (*b*) but, as a matter of fact, the Ramage presses, while they were superior to anything previously built in this country, were wholly inadequate for satisfactory newspaper work, and his early presses were so small that only one-half of one side of a sheet of the ordinary dimensions of that period could be printed at one time, and four distinct impressions were necessary to print both sides of a small newspaper. (*c*) It was not until the beginning of the present century that iron was substituted for wood as the principal material in the construction of American presses. The most successful of these later inventions was the Columbian press, invented by George Clymer, of Philadelphia, about 1817, which certainly indicated the greatest improvement ever shown in one machine for hand printing, and many hundreds of which, with important later modifications, are still in use throughout the United States. Self-acting or machine printing presses were totally unknown before the present century; and, for many years after their invention and use in England, all that were used in this country were imported from Great Britain.

Paper.

Paper was also of necessity wholly imported until 1700, and chiefly imported for nearly one hundred years thereafter. The first paper-mill in the colonies was built in 1690, by William Rittenhouse, at Germantown, Pennsylvania, with the assistance of William Bradford, then the only printer in the colonies southward or westward of New England. Ten years later this little mill was carried away by a freshet, and the stone mill, erected in its stead soon after, continued to manufacture paper until 1798, under the auspices of the same family. How far in the enterprise of paper-making William Bradford was in advance of the country generally may be inferred from the fact that the first paper-mill in New England—a region which was settled by the English a half century before Pennsylvania—to wit, that at Milton, Massachusetts, was not erected until 1730, about forty years after the one in Pennsylvania. (*d*) The whole history of this first paper-mill has been carefully collected by Horatio Gates Jones in his *Historical Sketch of the Rittenhouse Paper Mill.* In 1770, according to Munsell, (*e*) there were forty paper-mills in New Jersey, Pennsylvania, and Delaware, which were supposed to make £100,000 worth of paper annually. At the breaking out of the revolution there were three small paper-mills in Massachusetts, and one in Rhode Island out of repair. (*f*) The paper these mills could make fell far short of the demand, and much of it was miserably manufactured, it being often taken from the mills wet and unsized. Rags were scarce, and were collected and transported with great difficulty. The manufacture of paper was further checked by the great difficulty of finding skilled workmen to carry it on. The paper-makers, like the printers, were long in increasing, because the uncertainties attending the business were so great as to deter men from undertaking it, either as a trade or with a view to the investment of capital.

Paper-mills at the revolution.

Type.

Still more important, as a repressive influence, was the cost and difficulty of securing type for printing enterprises. It was not until 1772 that a regular type foundry was established in America, although there had been at least two previous unsuccessful efforts in that direction—one in Boston, about 1768, by a Mr. Michelson, from Scotland, and one in Connecticut, a few years later, by Abel Buell. (*g*)

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*a* Munsell's *Typographical Miscellany*, Albany, 1850. *b* *History of Printing*, vol. i, p. 36. *c* *Cyclopedia of Printing*, p. 359.

*d* John William Wallace on Bradford. *e* Munsell's *Chronology of Paper Making*, p. 30. *f* Munsell's *Chronology of Paper Making*, p. 31.

*g* I have yet to notice an exceedingly interesting fact in regard to the history of newspapers and printing in Connecticut—a fact which seems not to be widely known. It is, that the first metallic type cast on this continent was the work of an ingenious citizen of this

The first type foundries.

Christopher Sower, jr., already mentioned as the first manufacturer of a printing press in America, established a type foundry at Germantown in 1772. This was eighty-four years after the first venture of the father, on the same spot, in the manufacture of paper. The materials for this foundry were imported from Germany, as well as a workman to make use of them. The first font cast here was a German pica for the printing of a Bible, a fact significant in more ways than one. About the time the revolution broke out a second type foundry was established at Germantown by one Jacob Bey, who had been a workman in the original American foundry. The type foundry established by Benjamin Franklin in 1775 was the third in the colonies, and the last until the close of the revolutionary war. It was under the management of B. F. Bache, Franklin's son-in-law, and was equipped with all the materials needed for making Greek, Hebrew, or Roman type; but the small demand for types led to its practical abandonment before it contributed substantially to the supply of types in the country at the time the revolutionary war was in progress. It was a number of years after the conclusion of that war before the United States was able, from its own manufactories, to supply the better part of the increasing demand for types. (*a*)

Ink.

The printing ink used in this country for many years was almost wholly imported from Europe. Thomas records that Rogers & Fowle, of Boston, who were engaged in the book and newspaper printing business in 1750, were the only printers in the colonies who at that time could make good ink. He adds that "in the first stages of printing printers made their own ink and types; but the manufacture of types and ink soon became separate branches of business. Most of the bad printing in the United States, particularly in New England, during the revolutionary war was occasioned by the wretched ink and more wretched paper which printers were then under the necessity of using". (*b*)

These were the mechanical and material obstacles in the pathway of the rapid introduction of the art of printing in the American colonies. They were of a character to check and restrain a movement in that direction, which during the entire century previous to the American revolution had been undergoing remarkable acceleration in Great Britain. The people of that country were just beginning in this century to discover the possibilities and the capabilities of the printing press. Books were multiplying, periodical publications were becoming an accepted element in the current civilization, and the masses of the people were beginning to get the benefits of the art that has done more than all other arts to level and destroy the distinctions of class and caste.

## SMALL DEMAND FOR BOOKS AND NEWSPAPERS.

The colonists not a reading people.

It is an accepted fact that the development of printing in England and on the continent during the three-quarters of a century preceding the American revolution was marvelous in degree and in kind, notwithstanding repressive and increasing government taxation, and found no counterpart on this side of the ocean. The purely mechanical obstacles which have been summarized were the least important causes of this slow progress. They were obstacles which the inventive enterprise of the colonists would have overcome if the effort in that direction had been stimulated by the promise of adequate reward, but

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(Middlesex) county; I mean Abel Buell, of Killingworth. He petitioned the general assembly in 1769 for aid to establish a foundry, for the reason that he had discovered the art of letter founding, which he said in his Memorial was known but to few in Europe. He asked for assistance, "either by lottery or in some other way." He added that, as a specimen of his abilities, he had caused his Memorial to the general assembly to be impressed with types of his own manufacture. This document, thus impressed, may be seen in the state library at Hartford. It is a very excellent specimen of typography, and but little inferior to the best of the present day.

A committee of the assembly took the subject into consideration, and reported, in regard to Buell's invention, that they "are fully convinced that he hath discovered the art of letter founding". They proposed to let him have £100, "provided he doth not depart from this colony to inhabit elsewhere." Buell was required to give bonds in the sum of £200 that he would return the money loaned by the general assembly after the lapse of seven years.

It does not appear, however, that the foundry was ever erected. In the Yale college library, in connection with this subject, are letters from Benjamin Yale, of Killingworth, of the date of Buell's petition to the legislature, addressed to President Stiles, the head of the college. Yale solicits the assistance of President Stiles in behalf of Buell, for the reason that he has "done a great thing for his country in learning the art of compounding type metal and casting type". He cautions that literary functionary not to let the secret communicated be known or hinted. He adds: "If you want to have a set of types, you must either procure him some old types—or if you could get a pound or two of bismuth—I think all the metals of which types are composed are to be had in America, unless it be bismuth, and I very much suspect that is likewise." He also informs President Stiles that there were at the time (1769) "near 40 presses in America; that a set of types cost £300 sterling, and they do not last more than seven or eight years. The saving to America [he continues] will be considerable annually".—Address delivered before the Connecticut Editorial Association, June 20, 1855, by James F. Babcock, of the New Haven *Palladium*.

*a* David Bruce, in a history of type founding in the United States, says:

> The history of type founding as a business dates no farther back in this country than 1798, strictly speaking. It is true the introduction of various parcels and portions of type-founding implements dates almost coeval with the introduction of the earliest printing establishment, simply for the purpose of supplying sorts to particular offices; but type founding, as a self-sustaining business, did not exist in this country prior to the date above given, when Messrs. Binney & Ronaldson established themselves successfully in Philadelphia. Their struggle for existence in the then limited condition of printing in the United States was indeed very severe, and had not the state of Pennsylvania generously donated them the sum of $5,000 it is doubtful if they could have survived the difficulties they encountered

*b* The paper and ink used by John Foster, "the first printer of London" (as he is designated on the stone which marks his grave in the Dorchester burying-ground), have stood the test of time much better than the materials used by our printers a century later. Some of his election sermons may be called elegant specimens of printing. Like impressions would do no discredit to our best printing concerns.—Munsell.

that promise was altogether lacking. The colonists were not a reading people. Franklin bears striking testimony to this fact in his autobiography:

> At the time [he writes] I established myself in Philadelphia—1723—there was not a good bookseller's shop in any of the colonies to the southward of Boston. In New York and Philadelphia the printers were indeed stationers, but they sold only paper, almanacs, ballads, and a few common school-books. Those who loved reading were obliged to send for their books to England.

They were far removed from the incentives and the influences which contributed to make a demand for books and newspapers in a thickly and thoroughly settled country like England, and they were not only isolated, but they had a greater concern and interest in what was going on in the mother country than in the affairs of a neighboring colony. Thus it happened that long after the making of books had begun in the colonies those few among the settlers who cared at all for books continued to prefer the volumes manufactured in England and sent across the seas, at prices at least as reasonable as those for which the American printers could afford to vend the products of their presses.

Newspapers.

It was with newspapers as with books. Those who cared for them at all preferred the sheets which came across the water, and were wholly taken up with the details of English and European politics. The early American newspapers, exhibiting that instinct which judges so accurately of the wants of the masses, and is to-day a striking characteristic of the newspaper publisher of the United States, were almost wholly filled with the details of foreign happenings. The people of one colony heard from England with greater frequency, and generally with greater interest, than they heard from another colony. We need no further explanation than is conveyed by these facts of the constant complaints of the early New England editors that their efforts to supply the colonists with the latest news were rewarded by the failure to receive in return the money expended to that end. The circulation of an American-made book, pamphlet, or newspaper was necessarily limited almost wholly to the town in which it was published. Mails were infrequent and irregular; communities were widely separated as well as sparsely settled; and to venture into the printing business under such circumstances was to be a devotee or a fanatic, and there were not many such among the men and women who laid the foundations of the American republic. The scarcity of practical printers among the colonists has attracted the attention of historians. Those who knew the trade had learned it in England, and for years after printing presses were introduced it continued to be necessary to send across the waters for printers to man them. When Governor Fletcher tempted Bradford to New York, in 1693, he did it because he could find no printer in all that city, (*a*) and there were several instances in which rewards were offered to tempt printers into the southern colonies.

## THE FIRST STIMULUS TO PRINTING IN AMERICA.

Gradual change in the position of the press.

As the questions out of which the revolution sprang began to engross the attention of the colonists the conditions we have related underwent a rapid and complete revolution. It came to be seen that the several colonies had a common cause, and that the fate of that cause transcended in interest and importance anything that might happen on the other side of the water; that the press was a most valuable and indispensable auxiliary of this common cause, and that it was the instrument most potential to secure unity of opinion and concert of action among the colonists. Men not printers, and not identified with the business in any way, were brought into closest relations with the press by this political excitement, and printing thus had the advantage of an artificial stimulus during the years preceding the outbreak of the revolution, patriotism taking the place of profit as an incentive to new enterprises.

Effect of the revolution upon American printing.

The American people had just begun to realize the significance and importance of the press as the revolution broke upon them. They found themselves at war with the country upon which they had relied for everything in the shape of printed matter and printing materials, with no adequate provision for supplying themselves with the instrumentalities for producing their own printed matter. The specimens of the art which came from the colonial presses during the continuance of the war gave abundant evidence of the primitive appliances and the crude and unskillful workmanship. But the revolution was of incalculable service to the art in this country in two ways. It educated a generation of readers, and it evolved a generation of mechanics ready to supply those readers and quite as skillful as any of their English rivals in the invention of improved processes and the execution of good work. For a long period after the termination of the revolutionary struggle the lot of the American printer, in whatever department it was cast, was not an easy one. Those who could afford to buy books in any quantity still preferred the book of English manufacture, and venture after venture in the making of books of a higher grade than ordinary met with disastrous failure. The constituencies of the few newspapers which proved their right to live, by surviving the cruel ordeal of the war, continued to be small and unresponsive, and the utility of the periodical press as a medium for advertising had not yet been discovered.

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*a* The following entry appears on the council minutes of the province of New York:

*Resolved in Council*, That if a Printer will come and settle in the city of New York for the printing of our acts of Assembly and Publick Papers, he shall be allowed the sum of £40, current money of New York, per annum for his salary, and have the benefit of his printing besides what serves the publick.
March 23, 1693.—Council minutes, vi, 182.

Arriving in New York, Bradford was immediately appointed royal printer.

The prices paid for paper and printing material continued to be ruinously high, and men who had passed the better part of their lives in the business were compelled to confess that the result was complete failure in the pecuniary sense, and that it had been a life of hard work, constant anxiety, unnumbered embarrassments, and scant rewards. Of course there were occasional exceptions. In his autobiography, Benjamin Franklin, discussing the circumstances which induced him to establish a new newspaper in Philadelphia, speaks of the only journal then existing in that city, which was Andrew Bradford's, as "a paltry thing, wretchedly managed, and yet profitable to him". The well-known antipathy between the two great Pennsylvania printers must be remembered in considering the import of this criticism. The fact that Bradford had found the printing business profitable is established. Franklin speaks of him later on as "rich and easy, and caring little for the business". He undoubtedly made the greater portion of his money out of the general printing business rather than out of the newspaper. Franklin himself, notwithstanding the adverse circumstances under which he began the business for himself in Philadelphia, by rigid economy and indomitable industry very soon succeeded in paying for his establishment and amassing a fairly comfortable competence. But even Franklin turned very early from the exclusive attention to his printing office to supplement his earnings by the office of clerk of the colonial legislature, and later by that of postmaster. These and some other exceptions to the general rule do not alter the truth of the statement that the occupation was one of hardship and penury, "the business of the printer," to quote from Franklin's autobiography again, "being generally regarded as a poor one."

## THE RELIGIOUS AND THE POLITICAL PAMPHLET.

Colonial pamphlet literature.

The characteristic literature of the early colonial period, indeed, was neither the book nor the periodical, but that intermediary form known as the pamphlet. The pamphlet form was still a popular though no longer a prevailing method of publication in England, and it was natural, in a new and rude country, for the literature to take this fragmentary and transient shape. The colonists were not equal to book writing or book making, and they had no need for newspapers. Their demands upon the printing press were few, and were made at distant intervals for the most practical of purposes. Thus, while the pamphlet met their wants and constituted the bulk of their literature, its most common appearance at the beginning was in the shape of the almanac. The second issue from the first Cambridge press was an almanac, and there are more almanacs than all other classes of pamphlets combined, excepting only sermons, in the bibliography of colonial literature. Some of these almanacs met with enormous sales for that day, sixty thousand copies of Ames' famous almanac, printed by John Draper, being annually sold in the New England colonies. (*a*)

The bibliography of the epoch (*b*) reveals the fact that the great bulk of the publications of the early printing presses, other than almanacs, were in pamphlet form; that is to say, they were rude, unbound publications, of less than one hundred pages each, generally not more than twenty-five to fifty, and they arrange themselves into two grand groups—the religious and the political tract or pamphlet. In the earlier days of colonial settlement the religious pamphlet naturally predominated; it was in line with the prevailing tendencies of the colonial mind, and consisted of the publication of a famous sermon or a contribution to some of the many prevailing religious controversies, an exhortation to severer living, a denunciation of some prevalent vice, or a tract or waif sent out upon its proselyting mission. There exists a list (*c*) of three hundred and eighty-two of the publications of Cotton Mather (believed to be far from complete), nearly all of which were single sermons, controversial letters, or tracts of a theological complexion. The list of the publications of Increase Mather includes eighty-five titles, principally sermons or similar tracts. The fecundity of these celebrated divines was exceptional, but the direction of their efforts was not exceptional.

As the colonies progressed toward their political destiny the religious pamphlet, while it continued important, was relegated to the secondary position, and the tract became the most common method of intercommunication among the men who were profoundly concerned in the problem of the political destiny of the American colonies. These tracts or pamphlets usually took the form of letters, and were signed by fictitious names. They formed, indeed, the great bulk of the colonial literature immediately preceding the revolution, and are almost the only feature of it which is worthy of recognition as forming a distinctive colonial literature. Miscellaneous writing continued to be either a faint reflection of the cultivation of the old world or nondescript in its character and utterly unworthy

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*a* Thomas, i, 126.

*b* The second edition of Thomas' *History of Printing in America* contains in an appendix a catalogue of publications prior to the revolution in what is now the United States. There are in the list 7,683 entries of titles, of which number nine-tenths, at least, are of pamphlet or tract publications. This catalogue was the work of Dr. Samuel F. Haven, jr., of Worcester, Massachusetts, one of America's most accomplished antiquarians. The work of compiling this catalogue of titles, starting from the basis of memoranda left by Isaiah Thomas, was not completed at the time when Dr. Haven dropped his antiquarian work in response to the call of his country, in whose cause he sacrificed his life. The editors of the second edition of Thomas' *History* published the catalogue just as Dr. Haven had left it. Thus it happens that the late Joseph Sabin, in his *Bibliography of American Bibliography*, describes this list of ante-revolutionary publications as being "far from complete", and adds, with truth, that "a reference to Sabin's *Dictionary of Books relating to America* would have furnished many titles now entirely omitted". Careful comparison of the entries in this list and in Sabin's *Dictionary* reveals several hundred titles omitted in the former. As a rule, they are of the tract or pamphlet order, and of unpretentious character.

*c* *Life of Cotton Mather*, by his son, Samuel Mather. Boston, 1729.

in its attempts at originality, a conclusion to be drawn after considering the industrious efforts of Moses Coit Tyler to rescue early American literature from oblivion and elevate it to permanent dignity. (*a*) The type of fragmentary literature represented by the political pamphlet was not only developed out of all proportion to every other form of literature except the religious in colonial America, but exhibits in its best aspects the tendencies and peculiarities of the American mind, and at the time took immediate rank with the cultured writing of European statesmanship. This was before an American book, outside of politics, had ever been read or heard of on the other side of the Atlantic. (*b*)

The pamphlet era of colonial literature has been spoken of as the formative one. This form of publication was not chosen for the reason that it was the best, but because it was the only form available. As the newspaper developed in importance the pamphlet slowly but surely made way before its onward march. The burden of the publication of the pamphlet rested solely upon the author, and he could not, and did not, look for reimbursement by sales. Its circulation was correspondingly limited, and it was, moreover, necessarily accidental, as it was without organized and regular methods of reaching the hands of those to whom it was addressed. These methods the newspapers at once supplied, and the amalgamation of the political pamphlet and the newspaper became speedily complete, adding to the importance of each. They gave publicity to the views of the political writers of the time without involving either them or the newspaper publishers in expense on account of them, and came in time to be an expected and a distinguishing feature of the periodical press. The latter crowded the pamphlet out of the field, and has held its own against it ever since, as it is right and natural that it should. Undoubtedly the pamphlet, with its popularity, stimulated the printing industry of the colonial epoch, and was a great instrumentality in preparing the way for the more rapid establishment of newspapers. As the colonies approached the verge of the revolution the number of political writers increased rapidly, but their writings found circulation almost entirely through the medium of the periodical press.

## THE FIRST NEWSPAPERS.

*Publick Occurrances.*

The first English newspaper printed in America was issued from a Boston press in 1690. It is a significant commentary upon the subsequent rank growth of periodical literature in the United States that this pioneer paper was immediately suppressed by the authorities of Massachusetts. It was entitled *Publick Occurrances, both Foreign and Domestick*, and, for the reasons named, never reached the dignity of a second number. (*c*) It is doubtful, therefore, whether the real date of the birth of American journalism is not fourteen years later, as given by Thomas, because of the establishment of the Boston *News-Letter* on April 4, 1704. (*d*) It is worthy of attention that it was during the series of years in which the printing press was gradually getting foothold in the American colonies that the determined and finally successful effort to

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*a* *A History of American Literature*, 2 vols., 1676–1765. By Moses Coit Tyler: 1879.

*b* In the early schools of the colonies the American mind was soon educated to a point in the science of politics much in advance of the contemporary culture of Europe, and it produced, along with this intellectual progress, a literature the vigor and even sometime elegance of which became the admiration of some of the first publicists and statesmen of England. Of course the remains of this early literature are very scant. Before the revolution of 1776 few books were printed in America, and most of the school-books came from England. The political literature of the colonial era was necessarily or conveniently tractarian, taking the form of pamphlets and letters and other comparatively light and perishable forms of the press; yet many of them were perishable only in the conventional sense, and the controversial pamphlets of colonial politics, the prints of Franklin and Witherspoon and Price, the tracts of Adams, the *Farmer's Letters* of Dickinson, and the *Common Sense* of Paine take rank with a literature that in more modern times has been thought worthy of preservation in the best boards of the binder's art, and illuminates the libraries of our scholars. It would be interesting to collect these productions of the colonial period, in a sense more extraordinary than that of reclaiming strays and fugitives in the general literature of our country. The form of literature, so far as print and paper are concerned, is very insignificant, and in some sense the distinction between the pamphlet and book is merely mechanical; yet this minor literature (using the comparative term as only that of the printer's art) attaches some peculiarities which give it frequently a character *sui generis*. This is remarkably so in one form of literature even lesser, mechanically, than the pamphlet, and one which was formerly much in fashion in our politics. The modern facilities of the press and the multiplication of its uses have been the occasion of the decay of what at one time figured largely in the communication of ideas, and especially those concerning political affairs. We refer to the elaborate letter, or epistle, in times wherein the means of miscellaneous print were less abundant and men were wont to compose long dissertations in communications to their friends, designed, perhaps, to go the rounds of a circle of acquaintances. * * * * Beyond the letters of Franklin but little has been rescued from what was almost the exclusive department of our literature in colonial times. Much of it must have been destroyed in the perishable form of manuscript, or has passed beyond the region of discovery. * * * * It is to be observed that America has reversed that order which has commonly been observed in the productions of a nation's genius. As a general rule of history, the poet precedes the statesman, or, in more general phrase, the arts are anterior to political science. This rule we see remarkably reversed in the intellectual development of America.—Tyler's *History of American Literature*.

*c* Considerable doubt has been expressed regarding the genuineness of the only copy of this paper known to be in existence, which is in the State Paper office in London. That such a paper was actually published at the date given would seem to be established beyond peradventure by the references to it in the colonial annals of Massachusetts.

*d* The second newspaper printed in the colonies was a republication of an English gazette in 1696 in New York by order of the royal governor. The circumstance is thus detailed by Governor Fletcher in a letter to the lords of trade, dated May 30, 1696: "A ship belonging to this place from Madera happily met at sea that vessel which had your Lord's packet for Virginia, & brought me a Gazett which gave me an account of that horrid conspiracy against His Majesty's Sacred person. I caused it to be reprinted here, & proclamation was issued for thanksgiving thro'out the province."—*Documentary History of New York*, iv, 150.

secure the abolition of the censorship of the press was in progress in the mother country. (*a*) The general system of censorship was established in England by a decree of the star chamber, dated June 11, 1637, which remained in force during the civil war, and was confirmed by act of parliament in 1643. It was against this act that Milton wrote his *Areopagitica, a Speech for the Liberty of Unlicensed Printing.* The act expired in 1679, and thereafter any person might print, at his own risk, a history, a sermon, or a poem without the previous approbation of any public officer. But the courts continued to hold that this liberty did not extend to gazettes, and that by the common law of England no man not authorized by the crown had a right to publish political news. This view of the common law was accepted without dispute in the colony of Massachusetts. Four days after the appearance of the *Publick Occurrances* it was spoken of in the general court as a pamphlet which came out "contrary to law, and contained reflections of a very high nature", (*b*) and it thereupon strictly forbade "anything in print without license first obtained from those appointed by the government to grant the same". (*c*) This short-lived pioneer of the American press was published by Benjamin Harris "at the London coffee-house", and was printed for him by Richard Pierce on three pages of a folded sheet, one page being blank, two columns to a page, and each page being 7 by 11 inches. It was intended to appear monthly, and the journalistic notions of its projector were fully set forth in the following prospectus:

Censorship of the press.

Prospectus of the "*Publick Occurrances.*"

> It is designed that the Countrey shall be furnished once a month (or if any Glut of Occurrences happen, oftener) with an account of such considerable things as have arrived unto our Notice. In order hereunto, the Publisher will take what pains he can to obtain a Faithful Relation of all such things; and will particularly make himself beholden to such Persons in Boston whom he knows to have been for their own use the diligent Observers of such matters. That which is herein proposed is, First, That Memorable Occurrents of Divine Providence may not be neglected or forgotten, as they too often are. Secondly, That people everywhere may better understand the Circumstances of Publique Affairs, both abroad and at home; which may not only direct their Thoughts at all times, but at some times also to assist their Business and Negoceations. Thirdly, That some thing may be done toward the Curing, or at least the Charming of that Spirit of Lying, which prevails among us, wherefore nothing shall be entered, but what we have reason to believe is true, repairing to the best fountains for our Information. And when there appears any material mistake in any thing that is collected, it shall be corrected in the next. Moreover, the Publisher of these Occurrences is willing to engage, that whereas, there are many False Reports, maliciously made, and spread among us, if any well minded person will

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*a* The newspaper press cannot be said to have had an existence in England until the expiration of the law which subjected the press to a censorship, May 3, 1695. Within a fortnight Harris announced that the *Intelligence, Domestic and Foreign*, suppressed fourteen years before by tyranny, would again appear. Ten days later was printed the first number of the *English Courant.* Then came the *Packet Boat* from Holland and Flanders, the *Pegasus*, the *London Newsletter*, the *London Post*, the *Flying Post*, the *Old Postmaster*, the *Postboy*, and the *Postman.* These first English newspapers were not superior typographically to their humble imitators across the Atlantic, and hardly superior in a literary point of view. On these points Lord Macaulay says in his *History of England:* "At first these newspapers were small and mean-looking. Even the *Postboy* and the *Postman*, which seem to have been the best conducted and the most prosperous, were wretchedly printed on scraps of dingy paper, such as would not now be thought good enough for street ballads. Only two numbers came out in a week, and a number contained little more matter than may be found in a single column of a daily paper of our time. What is now called a leading article seldom appeared, except when there was a scarcity of intelligence, when the Dutch mails were detained by the west wind, when the Rapparees were quiet in the Bog of Allen, when no stage-coach had been stopped by highwaymen, when no nonjuring congregation had been dispersed by constables, when no ambassador had made his entry with a long train of coaches and six, when no lord or poet had been buried in the Abbey, and when, consequently, it was difficult to fill up two pages. Yet the leading articles, though inserted, as it should seem, only in the absence of more attractive matter, are by no means contemptibly written."

*b* Buckingham's *Reminiscences.*

*c* In 1662 some religious pamphlets were published by the colony, which the general court or some of the ruling clergy judged rather too liberal and tending to open the doors of heresy, and regular licensers of the press were therefore appointed at that time. The ancient records of the colony show that Major Daniel Gookin and the Rev. Jonathan Mitchell were the first appointees under this regulation. A year later, May 27, 1663, the regulation was rescinded and the general court "ordered that the printing presse be at liberty, as formerly, until this court shall take further order, and the late order is hereby repealed". The effect of this repeal seems to have been a return to the publication of somewhat free-spoken pamphlets. The government immediately became alarmed again, and the following rigid edict was subsequently passed:

> At a General Court called by order from the Governour, Deputy Governour, and other magistrates, held at Boston 19th of October, 1664. For the preventing of Irregularyties and abuse to the authority of this Country, by the Printing Presse, it is ordered by this Court and the authority thereof, that theeir shall no Printing Presse be allowed in any Towne within this Jurisdiction, but in Cambridge, nor shall any person or persons presume to print any Copie but by the allowance first had and obtayned under the hands of such as this court shall from tjme to tjme Impower; the President of the Colledge, Mr. John Shearman, Mr. Jonathan Mitchell and Thomas Shepheard, or any two of them to survey such Copie or Coppies and to prohibit or allow the same according to this order; and in case of non-observance of this order, to forfeit the Presse to the Country and be disabled from Vsing any such profession within this Jurisdiction for the tjme to Come. Provided this order shall not extend to the obstruction of any Coppies which this Court shall Judge meete to order to be published in Print.

At the same time a law was passed that "no printing should be allowed in any town within its jurisdiction except in Cambridge". This was subsequently so modified as to permit the use of a press at Boston, and a person authorized to conduct it.

The government not only required conformity to this law, but even exercised a power behind and above it, as on an occasion when the licensers had permitted the republication of a book written by Thomas á Kempis, entitled *Imitation of Christ*, etc. This treatise was presented to the court in the session of 1667 as heretical, and immediately the following order was passed: "This court being informed that there is now in the presse reprinting a book that imitates of Christ, or to that purpose, written by Thomas Kempis, a popish minister, wherein is contained some things that are lesse safe to be infused amongst the people of this place, Doe comend to the licensers of the presse the more full revisale thereof, and that in the meane tjme there be no further progresse in that work."

Daniel Fowle, one of the best printers and the best known men in New England in that time, was arrested in 1754, on an order from the house of representatives, and taken before that body, on suspicion of having printed a pamphlet entitled *The Monster of Ministers*, by Tom Thumb, jr., which reflected on some of its members.

be at the pains to trace any such false Report, so far as to find out and Convict the First Raiser of it, he will in this Paper (unless just Advice be given to the contrary) expose the Name of such person, as A malicious Raiser of a False Report. It is supposed that none will dislike this Proposal, but such as intend to be guilty of so villanous a Crime.

Harris is spoken of by Thomas as the fifth printer in Boston, and previous to and after his journalistic venture he was engaged in printing, chiefly for the booksellers. Two years after the suppression of his *Publick Occurrances* he was appointed by Governor Phipps "Printer to his Excellency the Governor and Council", and printed the acts and laws of Massachusetts in 1692 and 1694.

There was nothing significant about this first journalistic venture, except the manner of its sudden demise. It was an enterprise conceived by a printer lately from London, and modeled after the sheets which were at that time beginning to be of comparative frequency in the British capital.

Boston *News-Letter.*

Postmasters as editors.

The second American journal appeared April 24, 1704; it was printed by Bartholomew Green,(*a*) and published and edited by John Campbell, then postmaster of Boston. It was called the "Boston *News-Letter*, published by authority", and was issued every Monday. Its beginning was nearly contemporaneous with the appearance of the first Scottish gazette, and it appears to have been the natural outgrowth of a series of news-letters (modeled after the similar letters that had long previously been sent regularly from London into the provinces), which Campbell, by virtue of his official character as postmaster, had been in the habit of preparing and sending to the governors of the several New England provinces. Nine of these letters have been preserved.(*b*) They embody, in concise form, a digest of the most recent news received from across the water and the events in Massachusetts bay, with occasional political or other suggestions; and they doubtless conveyed the first intelligence of these events to the distant points whither they were sent. It was a function which a postmaster, as a center of intelligence, naturally assumed; and it is not surprising that, for a long period after John Campbell established his *News-Letter*, a newspaper was regarded as a natural adjunct of a post-office.(*c*) The second paper in the colony was established in 1719 by William Brooker, immediately upon his appointment to succeed Campbell as postmaster of Boston, and was called the Boston *Gazette.* Four postmasters in succession conducted the *Gazette*, and the post-office may fairly be called the godfather of American journalism.(*d*) Beside the *News-Letter* and the *Gazette*, established by postmasters, the Boston *Weekly Post Boy* was founded, in opposition to the *Gazette*, by Ellis Hushe, immediately upon his being appointed postmaster in 1734. James Parker, postmaster of New Haven, established the *Gazette* in 1755, and Benjamin Mecom, postmaster, published the same journal in 1764. The Providence *Gazette* was established by John Carter, who had been postmaster before the revolution. James Parker, the founder of the New York *Gazette and Weekly Post Boy* (1742), was comptroller of the post-office, and was subsequently accused by William Weyman, who had been his partner, and who began a rival *Gazette* in 1759, of giving orders to post-riders not to circulate this new journal. William Hunter, the publisher of the *Virginia Gazette*, was also the postmaster. During a considerable portion of the period in which he conducted the Philadelphia *American Weekly Mercury* Andrew Bradford was postmaster of that city; and the office was indeed, if we can accept Franklin's statement, "an important adjunct of the newspaper. As he held the post-office, it was imagined that he had better opportunities for obtaining the news, and his paper was thought a better distributor of advertisements than mine, and therefore had many more; which was a profitable thing for him and a disadvantage to me, for tho' I did receive and send papers by the post, yet the public opinion was otherwise; for what I did send was by bribing the riders, who took them privately, Bradford being unkind enough to forbid it, which occasioned some resentment on my part; and I thought so meanly of the practice that when I afterwards came into the position I took care never to imitate it."

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*a* Five days after town meeting was issued in Boston the first newspaper published in North America. This was the Boston *News-Letter*. The proprietor and publisher was John Campbell. He was postmaster of Boston, and this office gave him superior facilities for the circulation of a newspaper. Nicholas Boone was associated as publisher.—Samuel G. Drake's *History of Boston.*

The first newspaper established in North America was the Boston *News-Letter*, the first number of which appeared on Monday, April 24, 1704. The contents of the *News-Letter* during the whole of Campbell's proprietorship are chiefly extracts from the London papers. The little that has the appearance of having been written by the editor is clumsily composed, with no regard to punctuation or grammatical construction. The *News-Letter* was regularly published for nearly seventy-two years.—Buckingham's *Reminiscences*, vol. i.

The prospectus of the *News-Letter*, as printed in the first issue, was as follows:

ADVERTISEMENT.

This News-Letter is to be continued weekly, and all persons who have Houses, Lands, Tenements, Farms, Ships, Vessels, Goods, Wares or Merchandise, &c., to be Sold, or Let, or Servants Run-away, or Goods Stole or Lost; may have the same inserted at a Reasonable Rate, from *Twelve Pence* to *Five Shillings*, and not to exceed: who may agree with *John Campbel*, Postmaster of *Boston.*

All Persons in Town and Country may have said News-Letter every week, yearly, upon reasonable terms, agreeing with *John Campbel*, Postmaster, for the same

*b* They are addressed to Governor Fitz John Winthrop, of Connecticut, bearing dates from April to October, 1703, and are preserved in the collections of the Massachusetts Historical Society.

*c* Newspapers were at first carried free in the mails. In 1758, "by reason of their great increase," they were charged with postage at 9*d*. a year for 50 miles and 18*d*. for 100 miles.

*d* Postmasters started the first two papers in Boston, and succeeding postmasters seemed to claim a right to such publications, or at least to think a newspaper was an appendage to their office.—Thomas.

This extract from the autobiography undoubtedly tells the real secret of the great tendency of postmasters to become the editors of the colonial newspapers, as well as of the great advantages they derived from the office in the matter of distribution.

Difficulties of the Boston *News-Letter*.

For fifteen years Campbell's *News-Letter* continued to be the only newspaper printed in the colonies. He met with innumerable difficulties throughout this entire period, and received but little encouragement from any source. The population of Boston was 8,000 when the first number of the *News-Letter* appeared; and in August, 1719—fifteen years later—Campbell declared, in one of his frequent appeals through his paper for a better support, that he "can not vend three hundred at an impression, tho' some ignorantly concludes he sells upwards of a thousand; far less is he able to print a sheet every other week, without an addition of four, six or eight shillings a year, as every one thinks to give quarterly, which will only help to pay for press and paper, giving his labor for nothing. * * * * It is afforded by the year, or by the piece or paper, including the difference of money, far cheaper than in England, where they sell hundreds, nay thousands of copies to a very small number vended here".

Such proportions between circulation and population reveal at a glance the inhospitable field in which this pioneer labored. Neither the times nor the people were well adapted to the creation of a new want of this character. The settlers had lived along without newspapers, and continued to so live after the latter were at hand. There were few stirring events going on in their own midst of which they required the periodical chronicle, and the news from England and Europe interested them only in a general way, and therefore they were content to know it by word of mouth, at second or third hand, whenever it should happen to fall to their lot to hear it. The newspaper was of no aid to them in their respective business, and there was not the remotest probability of the *News-Letter* containing any first announcement of an event which affected the value of their properties, or even worked a rise or fall in the markets. The marvelous development of the later-day journalism is due not more to the increased popular intelligence or the greater energy and enterprise of its conductors than to the fact that the changes in business and in business methods have made our whole commercial life dependent upon the information which is conveyed from continent to continent, from city to city, from interest to interest, from individual to individual, through the medium of the public press. This contrast can be made more striking by glancing at the contents of Campbell's paper. At one time he expressed his regret that he found himself "thirteen months behind in giving the news from Europe". When he did give it, it was in the shape of transcripts from the London *Gazette*, the official organ of the British government, which never contained anything the publication of which was not sanctioned by the government. Issue after issue of the *News-Letter* was almost wholly filled with the formal proclamations, the verbose addresses of deputations, and other like official matter, which then, as now, was very dull reading, especially when "thirteen months late". There were rarely advertisements in the paper; and it was not until after the revolution that the newspaper came to be generally recognized as the most natural and direct method of business communication with the public. Campbell's powers of composition were limited, and in the matter of home or colonial news he generally confined himself to the record of the arrival and departure of vessels and an occasional brief account of a fire or the death of a citizen. The dreary monotony of the files of the *News-Letter* (*a*) during the entire period in which it was the only American journal affords a sufficient explanation of its admitted failure in a financial point of view.

Mechanically, it was more creditable to America, in comparison with similar work then done in England. It was printed sometimes on a half-sheet folio, sometimes on a full sheet of post paper with a small-pica type, and occasionally one of the four pages would be left blank. There were a number of weekly papers published during the last census year in the United States, and specimen copies of which are contained in the census file, which in mechanical appearance and in the quality of paper used compare unfavorably with the Boston *News-Letter*.

## THE MASSACHUSETTS COLONIAL PRESS.

Upon the removal of Campbell from the post-office, in 1719, he met with his first opposition, his successor founding the Boston *Gazette*. The serene temper displayed in the journal for fifteen years was for the first time ruffled by this opposition, and the chagrin of the editor was not concealed from the public. The *Gazette* was owned and conducted by five persons, all of them successive postmasters, between 1719 and 1739, when it was merged with the *New England Weekly Journal*, a paper that had been established in 1727. A day later than the first issue of the *Gazette*, the third newspaper in the colonies, and the first outside of Boston, was founded in Philadelphia, the *American Weekly Mercury*, "Printed and sold by Andrew Bradford, at the Bible, in the Second street, and John Capson, in the High street, 1719–'20." Bradford was then the postmaster of Philadelphia, and the son of William Bradford, who established the first colonial printing office out of New England.

The *New England Courant*.

In 1721 the fourth paper appeared in Boston, its first issue dated August 7. It was called the *New England Courant*, and was established by James Franklin, who had recently lost the work of printing the *News-Letter* for Campbell. The father and many friends of Franklin are said to have been inimical to his project, "supposing that one newspaper was enough for the whole continent, and apprehending that another must occasion absolute ruin to the printer." (*b*) Nevertheless it had been left for Franklin

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*a* A complete file of the Boston *News-Letter* for the seventy-two years of its existence is preserved in the collections of the New York Historical Society.

*b* Thomas' *History of Printing*.

first to introduce into journalism that versatility which now began to create something of a public demand for this weekly vehicle of intelligence. He began by denouncing the *News-Letter* as "a dull vehicle", and continued by attacking the government of the province and its principal agents, the clergy and private individuals, in a free-handed manner entirely out of consonance with the spirit of the age. The controversy with the clergy grew out of a difference of opinion respecting inoculation for the small-pox, a practice which the *Courant* opposed by argument and by ridicule. The Mathers—father and son—were lampooned with a virulence seldom seen in the press of the present day, and the result was an *Address to the Publick*, by Dr. Increase Mather, in which the *Courant* was denounced as "a wicked libel", and the wrath of God was called down upon the head of its editor. This controversy was followed by repeated attacks upon the government, which, in 1722, received the notice of the general council. A committee was appointed to consider and report on the subject, which found as follows:

James Franklin and the colonial government.

> The tendency of said paper is to mock religion and bring it into contempt, that the Holy Scriptures are therein profusely abused, that the reverend and faithful ministers of the Gospel are injuriously reflected upon, His Majesty's government affronted, and the peace and good order of His Majesty's subjects of this province disturbed, by said *Courant;* and for precaution of the like offense for the future the committee humbly propose that James Franklin, the printer and publisher thereof, be strictly forbidden by this court to print or publish the *New England Courant*, or any other pamphlet or paper of the like nature, except it be first supervised by the secretary of this province. (*a*)

The next issue of the *Courant* appeared in the name of Benjamin Franklin, and for three years thereafter, and probably until the suspension, the younger brother was the nominal publisher, although he does not appear to have remained with the paper during that period. The device was sufficient to elude the supervision of the government, and the *Courant* continued, with hardly less freedom than before, its rough and frequent criticisms upon the institutions of the province. But the effect of governmental opposition was fatal to the *Courant.* The contributors to whom it had been indebted gradually dropped away; the paper ceased to interest the public, and finally perished for lack of support. The Philadelphia *Mercury*, at the time the only newspaper in the colonies out of Boston, commented with just severity upon the re-establishment of a censorship in Massachusetts; but in the way of liberty the publisher of that paper had little to boast. Not a year before, on account of some offensive article, he had been summoned before the governor and council and compelled to make a humble apology, receiving at the same time an intimation "that he must not presume to publish anything relating to the affairs of this or any other of His Majesty's colonies without the permission of the governor or secretary". (*b*)

During the nine years of its existence the *Courant* received and published communications on a variety of topics from a number of persons, the friends of its publisher. Thus it set a fashion that soon became a prevailing one in the colonial papers, and opened the way for a larger and higher field for journalism than that which Campbell had marked out in the *News-Letter.*

Enlarging the field of colonial journalism.

When Green succeeded Campbell as the publisher of the *News-Letter*, in 1723, he announced that he proposed to extend his publication to the "history of nature among us, as well as of all foreign and political affairs, and, agreeable to this design, he desires all ingenious gentlemen, in every part of the country, to communicate the remarkable things they observe; and he desires them to send their accounts post free, and nothing but what they assuredly know; & they shall be very gratefully received & published. So that this paper may serve for the philosophical transactions of New England, as well as for a political history; & the things worthy of recording in this as well as in other parts of the world may not sink into eternal oblivion, as they have done in all the past ages of the aboriginal and ancient inhabitants". Green followed the example of Franklin in this respect.

This was the beginning of the outside communication to the press, which soon developed into its most prominent feature, involving the contributions of public men to the discussion of the current political questions, and for several years before the revolution many communications from able writers on the side of the government and some of its first officers, under various signatures, appeared in the Boston *News-Letter.*

Prospectus of the Boston *Weekly Rehearsal.*

When Thomas Fleet took possession of the Boston *Weekly Rehearsal*, in 1733, he blocked out a field of literary usefulness for his journal in the following ambitious announcement:

> The Gentleman who first set up and has hitherto been interested in this Paper, having now resigned all his Right and Interest therein into the hands of the Subscriber, the Subscriber thinks himself obliged to give publick Notice thereof, and informs all such as have taken, or may hereafter take it, that as he has settled a Correspondence with Gentlemen in London, and most of the principal Towns within this and the neighbouring Governments, and is favoured with the acquaintance of many intelligent Persons in Boston, he doubts not but he shall be able to make the *Rehearsal* as Useful and entertaining as any of the Papers now published. And the better to effect it, requests all Gentlemen in Town or Country who may be possessed of anything new or curious, whether in the Way of News or Speculation, worthy the publick View, to send the same to him, and it will be gratefully received and communicated for the Entertainment of the Polite and inquisitive Part of Mankind. The publisher of this paper declares himself of no Party, and invites all Gentlemen of Leisure

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*a* In Council, July 5th, 1722. Whereas in the paper called the *New England Courant*, printed Weekly by James Franklin, many passages have been published boldly reflecting on His Majesty's Government and on the Administration of it in this Province, the Ministry, Churches and College; and it very often contains Paragraphs that tend to fill the Readers' minds with vanity to the Dishonor of God, and disservice of Good Men.

*Resolved*, That no such Weekly Paper be hereafter Printed or Published without the same be first perused and allowed by the Secretary, as has been usual. And that the said Franklin give security before the Justices of the Superior Court in the Sum of 100*l.* to be of the good behaviour to the End of the next Fall Sessions of this court. Sent down for Concurrence. Read and Non-Concurred.

*b* Hildreth's *History of the United States*, ii, 395, first series.

and Capacity inclined on either Side, to write anything of a political Nature, that tends to enlighten and serve the Publick, to communicate their Productions, provided they are not overlong, and confined within Modesty and Good Manners; for all possible Care will be taken that Nothing contrary to these shall ever be here published. And whereas the publishing of Advertisements in the Weekly News Papers has been found of great Use (especially in such as are sent thro' all the Governments as this is) this may inform all Persons, who shall have Occasion, that they may have their Advertisements published in this Paper upon very easy Terms, and that any Customer for the Paper shall be served much cheaper than others. And whereas the Price of this Paper was set up at Twenty Shillings per Year, and so paid till this time; the present Undertaker being willing to give all possible Encouragement to his Readers has now reduced it to Sixteen Shillings; and offers all Gentlemen who are willing to hold a Correspondence, and shall frequently favour him with any thing that may tend to the Embellishment of the Paper, to supply them with one constantly free from Charge. And considering it is impossible for half a Sheet of Paper to contain all the Remarkable News that may happen to be brought in upon the Arrival of Ships from England or other extraordinary Occurrences, the Publisher therefore proposes in all such Cases, to Print a Sheet of what he judges most Material, and shall continue to send the Paper to all such as have hitherto taken it, until he is advised to the contrary by those determined to drop it, which he hopes will not be many.

The *New England Journal*, 1727, was furnished with miscellaneous essays on moral rather than political topics by literary gentlemen. Governor Burnet is supposed to be the author of a series which appeared in its third year.

The Boston *Independent Advertiser*, 1748, was supplied with well-written essays, chiefly political. A number of gentlemen associated themselves for this purpose, among them Governor Samuel Adams. They were all whigs, who advocated the rights of the people against the government. Indeed, the principal purpose of the *Advertiser* came ultimately to be political discussion, as the means to arouse the people of the province to maintain their rights. The address of the proprietors to the public is as good a declaration of the widest scope of colonial journalism as can be found. It reads:

> As our present political state affords Matter for a variety of Thoughts, of peculiar Importance to the good People of New England, we purpose to insert every thing of that Nature that may be pertinently and decently wrote. For ourselves, we declare we are of no party, neither shall we promote the narrow and private Designs of any such. We are ourselves free, and our Paper shall be free—free as the Constitution we enjoy—free to Truth, good Manners, and good Sense, and at the same time free from all licentious Reflections, Insolence and Abuse. Whatsoever may be adapted to State and Defend the Rights and Liberties of Mankind, to advance useful Knowledge and the Cause of Virtue, to improve the Trade, the Manufactures, and Husbandry of the Country, whatever may tend to inspire this People with a just and proper Sense of their own Condition, to point out to them their true Interests, and rouse them to pursue it, as also any Piece of Wit and Humor, shall at all Times find (free of Charge) a most welcome reception. And altho' we do not altogether depend upon the casual Benevolence of the Publick to supply this Paper, yet we will thankfully receive every Thing from every quarter conducing to the Good of the Publick and our general Design.

The *Massachusetts Spy*, 1771, was filled with essays in the whig interest, and in 1775 it began to publish Robertson's *History of America*, completing the whole in about a year. This was followed by a history of the revolutionary war.

Journalistic clubs.

The custom of forming a club to write political and literary articles for newspapers was quite common in colonial days. Beside the Hell-fire Club, which contributed to Franklin's *New England Courant*, a similar club of gentlemen in Boston wrote for the *Weekly Rehearsal*, founded by James Draper in 1721, evidently at the suggestion of its members. At the head of this club was Jeremiah Gridley, afterward attorney-general of the province of Massachusetts and a member of the general court, who was the real editor of the paper. The receipts of the *Rehearsal* never amounted to more than enough to defray the expenses of publication. Of the *Connecticut Courant* (1764) Mr. Scudder says that, "with the exception of a scanty abstract of news, the paper may be said to have been edited by its subscribers—a policy which made such papers very good reflexions of the feeling of the community." (*a*)

Political development of the colonial press.

Among the contributors to the Boston *Gazette*, which was the leading and most influential organ of the revolutionary party in Massachusetts, were Samuel Adams, Jonathan Mayhew, James Otis, John Adams, Joseph Warren, Thomas Cushing, Samuel Dexter, Oxbridge Thatcher, and Samuel Cooper. Charles Carroll was one of the writers for the *Maryland Gazette*, 1765, the year of the stamp act, and in that paper, through his influence, first appeared the famous resolutions of Patrick Henry in the Virginia house of burgesses, declaring the exclusive right of the general assembly of that state to lay taxes and impositions upon the inhabitants thereof. These resolutions were subsequently published in Franklin's *Pennsylvania Gazette*, in the Newport *Mercury*, which was instantly suppressed as a traitorous publication, in three Charleston papers, and in the Boston *Gazette.*

Thus the colonists learned the divers uses to which the newspaper press might be put, and early made it a medium for the discussion of the public questions and the dissemination of the political opinions which were so speedily to become controlling in the colonies. (*b*)

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*a Life of Noah Webster*, by Horace E. Scudder.

*b* Nearly all of these newspapers were issued once each week. Many of them were on diminutive sheets, and for a long time all of them clung to the prudent plan of publishing only news and advertisements, abstaining entirely from the audacity of an editorial opinion, or disguising that dangerous luxury under pretended letters from correspondents. News from Europe, when it was to be had, and especially news from England, occupied a prominent place in these little papers, but, necessarily for each one, the affairs of its own colony, and next the affairs of the other colonies, furnished the principal items of interest. Thus it was that early American journalism, even though feeble, sluggish, and timid, began to lift the people of each colony to a plane somewhat higher than its own boundaries, and to enable them by looking abroad this way and that upon the proceedings of other people in this country, and upon other interests as

## THE COLONIAL PRESS OF PENNSYLVANIA.

Slow growth of the press in the several colonies.

The Pennsylvania colonial press.

Benjamin Franklin's *Gazette.*

Nevertheless, the number of newspapers did not increase rapidly. We have seen that Pennsylvania had her first newspaper in 1719—the *American Weekly Mercury*, by Andrew Bradford, worthy scion of the founder of the printing press in both Pennsylvania and New York. The *Mercury* was published by Andrew Bradford, with a temporary association with William Bradford in 1739, until his death, in 1742, after which it continued to be published "by the widow Bradford" until its suspension, in or about 1746. This paper was creditably printed and conducted, alike under Bradford and his widow. It announced its general object to be "the encouragement of trade", and local news, obituary notices, and the like, had but small attention in its columns. Foreign news, commercial statistics, custom-house entries, including those of all the considerable ports along the coast, occupied regularly allotted space, and there were occasional literary communications and extracts from English classics. In the meanwhile, December 24, 1728, Samuel Keimer had established in Philadelphia *The Universal Instructor in all Arts and Sciences and Pennsylvania Gazette*, under which pretentious title it was carried on to No. 40, nine months, never with more than one hundred subscribers, (*a*) when, for a trifling consideration, Keimer was glad to turn it over to the more active energy and sagacity of his former apprentice, Benjamin Franklin. Explaining his immediate success, Franklin said: "Our first papers made quite a different appearance from any before in the province—a better type and better printed—but some remarks of my writing on the dispute then going on between Governor Burnet and the Massachusetts Assembly struck the principal people, occasioned the paper and the manager of it to be much talked of, and in a few weeks brought them all to be our subscribers." For a short time Franklin published the *Gazette* twice a week, on Mondays and Thursdays, on a whole or a half sheet of pot, as occasion seemed to require; but the semi-weekly was of short duration, notwithstanding the fact that the *Pennsylvania Gazette*, as the journal was now called, became in the course of a few years the most valuable newspaper property in the colonies, circulating extensively for those times throughout Pennsylvania and in other colonies, and compelled several times to enlarge "by reason of a great increase of advertisements". When Franklin practically retired from the management of the *Gazette*, in 1766, on account of the urgency of his public duties, he received from his former partner, David Hall, the sum of £1,000 per annum, currency, for a number of years, in lieu of his share of the profits of the newspaper and a lucrative printing business attached thereto. The *Gazette* did good service for the revolutionary cause until the British occupation of Philadelphia, in 1777, compelled its suspension until after the evacuation. It survived, with another brief suspension in 1815, until 1824. The *Pennsylvania Journal and Weekly Advertiser*, founded by William Bradford, third, December 2, 1742, divided the field with the *Gazette* until the British occupation, and, like it, was afterward revived. The *Journal* made an unsuccessful venture as a semi-weekly about 1788, and when it was discontinued, in 1797, it was to make room for the *Daily American*, a daily newspaper.

German colonial press.

As the period of the revolution approached newspapers multiplied in Philadelphia as they did in Boston; indeed, it may be truly said that Philadelphia, from the first establishment of newspapers there, gave them a better support, both by subscriptions and advertisements, than was received by the Boston colonial press. The *Pennsylvania Packet, or the General Advertiser*, was founded in 1771, and when it returned from Lancaster, after the British evacuation, in 1778, it was published three times a week, becoming a daily paper in 1784, being known after 1786 as *Claypoole's American Daily Advertiser*, and the first daily journal established in the United States. The *High Dutch Pennsylvania Journal*, a weekly German newspaper, was founded by Joseph Crellius as early as 1743, and the *Zeitung*, a second German paper, was founded by Godhart Armbruster, the German copperplate printer, about 1748. For a considerable period previous to the revolution there were two German and two English newspapers regularly published in Philadelphia.

## THE COLONIAL PRESS OF NEW YORK.

New York colonial press.

New York, after Massachusetts and Pennsylvania, was the colony in which the newspaper met with the greatest success. The venerable William Bradford, then over seventy years of age, began the first newspaper there, the New York *Gazette*, October 16, 1725. (*b*) It was printed weekly on a foolscap sheet. He had been tempted to New York by Governor Fletcher in 1693, disgusted with the controversies which his printing press forced upon him with the dominant authorities of

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precious as their own, to correct the pettiness and the selfishness of mere localism in thought. Colonial journalism was a necessary and a great factor in the slow process of colonial union.

Beside this, our colonial journalism soon became, in itself, a really important literary force. It could not remain forever a mere disseminator of public gossip or a placard for the display advertisements. The instinct of critical and brave debate was strong even among those puny editors, and it kept struggling for expression. Moreover, each editor was surrounded by a coterie of friends, with active brains and a propensity to utterance; and these constituted a sort of unpaid staff of editorial contributors, who, in various forms—letters, essays, anecdotes, epigrams, poems, lampoons—helped to give vivacity and even literary value to the paper.—Moses Coit Tyler, in *History of American Literature*, vol. ii, 304.

*a* Thomas' *History of Printing.*

*b* On May 20, 1863, the New York Historical Society celebrated, with appropriate commemorative exercises, the two-hundredth birthday of "Mr. William Bradford, who introduced the art of printing into the middle colonies of British America", on which occasion a

Pennsylvania. He became printer to the government of New York, and his newspaper steadily supported the latter through a period of exciting and bitter controversy. November 5, 1733, (*a*) the second newspaper, John Peter Zenger's New York *Weekly Journal*, began publication, avowedly for the purpose of opposing the administration of Governor Cosby, in the interests of the popular party led by Rip Van Dam. Zenger's journal may be called the prototype of the American political journal of to-day. Its editor, while somewhat illiterate, was an excellent printer, and was bold and bright. The columns of his paper were filled with sharp criticism, gibes, poetical fusilades, and the like, largely the contributions of prominent opponents of the government, which so annoyed the administration that Zenger was finally arrested on an information for libel, and his subsequent acquittal taught the authorities of the colony that the time had passed in which the government could exercise unresisted surveillance over the American press. The *Journal* continued to be published by Zenger until his death, in 1746, and afterward by his widow and son until 1752, when it was discontinued. Its title was revived again in 1766 by John Holt with new types and a new printing apparatus, and the paper soon had an extensive circulation.

Zenger's *Journal.*

The New York *Gazette and Weekly Post Boy* had in the meanwhile been established by James Parker in 1742, about the time that Bradford discontinued his *Gazette*, and it was practically a continuation of Bradford's journal, and probably held most of its subscribers. In 1760 Parker formed a partnership with John Holt. Afterward Holt published the paper alone for some time, but relinquished it again to Parker in 1766, when he started his *Journal*, taking most of the subscribers of the *Gazette and Post Boy* to the new paper. Parker died in 1770, and the *Gazette* survived him but two years. In the meanwhile Holt's *Journal* maintained its ground as an earnest and fearless advocate of the popular cause until the British took possession of the city, in 1776, and its columns had many able contributors beside the editor. After the occupation the *Journal* had a migratory experience, being driven from Esopus to Poughkeepsie, whence it returned to New York in 1783. There, under the name of the *Independent Gazette, or The New York Journal Revived*, it became a semi-weekly. Holt died in 1784. Thomas Greenleaf, who purchased the establishment of the widow, made it the basis of the first daily newspaper published in New York. This appeared in 1787, and was called *The Argus, or Greenleaf's New Daily Advertiser.*

Parker's *Gazette and Post Boy.*

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most scholarly and entertaining address was delivered by John William Wallace, of Philadelphia, Pennsylvania—himself a descendant of Bradford—in which was presented the most complete record of the work, the history, and the personal character of William Bradford that has yet been written or is likely to be written. The following are among the most striking paragraphs in Mr. Wallace's address:

"The figure of this enterprising youth, as he labored at his press in these early days, deserves, I think, to make a feature on the canvas which shall perpetuate the history of American civilization. In all other countries the typographic art has been cultivated beside the supporting walls of palaces, within the protecting close of religious houses, or under the fructifying air of patronage and wealth. Princes have been its nursing fathers and queens its nursing mothers, and nobles and bishops and scholars have watched its early progress. Westminster, the venerated abbey in which for ages England has crowned her sovereigns, and which she consecrates as the abode of her most honored dead, counts even as one of her distinctions that Caxton reared his press within her precincts. France, celebrating the munificence of the Eleventh Louis, displays, in all the richness of her art and in the costliest products of her Sevres skill and taste, upon the windows of her Louvre the monarch who sat beside her press and fostered with his care its flickering light.

"Where rank and wealth and learning have not been its cheerful supporters the press has languished or has had to wait for happier times. Even in Massachusetts no book nor paper was issued for eighteen years after the settlement of that province. Virginia and Maryland forbade the art entirely. William Bradford, establishing his press in these middle states, presents an exception to all ordinary history. He has crossed an ocean and is a thousand leagues away from the genial influences of education and taste. He has no 'assistance of the learned' nor any 'patronage of the great'. No 'academic bowers' lead the way to his humble roof nor bring scholars to watch his daily progress. No strains, pealing through long-drawn aisles and swelling the note of praise, refreshed his spirits, as they often must have Caxton's, as he grew weary with his lengthened toil. The arches above *him* are of the interlacing forests, and amidst the primeval oaks the curious and wondering Indian watches him in the solitary practice of his 'mystery'. He is printing the wisdom of Francis Bacon—his essays, 'Of Studies,' 'Of Counsel,' 'Of Goodnesse and Goodnesse of Nature,' 'Of Judicature,' 'Of Honour and Reputation,' 'Of Ceremonies and Respects.' His Sacred Meditations, 'Of the Moderation of Cares,' 'Of Earthly Hopes,' 'Of the Church and the Scriptures,' for the rough trader, whose soul is absorbed in schemes of gain, or for the poorer colonist, anxious only to build himself a shelter from the storm or to provide for the day that is passing over his head. His patrons are the ignorant Finlander and Swede and Hollander, whom Penn is bringing to his colony. To use his own simple but expressive words, he has 'laid out the greatest part of that small stock he had on materials for printing (which are very chargeable), and coming here found little encouragement, which made him think of going back'. Unaided he rears his humble press. With his own hand he sets the type. He imposes himself the form; corrects by his own care the pages; locks them in the chase; adjusts the register; and then, applying the full vigor of his arm and turning back the crank, lifts up the printed sheet. Behold! (exhibiting to the whole audience the open volume of Lord Bacon's *Essays*) the genius of Lord Verulam shines upon a new world! At such a moment how joyous must have been the emotions of such a man! Measuring them by the means of their accomplishment, in what other land can the art conservative of all the arts boast so noble a result?

"This issue of Bradford's press appeared in 1688, seventeen years before Benjamin Franklin was born, thirty-nine years before he established anywhere the printing press. The name of Franklin is widely revered. But the printers' calling received no addition to its dignity when the candle-end-saving genius of Poor Richard usurped the honors which in an earlier day had been paid to the author of the Instauration."

[a] "Monday, Oct. 5, 1733," was the date of the first issue of the *Journal*, but it appears that a mistake of a month was made.—Hudson's *History of Journalism.*

Gaine's *Weekly Mercury.*

A number of other journals, most of them short-lived, appeared in New York previous to the revolution. The most important were the New York *Weekly Mercury*, by Hugh Gaine, "printer, bookseller, and stationer," founded in 1752, and Rivington's New York *Gazetteer, or the Connecticut, New Jersey, Hudson's River, and Quebec Weekly Advertiser*, founded in 1773. Gaine's paper was one of the best in all the colonies in its collection of intelligence, and it gained a comparatively extensive circulation in the city and surrounding settlements. But its publisher, like other publishers of the time, was ready to be upon either side in the revolutionary struggle if he could be sure it was to be the successful one; but this was not the way to journalistic success at that time. He printed his paper for some time in New Jersey after the British occupation, but soon returned, and, like Rivington, continued the publication of his paper under the protection of the king's army. With the close of the war it naturally suspended, after an existence of thirty-one years. Rivington's *Gazetteer* was printed upon a large medium sheet, folio, and was perhaps the best specimen of the typographic art that appeared in the colonies before the revolution. His sympathies were warmly with the royalists, and his circulation was confined to the tory element of the people. The end of the war was the end of the *Gazetteer*.

## THE COLONIAL PRESS ELSEWHERE.

Before the revolution there were thirteen papers of all kinds started in New York colony, all but one in the city, and of these four only were in existence at its outbreak. Of these four, all save the *Journal* were in the interests of the tory or royal party, and alone survived the event.

Maryland colonial press.

I shall not attempt to follow the early press of the other colonies with any detail. The great bulk of the newspapers was located in Massachusetts, Pennsylvania, and New York, and their experience elsewhere was even more precarious than we have seen it to have been in these three colonies. Maryland was the fourth colony in which a newspaper was established, the *Maryland Gazette*, at Annapolis, being commenced by William Parks, probably in the year 1727, and continued irregularly until 1736. Nine years later, 1745, another *Gazette* appeared, and, with the exception of a short suspension in 1765 on account of the stamp act, was regularly published through the revolution, and is still in existence as a weekly journal, there being but one other newspaper in the United States which is of prior origin. The third Maryland newspaper, the *Maryland Journal*, appeared in Baltimore in 1773, and these three constituted the entire ante-revolutionary press of the state.

South Carolina.

South Carolina and Rhode Island followed Maryland in 1731. The *South Carolina Gazette*, of that date, in Charleston, survived but a few months, but another, started in 1734, continued to the revolutionary war, after which it was revived. Still two other *Gazettes* were started in the colony, one in 1758, which suspended in 1780, its publisher, Robert Wells, being a royalist; and the other in 1765, born into the world for the express purpose of opposition to the stamp act, and published regularly, without stamps, after the date upon which the act was to have taken effect until 1775.

Rhode Island colonial press.

The *Rhode Island Gazette*, the first newspaper in that colony, continued but seven months in 1732–'33, and was the paper established by James Franklin after the suspension of the *Courant* and his removal from Massachusetts. The Newport *Mercury*, established in 1758, was able to maintain itself, and has been continuously published up to the date of this report. The Providence *Gazette and Country Journal*, 1762, was interrupted by the stamp act, but with that exception was a successful undertaking, and did zealous work for the cause of independence.

Virginia colonial press.
North Carolina and Connecticut.

Virginia's first newspaper appeared at Williamsburg in 1736. As an evidence that the influence of the colonial press may easily be exaggerated, there were but two newspapers published in all Virginia previous to the outbreak of the revolution, one of them surviving only until 1750, and the other not born until 1766. North Carolina and Connecticut welcomed their first newspapers in the same year (1755), more than half a century after Campbell's venture with the *News-Letter*.

The *North Carolina Gazette*, at New Berne, lived six years, was discontinued, and established again in 1768, and, with the *Cape Fear Mercury*, was still published at the commencement of the war. The *Connecticut Gazette* appeared in New Haven in 1755, and lived until 1767.

New Hampshire and Georgia.

New Hampshire's first newspaper, the *New Hampshire Gazette*, at Portsmouth, appeared in 1756, and Georgia followed in 1763 with the *Georgia Gazette* at Savannah. The *Gazette* was the only newspaper attempted in Georgia previous to the revolution, and, like many of its contemporaries, was compelled temporarily to suspend when the stamp act was passed. New Jersey had no newspaper until December 3, 1777, when the *New Jersey Gazette* was established; and the territory which afterward became the state of Vermont had its first newspaper, the *Gazette, or Green Mountain Post Boy*, in 1781, at Westminster. (*a*) The first and only pre-revolutionary newspaper in Delaware, the Wilmington *Courant*, established in 1762, lived but six months.

Before the close of the year 1765 there had been established in the American colonies forty-three papers of

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*a* The Vermonters were dependent upon the columns of the Hartford *Courant* to carry on their public controversy with the citizens and authorities of New York before and during the war of the revolution respecting their title to the present territory of Vermont.—Munsell.

which either the record or the visible evidence remains. Of these, one was in Georgia, four in South Carolina, two in North Carolina, one in Virginia, two in Maryland, five in Pennsylvania, eight in New York, four in Connecticut, three in Rhode Island, two in New Hampshire, and eleven in Massachusetts. (*a*) In the ten years just previous to the Revolution the number multiplied faster than in any previous epoch of like length, but still not so fast as one, looking back from this point, would naturally expect.

Statistics of press previous to the revolution.

During the seventy-one years embraced between 1704, the year of Campbell's venture, and 1775, seventy-eight different newspapers were printed in the British-American colonies. Of this number thirty-nine were discontinued, either occasionally or permanently, and but thirty-nine were actually in process of publication at the commencement of the war. These figures, which are supplied by Thomas, furnish the only correct basis upon which to found an estimate of the influence of the newspaper press in the colonies, and of its share in producing the state of public feeling which culminated in the Declaration of Independence. In the first place, it is obvious that thirty-nine newspapers, all of them, or nearly all of them, published weekly, and none oftener, was a very small allowance for the three millions of people existing in the colonies in 1775.

Circulation of colonial newspapers.

It is evident, from an abundance of testimony, that none of these papers had a circulation that would now be regarded as even respectable in point of size. Its average was even smaller, in proportion to population, than the average circulation of the far western newspaper of to-day, which encounters a rival at nearly every village. We have already quoted Campbell's testimony to the effect that he printed but three hundred copies of the *News-Letter* per week during the years in which he had the field absolutely to himself. The *News-Letter* existed seventy-two years, its plucky proprietors carrying it through the gathering storm of the revolution with tory principles. It was the only journal printed in Boston during the siege, and it only surrendered when the British evacuated the city. But, notwithstanding their pertinacity, its proprietors never made a profit out of it, and it may be questioned if a thousand copies of a single issue were printed during the entire seventy-two years. Franklin's *Courant* was frozen out, after a hard and brilliant struggle of seven years, by want of sufficient support.

New York.

From 1747 to 1759 there were but two weekly papers, Parker's *Gazette* and Gaine's *Mercury*, printed in New York city. Rivington, of the New York *Gazetteer*, informed his readers in 1773 that each impression of his *Weekly Gazetteer* amounted to 3,600 copies. A census of New York was taken in the same year, which showed its population to be 21,876 people. It is probable that Rivington was guilty of the more modern device of exaggerating his circulation.

*Massachusetts Spy.*

November 1, 1780, Thomas, in his Worcester *Massachusetts Spy*, issued an appeal for more generous support, in which he said:

> For twelve months past the number of customers for this paper has been so small as to be by no means adequate to its support, by which means the printer has absolutely sunk money by its publication. Books, schools, and newspapers are become too much neglected, and of consequence the rising generation will be great sufferers thereby if these necessary things, which tend to learning, are not more encouraged.

It further appears from this notice (*b*) that the subscribers were in the habit of stopping their subscriptions in the winter time, and Thomas threatened to accept a proposal to remove his establishment to another town if more subscribers, who would continue through the winter months, were not forthcoming.

Mr. Thomas puts the average circulation of the four newspapers which were printed in Massachusetts (all in Boston) in 1754 at 600 from each press. The total list of subscribers to his *Massachusetts Spy* in 1771, on the occasion of its conversion from a semi-weekly to a weekly paper, upon his own authority, was less than 200, although it increased rapidly from that time, until in two years "its subscription list was larger than that of any other paper in New England".

The great mortality among the colonial press—just one-half of the whole number established suspending before 1775—is the conclusive evidence of small and unprofitable circulation, although the high cost of materials, especially paper, the stamp acts in Massachusetts and New York, and the oppressive supervision of the authorities, must also be taken into consideration in accounting for this mortality.

## POLITICS OF THE COLONIAL PRESS.

The neutral and the tory press.

Then not all the press was political, and not all the press that was political was whig. Several journals permitted the revolution to break over their heads without alluding to the causes which were in operation to bring it about, and a number occupying relations with the government authorities through their acceptance of the public printing were neutral in their attitude or violently hostile to the patriot cause. (*c*) In his *History of American Loyalists* Sabine makes a definite statement of the political division of the colonial press. He says:

> Of the thirty-seven newspapers which were published in the colonies in April, 1775, seven or eight were in the interest of the crown, and twenty-three were devoted to the service of the whigs. Of these thirty-seven, however, one on each side had little or no part in discussing the great questions at issue, as they were established only in the preceding month of January, and of those which

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*a* Tyler's *History of American Literature*.

*b* Hudson's *History of Journalism*, p. 131.

*c* Speaking of the Williamsburg *Gazette*, established in 1766, Thomas Jefferson wrote: "Till the beginning of our revolutionary disputes we had but one press, and that, having the whole business of the government, and no competitor for public favor, nothing disagreeable to the governor could find its way into it. We procured Rind to come from Maryland to publish a free paper."

did participate in these discussions and maintain the right no less than five went over to the loyalists in the course of the war. Of the number first named, two were printed in German and English; and, as another of the thirty-seven was commenced in April, there were, in fact, but thirty-one newspapers in the vernacular tongue at the close of 1774. Up to the beginning of the strife printing had been confined to the principal towns, but hostile deeds, interfering with all employments, caused the removal of some of the journals to places more remote, and were the means of interrupting or wholly discontinuing the publication of others. Those that existed at the period of which we are speaking were very unequally distributed; thus, Maryland, Virginia, the two Carolinas, and Georgia, taken together, had but one more than Pennsylvania, and but three more than Massachusetts. In New Hampshire the *Gazette* was alone, while Rhode Island had both a *Gazette* and a *Mercury*. Of the editors and proprietors who originally opposed the right or became converts to the wrong several sought refuge in Nova Scotia and New Brunswick, where they established newspapers, which were the first published in these colonies.

The individual responsibility for the position and utterances of the newspaper made it naturally conservative—a follower rather than a leader. The real contribution of the printing press to the revolutionary cause was through the medium of the occasional tract or pamphlet, to which allusion has already been made.

Services of press to the revolutionary cause.

Let us not, however, underestimate the services to the patriot cause rendered by the few journals which did what they could in that cause, and did it with boldness, zeal, and disregard of consequences. At the head of this class of colonial journals stand the Boston *Gazette and Country Journal*, founded by Benjamin Edes and John Gill, April 7, 1755, and the *Massachusetts Spy*, founded by Isaiah Thomas, August 7, 1770. The *Spy* was started shortly after the suspension of the Boston *Chronicle*, which had been founded in 1767, and had rendered itself obnoxious to the whig element of the community by assailing the citizens who differed with the advocates of the British administration. Four other papers were in the meanwhile regularly published once a week in Boston, viz, the *News-Letter*, the *Evening Post*, the *Gazette*, and the *Weekly Advertiser and Post Boy*. Of these the *News-Letter* and the *Weekly Advertiser and Post Boy* were conducted in the interests of the government. The *Gazette* was warmly enlisted for the whig cause, and the *Evening Post* was apparently neutral or indifferent, paying little or no attention to political controversy and a great deal to religious controversy. Under these circumstances there appeared to be great need for another journal devoted to the patriot cause, while there was very little to encourage the hope of its financial success. In 1768 the Boston *Chronicle* had set the fashion of a semi-weekly publication, it being the first newspaper published oftener than once a week in New England. It increased its issue from once to twice a week without any addition to the cost to the subscriber, which was six shillings and eight pence—"but a very small consideration," according to Thomas, "for a newspaper on a large sheet and well executed." Mr. Thomas proposed to publish his paper three times a week, on Tuesdays, Thursdays, and Saturdays, and did so publish it for three months, giving his readers a quarter-sheet twice a week and a half-sheet once a week. At the end of that period the tri-weekly was replaced by a semi-weekly, which ran for three months longer, when, that also proving unprofitable, the enterprise was started anew, on March 7, 1771, as a weekly. This was printed on a whole sheet, royal size, folio, with four columns, and was a larger paper than any that had thus far been published on the continent. There are few weekly newspapers now published in the United States which do not contain from three to twenty times the amount of reading matter for which there was room in the columns of the *Massachusetts Spy*.

The *Spy* was supplied with communications from the ablest political writers of the day. It began by admitting controversial articles upon both sides of the great question, but its leanings were so clearly whig that the loyalist element gradually withdrew altogether from its subscription lists, and the *Spy* thereafter devoted its entire energies to the furthering of the patriot cause. Some of the contributions in its columns were powerful and effective specimens of argument and invective, notably those signed "Centinel", "Leonardas," and "Mucius Scævola". In the meanwhile John Adams, Josiah Quincy, jr., and other patriots only less distinguished, were regularly contributing to the columns of Edes & Gill's *Gazette and Country Journal* the series of papers on political questions which produced the most marked influence in shaping and stimulating the public opinion of the time. In the columns of this newspaper "every innovation upon the chartered privileges of the colonies was examined, reviewed, reprobated, and condemned with a freedom which knew no fear and a severity which despised all control". (*a*)

It was in January, 1775, that John Adams began the publication in the *Gazette* of the celebrated series of papers signed "Novanglus", in reply to the contributions of Jonathan Sewell, published in the *News-Letter*, and signed "Massachusettensis". Mr. Adams' series ran through several months of the most exciting period just prior to the outbreak of hostilities. They often filled two or three pages of the *Gazette*, and their singular clearness of reasoning and vigor of style gave them a wide circulation, and made them, on the whole, the most cogent expression of the case for the revolutionists which found the light of the types in the colonies.

The contributions of Josiah Quincy, jr., to the *Gazette* were hardly less powerful and eloquent, and certainly no less bold, than those of John Adams. They were published over a variety of signatures, and it is probable that the whole number of them are not identified as from his pen. These and other writers who had begun their criticisms upon the measures of the government almost from the first establishment of the *Gazette*, in 1755, continued their fire, with increasing directness and indignation, at each successive obnoxious act of government—the stamp act, the massacre, the tea tax, and the closing of the port of Boston—until the plucky publisher (*b*) was driven by

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*a* Buckingham's *Reminiscences*, vol. i, p. 167.

*b* Gill was not concerned in the publication of the *Gazette* after April, 1775. In 1776 he began the publication of a new paper, called the *Continental Journal*. After the war the *Gazette* was surpassed by many rivals, and lingered along, without any distinguishing features, until 1798, when the venerable publisher published his valedictory and the paper died. The *Spy* continued to be published in Worcester, where it met with sundry difficulties which occasioned temporary suspensions, but, reckoning from the date of establishment, it is now the oldest journal in Massachusetts.

the commencement of hostilities to remove his press from Boston to Watertown, where, after a brief suspension, the *Gazette* continued to be published until the evacuation of Boston permitted his return. Mr. Thomas, in the same way, moved the *Massachusetts Spy* to Worcester.

Prominence of the Massachusetts press.

Massachusetts was almost unique in the possession of these journals, so wholly and earnestly enlisted in the cause of the colonies against Great Britain; and in estimating their influence it is proper to compare the revolutionary feeling existing in that colony, where it had these exceptional stimulants, with the same feeling in other colonies, which were largely without such stimulants. The difference was not sufficiently marked to justify us in assigning any exceptional influence to the periodical press in bringing about the revolution. This conclusion is further justified by the fact that Massachusetts was the scene of the most aggressive measures of the government, as well as of the first bloodshed, and that the revolutionary spirit was precipitated there by a certain priority of events.

## COLONIAL NEWSPAPER TYPOGRAPHY.

Mechanical and typographical characteristics of the colonial press.

In their mechanical construction and typographical appearance the journals of the colonial epoch differed from those of the present era quite as widely as in their contents and functions. Until about 1770 they were generally printed on half sheets of varying shapes and sizes; the earlier size was ordinarily 7 by 9 or 10 inches. The Boston *News-Letter* of 1704 was printed on a half sheet 7 by 13 inches. This was the size of Franklin's *New England Courant*, the *New England Journal*, and several other papers of the era between 1720 and 1770. Frequently the publisher of these and other journals varied the size of their periodicals. They would print on a half sheet folio or quarto of different sizes, as they found it convenient, most of the paper used in America before the revolution being imported from England, and it often being impossible to obtain uniform paper. Sometimes an enterprising publisher would give his readers an occasional whole sheet. This practice was first inaugurated by the Boston *Gazette* of 1719, but it frequently happened on such occasions that one entire page would be left blank.

Amount of reading matter.

About the year 1760 it became the custom with all or most of the Boston journals to print a whole sheet (crown) regularly. A calculation of the number of ems of type in these journals shows the average to have been: for the half sheets, from 3,000 to 7,000, according to the size of the type; for the whole sheets, 6,000 to 14,000, or about the contents of from one to two columns of the New York *Herald* of to-day. There were generally two columns, three-inch measure, to a page, although it occasionally happened that one broad column sufficed, or one column occupied the first page and two columns the others. The colonial journals varied as widely in their typography as in their size. Many varieties of type were brought into use: pica, small pica, english, roman, brevier, great primer, and long primer, the latter being the size and style more commonly used. It was not often that more than one style of type was put to use on one paper, except in the matter of head lines. Reading matter and advertisements were all printed alike. The latter were rarely "set off" from the literary contents in the early newspapers by rules, and the two-line letter does not appear in advertisements until near the revolutionary epoch. At that time it began to be customary to use great-primer flowers between the letters. Frequent use was also made of illuminated letters for capitals.

The composition on these early papers was generally accurate, and the orthography compares favorably with that of the English press of the same date. In both countries the capital letter was used with an extraordinary and unaccountable freedom, the general custom being to capitalize all nouns, and as many other words as possible.

The press-work was also good, considering the character of the wooden presses upon which it was executed.

The captions of the colonial journals were uniformly plain, and quite as uniformly contained for a secondary line the now obsolete legend, "Containing the Freshest Advices, Foreign and Domestick;" and many of the first papers added the expression, "Published by authority," by way of indicating that the approval of the authorities to the enterprise had been obtained.

## DEVICES.

Allegorical devices.

A distinguishing peculiarity was the device of the caption. These devices first appeared in the Boston *Gazette* of 1719, which was adorned with a cut of a ship on the right and one of a postman on the left of the title. These devices were frequently changed. The *Gazette*, above referred to, which was discontinued in 1752, had at one time devices of a postman on horseback (Fig. 1), a pine tree, and a news-carrier holding a copy of the paper in his hand. They were of the rudest possible workmanship, and often quaintly inartistic in design and ludicrously unsymmetrical in proportion. At first these devices appear to have been used merely by way of embellishment or as distinguishing marks. The successor to the Boston *Gazette*, above mentioned, displayed a cut which had been designed to accompany one of Æsop's fables. Mr. Fowle, after establishing the *New Hampshire Gazette*, appears to have luckily fallen in with a series of cuts made to illustrate an edition of Æsop, and from time to time he enlivened his caption by substituting one for another of them. After a while these embellishments came to have either a journalistic or a political significance. William Bradford's New York *Gazette* (1725) was adorned with badly-executed cuts of the arms of New York, supported by an Indian on either side, with a crown for the crest. Andrew Bradford's Philadelphia *Mercury* (1719) had a small figure of Mercury, bearing his *caduceus.* Cuts of the king's arms were frequently used, several tory journals continuing to display them down to and into the revolution. The devices were frequently accompanied by mottoes, often in Latin, and sometimes bristling with the vehemence of the *Massachusetts Spy's* "Americans! Liberty or Death! Join or Die". The *Constitutional Courant,* one issue of which was published at Burlington, New Jersey, in 1765, had in its title a device representing a snake, divided into eight parts, each part denoting a section or colony, the head and neck representing New England, and the body the middle and southern colonies, and under it the motto, "Join or Die" (Fig. 2). There was no mistaking the significance of this device. Mr. Thomas afterward adopted a modification of it for his *Spy.* He was also fruitful with his own devices. He originally used a cut of the goddess of liberty, seated upon a pedestal. A still later one in the *Spy* (Fig. 3) is thus explained in its full allegorical significance by Mr. Thomas himself:

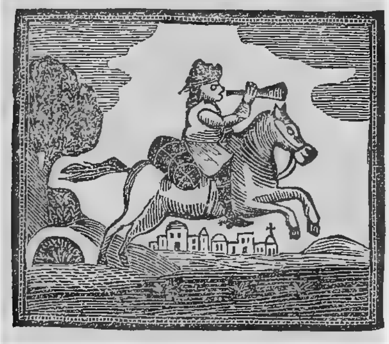

Fig. 1.

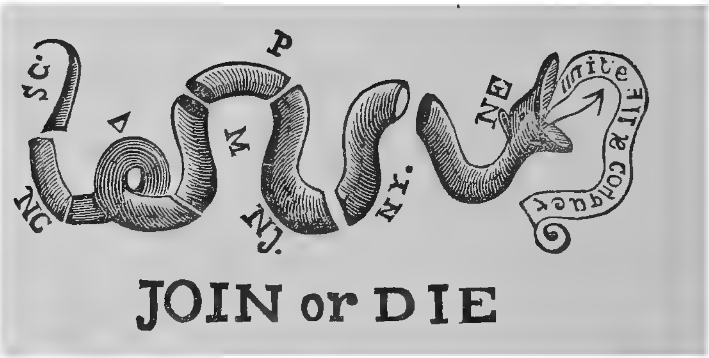

Fig. 2.

> The device on the left is a figure representing America, an Indian holding the cap of Liberty on a staff with the left hand, and in the right a spear, aimed at the British Lion, which appears attacking her from the opposite shore. That on the right is a chain of thirteen links, with a star in each link, representing the union of the thirteen states; the chain is placed in a circular form, leaving an opening for the arms of France, to which the ends of the chain are attached. Above the arms are two hands, clasped, and directly over them a sword, with its hilt resting on the clasped hands.

Other devices, like that of the *Independent Ledger and American Advertiser* of Boston, in 1778 (Fig. 4), were symbolical of the union of hand and purpose on the part of the thirteen colonies.

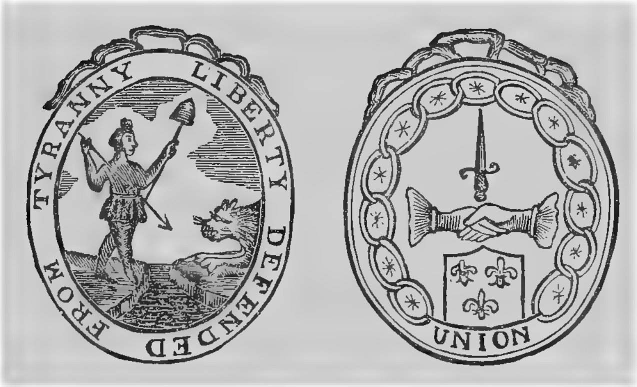

Fig. 3.

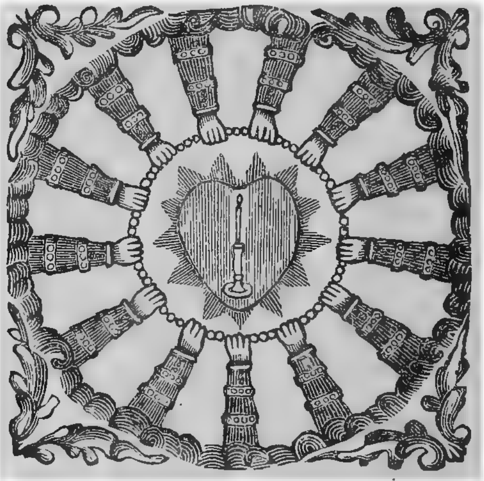

Fig. 4.

These devices, indicating with varying intensity of allegory the convictions and principles of the journals adopting them, began to disappear from the captions after the revolution and with the disappearance of the causes which created the political feeling in the colonies. The American press, so far as it has not discarded these titular emblems altogether, is now content with miniature printing presses, occasional portraits of Benjamin Franklin, or goddesses of liberty, which, from an artistic point of view, are not more deserving of praise than the devices which disfigured the colonial press.

## PRICES OF COLONIAL NEWSPAPERS.

Prices.

The colonial newspapers were sold at prices which varied according to the location and the currency of that location. The latter fluctuated so frequently in value that it is not always possible at this date to determine precisely the sum that the publisher regarded himself entitled to receive from his patrons; but there is sufficient reason to believe that this sum was a nearly uniform one in the respective colonies, and that it did not vary greatly in any one colony from the standard established in all the others. John Campbell, when he founded the *News-Letter* in 1704, may be said to have established for his own and for subsequent generations the prevailing price of the weekly newspaper. He received the equivalent of $2 of our present currency, but did not think it worth while to advertise his price of subscription in the paper itself. This was a neglect to take advantage of an opportunity which found several imitators in the subsequent colonial newspapers. The Boston *Gazette and Weekly Journal* (1719) was sold for 16*s.* a year, and 20*s.* when sealed, payable quarterly, and at the value of currency at that time this was equivalent to $2 50 in our present money. The *American Magazine*, a monthly periodical of 50 pages, founded in 1743, was sold for 3*s.*, new tenor, a quarter, being at the rate of 50 cents, or $2 per annum. The *Rehearsal*, founded in 1731, was sold originally for 20*s.*, but was reduced from that price to 16*s.* when Fleet took possession of it in 1733.

The Boston *Advertiser* was sold for 5*s.* 4*d.* "lawful money", and the Boston *Chronicle* (1767) for 6*s.* 8*d.*—"but a very small consideration for a newspaper on a large sheet and well printed," according to Thomas, but likely to be regarded as a high price for a similar newspaper in these days. The *Christian History*, weekly, 1743, was sold for 2*s.*, new tenor, per quarter, but subsequently 6*d.* more was added to its price, "covered, sealed, and directed." The *American Magazine and Historical Chronicle*, a monthly of 50 pages, sold for 3*s.*, new tenor, per quarter, the equivalent of $1 50 per year. Nevertheless, 6*s.* 8*d.* appears to have been the ruling price at this period, for the Salem *Essex Gazette* (1768) and the Norwich *Packet* (1773) were vended at that rate. The *New Hampshire Gazette* (1756) was sold for "one dollar per annum, or its equivalent in bills of credit, computing a dollar this year at four pounds, old tenor". The Portsmouth *Mercury* (1765) was sold for "one dollar, or six pounds o. t. per year; one-half to be paid at entrance". Thomas Fleet, who discontinued the *Weekly Rehearsal* in 1735 and began the publication of the Boston *Evening Post* on a half sheet of large foolscap paper, regarded the prevailing price for newspapers altogether too low, and in a dunning advertisement to his subscribers he declared:

> In the days of Mr. Campbell, who published a newspaper here, which is forty years ago, Paper was bought for eight or nine shillings a Ream, and now tis Five Pounds; his Paper was never more than half a sheet, and that he had Two Dollars a year for, and had also the art of getting his Pay for it; and that size has continued until within a little more than one year, since which we are expected to publish a whole Sheet, so that the Paper now stands us in near as much as all the other charges.

In Pennsylvania the prices of newspapers were more uniform than in New England. The Philadelphia *American Weekly Mercury*, the first paper founded in that city, and the first outside of New England, being the third in the colonies, was sold for 10*s.* per annum. The Philadelphia *Gazette* (1733) was sold for the same price, as was also the Philadelphia *Journal* (1766), the *Chronicle* (1767), and the *Ledger* (1775). The Philadelphia *Evening Post*, founded in 1775, and issued three times a week, was sold at a price of two pennies for each paper, or 3*s.* the quarter. The *Dutch and English Gazette* was sold for 10*s.* in 1749, when it was a weekly publication, and for 5*s.* in 1751, when it became a fortnightly publication. The New York *Weekly Journal* (1733) was sold for 3*s.* the quarter. The *Virginia Gazette* (1766) was 12*s.* 6*d.* per year. There was a notable increase in prices during the war in several cases, and the *New Jersey Gazette*, which was founded in 1777, fixed its price at 26*s.* per annum.

## INFLUENCE OF THE REVOLUTIONARY WAR UPON THE PRESS.

Such was the condition and the characteristics of the colonial press at the time of the outbreak of the revolution. It had not yet been able to reach the position of a recognized force in politics and in society. It had done good service for the patriot cause, but had still been only a secondary element in the tide that was sweeping the colonies toward independence. Its usefulness was circumscribed by a variety of causes, one of which, at least, the revolution did more than aught else to wholly remove. With the outbreak of hostilities all attempts of the government to regulate and control the public press came to an end, and in all the colonies the breaking loose from the control of England seems to have been accepted as carrying with it the abrogation of the laws and customs inherited from the mother country which involved anything like a censorship of the press or a governmental control of its utterances. As colony after colony organized state governments and adopted constitutions for self-government the freedom of the press, under the restrictions which still obtain for the regulation of its utterances in reference to individuals, was recognized as a cardinal point in free institutions. The influence of the revolution in producing the liberty of the American press, as we understand the meaning of that phrase, has not been generally recognized, and can only be fully appreciated by a consideration of the restrictions which surrounded its utterances under the colonial system and the complete independence of governmental control which has ever since been its birthright. In Great Britain it was many years afterward before this principle was recognized as a fundamental one.

Secondary influence of the colonial press.

Freedom of press established by the revolution.

## CONSTITUTIONAL GUARANTEES OF A FREE PRESS.

When the Constitution of the United States was framed there was no provision included in it regarding the freedom of the press, the general convention having left this subject to the common understanding and established opinion of the people. It is true that Charles Pinckney, of South Carolina, on May 29, 1787, laid before the convention a draft of a plan of federal government which he had prepared, in which was included a provision declaring that "the legislature of the United States shall pass no law touching or abridging the liberty of the press", (*a*) and that on August 20 of the same year Mr.

The federal Constitution and the press.

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*a* *Debates on the Adoption of the Federal Constitution*, as reported by James Madison, revised and newly arranged by Jonathan Elliot, p. 131. Washington: 1845.

Pinckney submitted to the convention, for reference to the committee of detail, a series of propositions, in which was included the declaration that "the liberty of the press shall be inviolably preserved". Neither of these propositions having been incorporated in the Constitution, the first Congress, by way of amendment to the Constitution, resolved that "Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof, or abridging the freedom of speech or of the press, or of the right of the people peaceably to assemble and to petition the government for a redress of grievances".

State constitutions and the press.

But previous to the adoption of this amendment to the federal Constitution there had been express provision made in the constitutions of each of the several states which adopted new constitutions to prevent an abridgment of the liberty of the press. It is interesting to recall these provisions, and to observe how carefully they have been preserved in all the subsequent constitutional modifications of the original states and incorporated in the constitutions of those states which have since been admitted to the federal union.

New Hampshire.

The constitution of New Hampshire (1784), article XXII, declares that "the liberty of the press is essential of freedom in a state; it ought, therefore, to be inviolably preserved". This provision was identically preserved in the constitution of 1792, which is still in force in that state.

Massachusetts.

In Massachusetts the declaration of rights prefixed to the constitution of 1780 declares that "the liberty of the press is essential to the security of freedom in a state; it ought not, therefore, to be restrained in this commonwealth"; and this declaration of rights remains unaltered and in full force.

New York.

The convention which framed the constitution of New York (1777) contented itself with declaring, ordaining, and determining that "such parts of the common law of England, with the statutes adopted and the acts of their own legislature, as together did form the law of the colony in 1775, shall continue, subject to the alterations of the legislature". They regarded the freedom of the press as established by the common law. But the second constitution of New York (1821) contained this explicit declaration (article VII, section 8):

> Every citizen may freely write, speak, and publish his sentiments on all subjects, being responsible for the abuse of that right, and no law shall be passed to restrain the liberty of speech or of the press. In all prosecutions or indictments for libels the truth may be given in evidence to the jury, and if it shall appear to the jury that the matter charged as libelous is true, and was published with good motives and for justifiable ends, the party shall be acquitted; and the jury shall have the right to determine the law and the fact.

This significant declaration was introduced into the organic law of New York as a direct consequence of the large number of libel suits which had resulted from the exciting politics of the previous years—suits in which a variety of constructions of the existing law were adopted and the press was held to have suffered unjustly. The provision of 1821 still remains in the constitution of New York.

Pennsylvania.

The state of Pennsylvania was more explicit than New York on this subject in its second constitution (1790). The provision reads:

> That the printing press shall be free to every one who undertakes to examine the proceedings of the legislature or any branch of the government, and no law shall ever be made to restrain the right thereof. The free communication of thoughts and opinions is one of the invaluable rights of man, and every citizen may freely write and print on any subject, being responsible for the abuse of that liberty. In the prosecutions for publications of papers investigating the official conduct of officers or men of public capacity, or where the matter published is proper for public information, the truth thereof may be given in evidence; and in all indictments for libels the jury shall have a right to determine the law and the facts, under the direction of the courts, as in other cases.—Article 9, section 7.

This provision was retained in the constitution of 1838, and also in the existing constitution of 1873, with an important modification of phraseology, to wit:

> No conviction shall be had in any prosecution for the publication of papers relating to the official conduct of officers or men in public capacity, or to any other matter proper for public investigation or information, where the fact that such publication was not maliciously or negligently made shall be established to the satisfaction of the jury.

Provisions almost identical with the original Pennsylvania clause quoted above were incorporated in the first constitutions of the states of Arkansas, Alabama, Illinois, Kentucky, Tennessee, and Texas.

South Carolina.

South Carolina, in her original constitution (1776), committed the privilege to the keeping of the common law as understood by the people, but the constitution immediately thereafter adopted (1778) contains the declaration "that the liberty of the press be inviolably preserved". This declaration disappeared in the constitution of 1790, and did not again appear in that of 1865; but in the constitution of 1868, sections 7 and 8, article I, there appears the following:

> All persons may freely speak, write, and utter their sentiments on any subject, being responsible for the abuse of that right, and no law shall be enacted to restrain or abridge the liberty of speech or of the press. In prosecutions for the publication of papers investigating the official conduct of officers or men in public capacity, or where the matter published is proper for publication, the truth thereof may be given in evidence; and in all indictments for libels the jury shall be the judges of the law and the facts. (See Pennsylvania.)

Georgia.

The Georgia constitution (1777) declared that "the freedom of the press and trial by jury shall remain inviolate", and this provision remained intact in the constitutions of 1789 and 1798. In the declaration of rights of the constitution of 1865 was the following:

> Freedom of speech and freedom of the press are inherent elements of political liberty. But while every citizen may freely speak, write, or print on any subject, he shall be responsible for the abuse of the liberty.

The same phraseology remains in the constitution of 1868.

The North Carolina constitution (1776) declared "that the freedom of the press is one of the great bulwarks of liberty, and therefore ought never to be restrained". The constitution of 1868 retained this phraseology, with the proviso added that "every individual should be held responsible for the abuse of the same", and thus it stands in the constitution of 1876.

North Carolina.

In the bill of rights which accompanied the Virginia constitution of 1776 is the declaration "that the freedom of the press is one of the great bulwarks of liberty, and can never be restrained but by despotic governments". This declaration of rights was re-enacted with the constitutions of 1830, 1850, 1864, and 1870, in the latter instrument the clause being added: "And any citizen may speak, write, and publish his sentiments on all subjects, being responsible for the abuse of that liberty."

Virginia.

The Maryland constitution (1776) in the "declaration of rights" asserted "that the liberty of the press ought to be inviolably preserved". This clause is repeated in the declarations prefixed to the constitutions of 1851 and 1864, the same qualification quoted in the case of Virginia being added in the last instrument.

Maryland.

The original constitution of New Jersey (1776) contained no declaration regarding a free press, but that of 1844 contains this explicit provision—the most explicit in reference to the rights of publishers in libel cases which had been incorporated in the fundamental law of any state up to that time:

New Jersey.

> Every person may freely speak, write, and publish his sentiments on all subjects, being responsible for the abuse of that right. No law shall be passed to restrain or abridge the liberty of speech or of the press. In all prosecutions or indictments for libel the truth may be given in evidence to the jury, and if it shall appear to the jury that the matter charged as libelous is true, and was published with good motives and for justifiable ends, the party shall be acquitted, and the jury shall have the right to determine the law and the fact.

Substantially this provision, commanding verdicts for defendants where the truth of the statements complained of is proven and the motives of publication are justifiable, is now incorporated in the constitutions of New York, Connecticut, Illinois, Kansas, Rhode Island, Wisconsin, West Virginia, Maine, Ohio, Iowa, Nevada, and Colorado. In other states, where the phraseology of the Pennsylvania constitution is the model, this provision is limited in its application to publications relating to the official conduct of public officers or men in public capacity.

The first constitution of Vermont (1777) declared as follows:

Vermont.

> The people have a right to freedom of speech, and of writing and publishing their sentiments concerning the transactions of government, and therefore the freedom of the press ought not to be restrained.

This phrase reappeared in the constitutions of 1786 and 1793, which latter remains the organic law of the state.

New constitutions were not formed in the states of Rhode Island and Connecticut upon the declaration of independence, the former state continuing to be governed under its original charter, granted by the English government in 1663, until this charter was superseded by the constitution of 1842, in which the declaration took this form:

Rhode Island.

> The liberty of the press being essential to the security of freedom in a state, any person may publish his sentiments on any subject, being responsible for the abuse of that liberty; and in all trials for libel, both civil and criminal, the truth, unless published from malicious motives, shall be sufficient defense to the person charged.

This constitution remains unchanged, except by minor amendment.

The Connecticut charter of 1662 made way for a constitution in 1818, in which appeared a more explicit declaration than had yet been given place in any organic law, giving the right to freely speak, write, or publish, forbidding the passage of any law at any time to curtail or restrain the liberty of speech or of the press, and finally providing that "in all prosecutions or indictments for libel the truth may be given in evidence, and the jury shall have the right to determine the law and the facts, under the direction of the court".

Connecticut.

The second constitution of Delaware (1792) provided as follows:

Delaware.

> The press shall be free to every citizen who undertakes to examine the official conduct of men acting in a public capacity, and any citizen may print on any subject, being responsible for the abuse of that liberty. In prosecutions for publications investigating the proceedings of officers, or where the matter published is proper for public information, the truth thereof may be given in evidence; and in all indictments for libels the jury may determine the facts and the law, as in other cases.

This section is retained without change in the constitution of 1831, and provisions practically identical with one or the other of those quoted above appear in every one of the thirty-eight state constitutions as they exist to-day.

The constitution of West Virginia contains one of the exceptional organic clauses relating to the freedom of the press, as follows:

West Virginia.

> No law abridging the freedom of speech or of the press shall be passed; but the legislature may, by suitable penalties, restrain the publication or sale of obscene books, papers, or pictures, and provide for the punishment of libel and defamation of character, and for the

recovery, in civil actions, by the aggrieved party of suitable damages for such libel or defamation. In prosecutions and civil suits for libel the truth may be given in evidence, and if it shall appear to the jury that the matter charged as libelous is true, and was published with good motives and for justifiable ends, the verdict shall be for the defendant. (*a*)

## THE EXISTING LAWS OF LIBEL.

Newspaper libel suits.

These provisions of the organic law, which guarantee to the press of the several states the sacred right of free speech, and accompany the responsibility for the exercise of that right with the privilege of trial by jury upon the law and the facts, are supplemented in each state by statutory provisions regarding actions for libel, civil and criminal. Everywhere it is established in our jurisprudence that the guarantee of free speech does not involve the freedom from those restraints which regulate that speech to the requirements of public decency and public order and to the protection of private character. The abuse of the freedom of the press has made the United States more prolific of libel suits than any other country in the world. The law offers every facility to the individual for such redress for defamation of character as pecuniary damages can bring; and if the experience of the country is that juries are not prone to award heavy penalties in such cases, the fact remains that every publisher, after every issue of his newspaper, is at the mercy of any person who may regard himself as aggrieved by some publication therein, and that many publishers have become involved in expensive and annoying litigations in consequence of the courageous consecration of their press to the exposure and extirpation of public wrongs. While there is no decrease in the universal feeling that public and private rights demand full legal protection from the malicious publisher, there is an increasing feeling, on the other hand, that the publisher should be better protected from the malicious prosecutor. The uncertainty of the result in an action against the proprietor of a newspaper for libel deters many from attempting to pursue this method in the vindication of their character. This distrust, it will be conceded, does not arise from any indefiniteness or uncertainty in the law, or in the method of its expounding by the courts. On the other hand, there is an increasing tendency, observable of late years, to resort to the law for purposes which may be described as nearly akin to blackmail and intimidation. From the standpoint both of the public and the publisher, therefore, the existing libel laws of the United States are capable of modifications that will better adapt them to the purposes for which they are devised, and it is not to be expected that journalism will ever outgrow the tendencies which render it necessary to throw these legal restraints around the free press of the United States. In a country where the establishment of a newspaper is such a common and easy affair it is to be expected that some newspapers will always exist whose conduct is not regulated by that scrupulous regard for private rights which has long distinguished the better class of American journals and is developed to a most admirable degree in the press of England. The nature of our political institutions and the fierceness of our party politics have always developed in the press a greater freedom of personal reference, accompanied by bitterness and vindictiveness of criticism, than is seen elsewhere. Of this, however, it is safe to say that there is much less than existed in the early history of American newspapers, while the gross and vulgar intrusion into private affairs, merely for the gratification of a prurient public taste for sensationalism and scandal, has long been confined to publications of no recognized standing in the community.

## THE PRESS DURING THE REVOLUTION.

Newspaper circulation not increased by the revolution.

The American press, emerging from the revolution with the great advantage of free utterance guaranteed in the organic law to compensate it for the trials of that ordeal, was compelled to pay to the full the penalty which war imposes upon all classes of society and all elements of material wealth. It had not yet made itself a necessity, for its issues were still but once a week, and were therefore, as a rule, behind the news which the people were eager enough to learn, but which they found themselves learning more expeditiously by word of mouth than from the printed page. For this reason there was no such unusual increase in the circulation of the existing newspapers as ordinarily accompanies the outbreak of a war. The information they did convey was necessarily meager, owing to the lack of facility and ability to print or to obtain details. Journalistic enterprise, as we understand that phrase in these days, was an undeveloped element, and the cost and difficulties of publication were inordinately increased. Paper was extremely scarce, and toward the close of the revolutionary war piteous appeals to the people to save their rags for the paper-mills, which necessity had established in several colonies, began to appear in the prints. Skilled printers were few in number, and there had ceased to be any fresh arrivals from England and the continent, and worn-out types could not be replenished except at a cost which was ruinous. These causes prevented that rapid multiplication of newspapers in the sections not actually involved in the war, such as is usually seen in such times.

At the headquarters of the press, in the cities of Boston, New York, and Philadelphia, other difficulties of an even

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[a] The constitutions of the states and of the United States use the word *press* as descriptive of the free communication of ideas and sentiments by the art of printing. By the freedom of the press they undoubtedly intended an unrestrained use and free improvement of the privilege of writing and printing in the communication of sentiments and opinions on matters of public concernment, governmental measures, and political procedures; not a licentious and destructive abuse of the privilege in such a manner as that wicked and malicious men should gratify their resentment, malevolence, and revenge to the overthrow of family reputation and the ruin of their neighbors' character.—James Sullivan's *Dissertation*.

Suspension of the Boston, New York, and Philadelphia presses.

more serious nature interfered with progress. With the successive occupation of these several cities by the British troops there was nothing for the publishers of patriotic newspapers to do but to pack up their accouterments as best they could and make their escape to other points, whence they could not supply their regular subscribers nor command their ordinary facilities, and frequently they found it necessary to suspend publication altogether for weeks and months. The most notable cases of removal were those of Thomas' *Massachusetts Spy*, which went from Boston to Worcester; Edes' *Gazette*, removed from Boston to Watertown, whence it returned after the evacuation; the Newport *Mercury*, from Newport to Attlebury, Massachusetts; and the New York *Journal*, to Kingston (Esopus), and thence, upon the approach of the British, to Poughkeepsie. The patriot newspapers printed in Philadelphia at the outbreak of the war were suspended altogether during the period that the British remained in possession of that city.

The royalist press.

The royalist papers published in these cities at the outbreak of the revolution continued to print, generally under the protection and encouragement of the British authorities; but their difficulties were hardly less than those of their expelled contemporaries, as the citizens, sympathizing with the cause of independence, refused to patronize them, and the meager support remaining compelled several of them to suspend. Rivington's New York *Gazetteer*, which had "a very extensive circulation" in the principal towns surrounding from the supporters of the government, was descended upon by a body of armed men in 1775, which destroyed the press, pied the type, and effectually stopped its publication. Returning to England, Rivington supplied himself with a new printing outfit, and was appointed king's printer for New York. Coming again to that city when the British gained possession, he re-established the *Gazetteer*, under the title of Rivington's *Loyal New York Gazette*, "Published by James Rivington, Printer to the King's Most Excellent Majesty." This paper naturally suspended for want of support shortly after the close of the revolution, although its editor, by discarding the royal arms and pledging himself to print an impartial and complete newspaper, struggled hard to live down the prejudice excited by his conduct in the war.

The press of 1775.

The list of newspapers which were in existence in the colonies in the year 1775, as compiled by Thomas, is probably nearly, if not quite, accurate. It shows them to have been thirty-seven in number, of which one was located in New Hampshire, seven in Massachusetts, two in Rhode Island, four in Connecticut, four in New York, nine in Pennsylvania (including three established in the early part of that year), two in Maryland, two in Virginia, two in North Carolina, three in South Carolina, and one in Georgia. The complete list is as follows:

| Titles. | Towns. | Publishers. |
|---|---|---|
| NEW HAMPSHIRE. | | |
| *New Hampshire Gazette | Portsmouth | Daniel Fowle. |
| MASSACHUSETTS. | | |
| Massachusetts Gazette and News-Letter. | Boston | Margaret Draper. |
| Boston Evening Post | do | T. & J. Fleet. |
| Boston Gazette | do | Edes & Gill. |
| Massachusetts Gazette and Post-Boy | do | Green & Russell. |
| *Massachusetts Spy | do | Isaiah Thomas. |
| Essex Gazette | Salem | S. & E. Hall. |
| Essex Journal | Newburyport. | Lunt & Tinges. |
| RHODE ISLAND. | | |
| *Newport Mercury | Newport | Solomon Southwick. |
| *Providence Gazette | Providence | John Carter. |
| CONNECTICUT. | | |
| *Connecticut Journal | New Haven | T. & S. Green. |
| *Connecticut Gazette | New London | Timothy Green. |
| *Connecticut Courant | Hartford | Ebenezer Watson |
| Norwich Packet | Norwich | Robertson & Trumbell. |
| NEW YORK. | | |
| New York Mercury | New York | Hugh Gaine. |
| New York Journal | do | John Holt. |
| New York Gazetteer | do | James Rivington. |
| Albany Post-Boy | Albany | A. & J. Robertson. |
| PENNSYLVANIA. | | |
| *Pennsylvania Gazette | Philadelphia | Hall & Sellers. |
| PENNSYLVANIA—continued. | | |
| Pennsylvania Journal | Philadelphia | W. & T. Bradford. |
| *Pennsylvania Packet | do | John Dunlap. |
| †Pennsylvania Ledger | do | James Humphreys. |
| †Pennsylvania Evening Post | do | Benjamin Towne. |
| ‡Pennsylvania Mercury | do | Story & Humphreys. |
| H. Miller's German Paper | do | Henry Miller. |
| C. Sower's German Paper | Germantown | Christopher Sower. |
| English and German Paper | Lancaster | Lahn, Albright & Steiner. |
| MARYLAND. | | |
| Maryland Gazette | Annapolis | Fred. & Sam'l Green. |
| Maryland Journal | Baltimore | William Goddard. |
| VIRGINIA. | | |
| Virginia Gazette | Williamsburg. | Purdie & Dixon. |
| Virginia Gazette | do | William Rind. |
| NORTH CAROLINA. | | |
| North Carolina Gazette | New Berne | James Davis. |
| Cape Fear Mercury | Wilmington | Adam Boyd. |
| SOUTH CAROLINA. | | |
| South Carolina Gazette | Charleston | Peter Timothy. |
| South Carolina and American General Gazette. | do | Robert Wells. |
| South Carolina Gazette and Country Journal. | do | Charles Crouch. |
| GEORGIA. | | |
| Georgia Gazette | Savannah | James Johnston. |

A star (*) prefixed indicates that they were continued in 1812. Those marked thus (†) commenced in January, 1775; those marked thus (‡) in April, 1775.

Of these journals eight only were in existence in 1810, when Thomas' list was first published, many of them having suspended during the progress of the war, borne down by the circumstances upon which we have dwelt. Five additional papers, not here enumerated, were established during the first year of the war.

Their probable circulation.

An attempt has been made to estimate the number of copies annually printed of the thirty-seven newspapers of 1775, which places the figure at 1,200,000. The aggregate is reached by the simple process of assigning to each of the papers an average weekly circulation of about 600 copies. This average is probably amply high, and calls for an average weekly issue of all the existing journals of less than 23,000 papers for a population of 2,800,000, in round numbers, or a paper once a week for every 122 individuals. Any value which these figures may be supposed to possess must be qualified by the fact that the great bulk of the revolutionary papers was circulated in the three cities of New York, Philadelphia, Boston, and

# SECOND PERIOD: 1783-1835.

# SECOND PERIOD.

## AFTER THE REVOLUTION.

Commencement of the transitional era.

The close of the revolutionary war began the second era in the history of the American press, or the transitional era, as I have designated it. Up to this time it had taken firm root indeed, but in a soil which was sterile, where it survived as an exotic. The United States now entered upon an entirely different condition of affairs, the tendency of which was directly to stimulate the establishment of new journals in all the settled parts of the country and to supply them more adequately with the means of subsistence and growth, if not of large profits. As business enterprises, newspapers continued to be for many years uncertain and unattractive; and the circumstances which drew many men into the business, and tended to the continual multiplication of newspapers, were not of a kind to broaden their financial basis. (*a*)

## POLITICAL PARTIES AND THE PRESS.

The press and politics.

With the establishment of independence and the prolonged and exciting discussion which preceded the adoption of the federal Constitution the people of the United States divided quickly into groups upon issues which concerned altogether their own internal affairs, and engrossed the public mind in controversies, soon to become warm, which everywhere demanded methods of public expression and intercommunication. To this political stimulus may be directly traced the immediate multiplication of newspapers, and the fact that they rapidly attained a degree of influence hitherto unknown in America, and probably not previously paralleled in the world. (*b*) They were born of the friction generated by intense political feeling, and were very often established, under circumstances which foredoomed them to failure as business enterprises, by men carried away by intensity of political opinion or prompted to the venture by other men, who desired to make use of public prints for political purposes. The neutral and colorless journal, which had been so frequent before the revolution and during its progress, almost entirely disappeared, and of the three hundred and sixty-two papers which Thomas found in existence in 1810 all but seventeen were classified by him as attached either to the federalist or the republican party, most of the exceptions being either agricultural journals or periodicals of a literary character. The political opinions of a newspaper not only offered an inducement to subscribers of its manner of thinking, and thus spread the circulation among many who would not otherwise have taken it, but offered certain other advantages, such as the petty patronage in printing which political parties are able to supply and the favor, and frequently the sustenance, of politicians who were in positions of more or less power. Hence it happened that these early newspapers were divided in their political opinions very nearly in accordance with the well-known geographical distribution of politics in that era. Eleven only of the thirty-two journals published in Massachusetts in 1810 were republican in politics, only one of

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*a* An episode in the life of Joel Munsell, of Albany, New York, affords illustration of the prevailing methods of newspaper publication even as late as 1827. In that year he was setting type on a weekly periodical, the *Masonic Record*, and to occupy the time when not thus employed young Munsell determined on issuing a newspaper himself. In one day along the principal business street he procured 150 subscribers. He purchased a small font of types and prepared for business. This paper was called the *Albany Minerva*, and was published semi-monthly on a half sheet folded as a royal octavo. The composition was done by Munsell in the back room of a bookstore, the use of which was paid for his attendance on customers while the clerk was absent at dinner. The paper was worked off at night on a Ramage press, with balls, in the *Record* office, and the next morning the editor himself delivered it at the doors of his subscribers. The labor involved in writing, type-setting, and press-work, all of which Munsell did himself, was so great that only eight numbers were issued, the first of which appeared January 1, 1828, when Munsell had not reached his twentieth year.—George R. Howell's *Memoir of Joel Munsell.*

Of the newspapers and periodicals printed or published by Mr. Munsell at various times there were, in addition, *The Microscope*, 1834, a weekly journal, which had for some time a considerable circulation, in the publication of which he was associated with Henry D. Stone; a daily whig campaign newspaper in 1840; a *Lady's Magazine* in 1842, edited by E. G. Squier; *The Northern Star and Freeman's Advocate* (1840); *The Spectator* (1844), a weekly religious newspaper, edited by Dr. William B. Sprague, which during the few years of its survival exercised a large influence in that portion of the state; *The Guard* (1845), an Odd Fellows' journal, of which C. C. Burr and John Tanner were editors; and, in subsequent years, *The State Register*, daily; *The Typographical Miscellany*, one of the earliest periodicals devoted to printing; *The New York Teacher*, the Albany *Morning Express* (1854), and the Albany *Daily Statesman*. Mr. Munsell was one of the committee appointed by the American Antiquarian Society of Worcester, Massachusetts, to edit and supervise the second edition of Thomas' *History of Printing*, published in 1874.

*b* The newspapers of that day exercised an individual influence over the minds of their readers very far beyond that of the so much abler journals of our times. The power and influence of the press as a whole, and even the importance of the press as a political agent, have indeed greatly increased, but the effect which any individual journal can produce has very greatly diminished. In those days the *Aurora*, for instance, penetrated to many localities in which no other printed sheet ever made its appearance. There were many who never saw any other newspaper, and its falsehoods and calumnies produced all the effect natural to an uncontradicted statement of fact. At present the mischief that can be done by falsehood and misrepresentation is comparatively limited, detection and exposure following too close.—Hildreth's *History of the United States*, second series, vol. ii, p. 229.

the twelve papers in Connecticut, and correspondingly few in the rest of the New England states, throughout which the federalist party was strong. In Pennsylvania the political division of the newspapers at that time was very nearly even, while in Maryland, Virginia, the Carolinas, Georgia, Kentucky, Tennessee, and Ohio the federalist journals were as scarce as republican journals in New England. At an earlier date, and when these geographical party lines were more marked, this peculiarity was even more noticeable. At a date still later the fact that a federalist or republican newspaper existed in a certain town, either with or without being able to make a comfortable living there, was apt to prove the sufficient provocation for the establishment of another journal of the opposite politics. And thus they went on multiplying at a much more rapid rate, considering the relative population, the relative number of readers, and the facilities for distribution, than they have multiplied at any later date in the history of the country. In New York city especially journal after journal was established during the first quarter century after the revolution whose sole mission apparently was to advance the interests of one or another political faction existing there, and whose life went out when the faction disappeared, if indeed it did not cease before, and this process went on, only in less degree, in the other well-settled parts of the country.

Geographical distribution of the political press.

The early journalism of this country, therefore, owes much, in one sense of the word, to politics, which may be said to have been the chief stimulus to its rapid spread for the first fifty years after the close of the revolutionary war, and until the close of the second era. It was natural that there should have been every inducement to repay the debt, and that politics should thus early have occupied the chief attention of the editors. It was a state of things which brought into the profession a class of men widely different from those who had been chiefly conspicuous in it during the colonial epoch. The majority of the latter were men of merely mechanical skill, more intent upon making a living out of their trade as printers than of consecrating their energies to a public cause. We have seen how the greater part of the writing done in the colonial press, either for or against the principle lying at the root of the revolution, was the work of outside contributors—of men who were themselves neither editors nor printers, but rather the leaders of opinion in their several communities, who were glad to embrace the opportunity the press afforded for influencing the public mind. The editor, in the sense that we now use the word, was not a frequent character, even in such newspaper towns as Boston, New York, and Philadelphia, and this was one chief reason why the pamphlet, rather than the newspaper, was so vital a literary force in the revolutionary epoch. The tracts of Thomas Paine attained a wider circulation throughout the colonies, and were more potent in the crystallization of public opinion, than all the issues of the periodical press. It was often the case that Benjamin Franklin, who is conceded to have been the best writer directly connected with the colonial press, while actively engaged in the publication and pushing of his journal, put the compositions he regarded as of the most importance in pamphlet form, in contempt of the claims of the journal which brought him his bread and butter, but whose files bear little evidence of his literary and intellectual characteristics. This was because he knew that he thus secured for them a wider circulation. The letters composing the *Federalist*, on the other hand, were supplied by their distinguished authors to the newspapers of New York city, and in these columns first exerted their powerful influence in behalf of the federal Constitution.

Multiplication of newspapers due to political causes.

The editors of the second era.

The post-revolutionary editors were frequently not printers at all, or they were printers who were also politicians. Some of them were men of conceded ability, whose writings were terse, pointed, and scholarly; others were men who made their points bluntly, and not always with that respect for the amenities of discussion which we are learning to regard as essential to the printed page. There were among them no trained journalists in the modern sense, and very few bold and strong intellects capable of dealing adequately with the large issues precipitated upon the young republic.

## THE ALIEN AND SEDITION LAWS.

Foreign-born editors.

It is an historical fact that the men who were chiefly influential in giving its turn and tone to the American journalism of the period with which we are dealing were educated in other countries, and came to the United States without the training in American political affairs which native-born citizens had received by reason of the trials and restraints of the revolution, and without that respect for our young institutions which inured to the native.(*a*) William Cobbett was an English refugee; James Thompson Callender, of the Richmond *Examiner*, was an exile for seditious publication in Scotland; and William Duane,

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*a* The apology for the sedition act was the unquestionable licentiousness of the press, which at that time was chiefly conducted by refugees and adventurers from Great Britain and Ireland.—Appleton's *Cyclopedia*, xvi, 162.

At the time of the passage of the alien and sedition acts there were about two hundred newspapers published in the United States. Of these about one hundred and seventy-five were supporters of the national administration; the remainder were chiefly under the control of aliens. Although there were eight daily papers in Philadelphia and five or six in New York, it was seldom that any one had an editor distinct from the printer and publisher. One of the first papers established on that plan in New York was *The Minerva*, a daily paper, set up in 1794, of which the name had been lately changed to *The Commercial Advertiser*. It was the ablest paper in the country on the federal side, and was edited by Noah Webster, afterward the lexicographer. Out of New England the publishers of newspapers were principally foreigners. They were wielding a powerful influence by being vehicles for communication with the people by such men as Hamilton, Jay, Madison, King, Ames, Cabot, and many others; and in the half century between 1765 and 1815 this peculiar literature of America is to be found in its newspapers, sometimes coarse and vulgar, but always vigorous. From 1790 to 1800 the political newspapers—and they were nearly all such—teemed with scandalous personal attacks. Chief Justice McKean, in his charge in a libel case in which Cobbett was concerned, said in 1798: "Every one who has in him the sentiments either of a Christian or a gentleman cannot but be highly offended at the envenomed scurrility that has raged in pamphlets and newspapers printed in Philadelphia for several years past, insomuch that libeling has become a national crime, and distinguishes us not only from all the states around us, but from the whole c the editor of the famous *Aurora*, the anti-federalist organ in Philadelphia, then the national capital, had made a fortune once as the publisher of an English journal in India. Suppressed by the government, and petitioning in vain for redress, disgust and despair drove him to seek a new professional career in America, where he became, perhaps, the most violent and unseemly of the partisan editors. No epithet was so opprobrious that his types shrank from its use, and no federalist was too high to escape his constant and denunciatory attack. The republican principles of the elder Joseph Gales involved him in trouble with the English government, and he came to Philadelphia in 1793, where he became proprietor of the paper which formed the nucleus of the famous *National Intelligencer* when the capital was removed to Washington.(*a*) Cheetham, Gray, and Carpenter, New York journalists, were English immigrants since the revolution. There were enough of these foreign-born journalists among the editors of the period to give them prominence as a class, and the violence of their newspaper writing, while it was often equaled by that of the native writers, whether connected with the federalist or the anti-federalist press, was sufficient to occasion the agitation which culminated in 1798 in the passage of the alien and sedition laws.(*b*) While these laws were not nominally directed against the press, their enactment was largely due to the circumstances we have been relating, (*c*) and at once created a

The alien and sedition laws.

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nothing but ribaldry and billingsgate; the contest has been who could call names in the greatest variety of phrases; who could mangle the greatest number of characters, or who could excel in the magnitude of their lies; hence the honor of families has been stained, the highest posts rendered cheap and vile in the sight of the people, and the greatest services and virtue blasted."—Lossing's *Cyclopædia of United States History*.

*a* The *National Intelligencer* was founded at Washington by Samuel Harrison Smith, and was first issued as a tri-weekly on October 31, 1800. Joseph Gales became connected with it in 1807, and continued its editor until his death, in 1860. In 1812 he took into partnership his brother-in-law, William W. Seaton, by whom the journal was edited until 1865. It was issued as a daily from 1813 to 1869, when it was discontinued.

*b* The influence upon American politics exercised at this moment (1812), and for nearly twenty years previously, by a small body of educated and enthusiastic foreigners was indeed very remarkable, and may well serve as a caution to the nations of Europe. The demand for printers and editors, especially in the middle states, could not be supplied from domestic sources, and as many of these political exiles had been connected with the press at home, many of them, indeed, having been driven into exile in consequence of publications prosecuted by the government as libelous or seditious, they had adopted the same calling in America. Converted thus into mouthpieces of the democratic party, they obtained and exercised an influence out of all proportion either to their number or their talents. Randolph complained that almost every leading press in favor of war was conducted by men who had but recently escaped from the tyranny or the justice, whichsoever it might be, of the British government. He gave as instances the *Aurora* and the *Democratic Press*, the leading papers at Philadelphia, edited, the one by Duane and the other by Binns; the *Whig*, at Baltimore, conducted by Baptiste Irving, and the *Intelligencer*, at Washington, by Joseph Gales.—Hildreth's *History of the United States*, second series, iii, p. 217.

*c* The second section of the sedition act, as embodying the only legislation of the Congress of the United States which can be said to have been directed against the liberty of the press, is here reproduced:

*And be it further enacted*, That if any person shall write, print, utter, or publish, or shall cause or procure to be written, printed, uttered or published, or shall knowingly and willingly assist or aid in writing, printing, uttering, or publishing any false, scandalous and malicious writing or writings against the government of the United States, or either house of the Congress of the United States, or the President of the United States, with intent to defame the said government, or either house of the said Congress, or the said President, or to bring them, or either of them, into contempt or disrepute; or to excite against them, or either or any of them, the hatred of the good people of the United States, or to stir up sedition within the United States, or to excite any unlawful combinations therein, for opposing or resisting any law of the United States, or any act of the President of the United States done in pursuance of any such law, or of the powers in him vested by the Constitution of the United States, or to resist, oppose, or defeat any such law or act, or to aid, encourage, or abet any hostile designs of any foreign nation against the United States, their people or government, then such person, being thereof convicted before any court of the United States having jurisdiction thereof, shall be punished by a fine not exceeding $2,000, and by imprisonment not exceeding two years.

*A Dissertation upon the Constitutional Freedom of the Press in the United States of America*, by "An Impartial Citizen" (known to have been James Sullivan), Boston, 1801, contains an elaborate discussion of the relations of the government to the press in this country, and presents in judicial form the legal objections to the sedition act as they appeared at that time, and as forcibly as they have been stated in any subsequent publication. We quote the body of Mr. Sullivan's argument:

"The remedies for libels are on a civil process or on indictment. The former is by an action upon the case for damages. In this action the plaintiff sues in his private capacity, as a private citizen, and can make no use of any public official character he may sustain, excepting merely in aggravation of damages. The courts where such actions are to be litigated are the same as those where any action for breach of contract or other civil injury may be maintained.

"The remedy or redress on an indictment is on a different footing. There, unless the national Constitution has changed it, the prosecution is to be, not only in the state, but in the county where the offense is committed. The indictment cannot be for a libel simply against a public officer. The description of the offense may be aggravated by a malicious intention in the party charged to deprive the party libeled of offices or honors; but still it is no more an offense against the government in kind, even though the libels are against the officers of the same, but must remain within the jurisdiction of the state governments, because the party injured, although he is an officer of the federal government, yet remains a subject of and under the protection of the state where he resides. This will appear to be exclusive on a review of the powers given to the Congress of the United States.

"None of these powers seem to include the authority to punish libels, and therefore some very good men have their doubts whether the general government can make laws on this subject.

"It is very clear that, considering a libel as a private injury, the Congress can have no authority to enact a law for its definition or punishment. But yet it does by no means follow that a libel may not be so conceived and published as to be a crime against the government itself, independent of the personal injury done to the particular subject of it, and when that is the case the government ought to possess the power of punishing it on the principle of preserving the Constitution.

"Any laws which may be necessary to the carrying into effect the powers vested in the national government may be enacted by the Congress; but if there is no government, or no Congress, there can be no laws made. It is therefore necessarily implied that all things which ought to be done to preserve and maintain that government which is vested with those authorities, and which may make laws for their execution, may make laws to preserve its own existence. Should it be said that the state governments will preserve and defend the existence of the federal government this would by no means be accepted as an answer, because a government depending on another government for its existence is merely a corporation; it can have no sovereignty, and can be no bond of union for a nation.

"The late act of Congress was deficient in its principles on these essential points. It went beyond what the Constitution would warrant. Some of the libels pointed out by the act were such as were written and published against the President to bring him personally great counter-excitement throughout the United States. There were about two hundred papers published at the time in the whole country, (*a*) and it was believed that from twenty to thirty of these journals, which were

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and that in civil actions for damages, where one of the parties is a citizen of a state of which the other is not a citizen, the action may be commenced and prosecuted in a court of the United States, at the election of the parties. There is in this provision no distinction in persons or officers. When the general government was formed the people might, if they had thought it proper, have made provision for a President, Vice-President, and all the officers of the general government to bring their suits and prosecutions in the federal courts; but no such provision was made. Perhaps the reason was that the general government is as much the government of the people as the others, and must derive its support from the same source.

"The character of the first magistrate of the nation is highly to be respected; and though it may not be safe in any keeping but that of the federal government, yet, as the Constitution has not placed it there, a question on a legal principle does not arise on the subject. Those who are advocates for the late act of Congress against libels may feel themselves hurt at these observations, and may endeavor to support their measure by arguments supposed to result from powers necessarily implied in the Constitution. Their arguments will be before the public, and I am without anxiety at the event, be it what it may; for I am ready to receive and abide the public judgment. It has been said that the power of self-preservation is an incidental, constituent part of the government, because a national government must be a sovereign government of course, and a sovereignty relying on another sovereignty for civil support is an inadmissible idea in politics; but it will by no means follow that the right to vindicate the President's personal character against libels is necessarily incident to the Constitution. The want of personal character in a chief magistrate would be an unfortunate circumstance, but governments have existed very frequently and very well under this difficulty. Should the President bring a civil action for a libel or other slander, he would stand on the same level with other actions, and have his trial by the same rules and in the same courts where they have theirs. Should there be a criminal prosecution for a libel published against him personally, it could not be prosecuted anywhere but in the state courts and in the county where the offense happens. But if the libel is pointed at him personally, and yet written, printed, or published with an intent to injure, oppose, or subvert the government of the United States, it takes a new denomination of criminality, and becomes punishable, of necessity, in the judiciary of that government against which the crime is committed.

"The argument that the Congress have a right to protect the character of the President would with the same propriety be extended to every officer and servant of the general government. There can be no government without officers, and there can be no government without subjects and property. The case with us is: whether right or wrong must remain under the process of experiment; that we have from a number of separate sovereign states carved out a national general sovereignty, limited as to its authority, over the same persons and the same property as the state governments have in protection, and what power is not expressly or by a necessary implication given to that is retained to the several states. Had the Congress enacted that if any person should print, write, or publish any libel against the President or either house of Congress, with an intent to obstruct, injure, oppose, or subvert the government of the United States, or to raise sedition against the same, he should be punished, etc., it would have described a new offense, which ought to be punished by that government. But when they enact that when any person shall publish a libel, with an intent to defame the said President, or to excite against him the hatred of the good people of their states, without connecting it with an intent to injure the government, it will be difficult to maintain the measure by the Constitution.

"It may be said that the injury done to the President may be an injury done to the United States. That may or may not be true; and it may be said that libels against the judges and other servants of the public are injuries to the government. Nay, every immoral and vicious thing is an injury to the nation; but the creators of the federal government are the creators and the supporters of the others, and are equally interested in all, and did not choose to invest the general government with all the authority claimed in the late sedition law, passed by the late Congress.

"This observation will, no doubt, be made, and be echoed and re-echoed from one champion to another, that if the federal government cannot protect their President from libels, but must send him to the state courts for defense, we had better give up the national system at once. This observation, when made, will be the result of the want of consideration. A moment's reflection will evince that the general government is supported by the same people who support the others; that these will have their influence; and whenever the general government shall be guided by men who shall attempt a separate interest the public opinion will gradually remove them, until the connecting balance shall be restored to its constitutional perfection. The sum of the argument, on the whole, is this:

"That the constitutional freedom of the press does not open the flood-gates of slander on the members of the civil society and allow each man to calumniate his neighbor with impunity.

"That a man's reputation ought to be guarded as of the next consequence to his life.

"That whatever is in fact done by a government, or by any officer of it, in his official capacity or under a pretense of official authority, may be published to the world without the writer or printers being chargeable for a libel.

"That the reputation of men in office is as dear to them as that of other citizens is to them, and as much under the protection of the laws as the reputation of men in private life is; and that, therefore, a charge against them of bribery or corruption ought not to be published otherwise than in a judicial prosecution against them before a proper tribunal, where they may be removed from office or otherwise punished, according to the demerit of their crime.

"That where a man appears as a candidate for an elective office he exhibits his character for a public scrutiny, and every one has a right to publish anything against his election which is not false in fact, but must be answerable for all falsehoods and groundless slanders, as well in civil as in a criminal prosecution.

"That though every one has a right to publish the proceedings of the government in all its departments, yet, if the publications are made of measures which have never happened, the writers and printers are amenable, provided that any injury is done, or may be done, to the government by it. The fact of writing or publishing being proved, the burden of the proof rests on the defendant to prove the truth of the facts published, which, if he cannot do, he must submit to punishment, unless he can show that it was innocently done from mere error and mistake.

"That though no one can justify the false publication of facts in regard to the measures of the government, yet, if facts are truly published, no one can be punished for reasoning erroneously upon them, or for publishing his reasons, however wrong he may be in his conclusions.

"That the general government, having the power of punishing libels against the government itself by a necessary inference from the Constitution, does by no means give it the power of punishing those which are published against its President or other officers, who are also the subjects of the state governments, unless the libel is made and published with an intent to injure the government itself, which intent must be averred in the indictment and be found by the traverse jury, or jury of trials; otherwise he cannot be convicted. As this distinction most plainly results from the Constitution, there can be no doubt but that every candid, sober man will be ready to give it a full force in his mind, because, were whatever he may with the Constitution, he must be content to take it as it is.

"And, finally, that a reasonable constitutional restraint, judiciously exercised, is the only way in which the freedom of the press can be preserved as an invaluable privilege to the nation."

*a* This number is given by Hudson. Thomas says that in 1800 there were "at least one hundred and fifty publications of this kind printed in the United States". Hildreth states that the exact number is unobtainable, but that it c violently opposed to the administration of John Adams and its measures, were edited and controlled by aliens. A number of prosecutions occurred under these acts, among the most conspicuous being that of Abijah Adams, of the Boston *Chronicle*, who was indicted on the plea that he sold the papers—he being a bookkeeper in the establishment—which contained libels on the legislature of Massachusetts. Adams was found guilty of "publishing only", and was sentenced to thirty days' imprisonment in the county jail, to pay the costs, and to give bonds for good behavior for one year. Some of the most conspicuous of the prosecutions were brought, not against journalists, but against prominent politicians. Such a case was that of Matthew Lyon, a representative in Congress from Vermont, who was indicted and convicted in 1798 on the charge of having written a letter to the publisher of a Windsor newspaper "abusing in a most virulent manner the President and Senate of the United States", with the intention "to stir up sedition and bring the President and the government of the United States into contempt". Charles Holt, publisher of *The Bee*, printed at New London, Connecticut, was found guilty of defaming the President and discouraging enlistments in the army, and was sentenced to three months' imprisonment and a fine of $200. (*a*) James T. Callender, editor of the Richmond *Examiner*, was tried for a libel on the President, and was sentenced to nine months' imprisonment and a fine of $200. There were a number of other convictions under the sedition law, but just how many there is no means of ascertaining, and many were not of editors or publishers of newspapers. (*b*)

Convictions under the sedition act.

There can be no doubt that these laws were meant to be, and were, a restriction upon the liberty of the press in the United States, and that, as such, they were wholly repugnant to the popular judgment and feeling. The alien and sedition laws, instead of effecting the purposes at which they aimed, undoubtedly increased the intensity of the partisanship of the American press, and there was less of this kind of journalism, although still plenty of it, after they ceased to be in effect. However that may be, the laws stand as the only effort ever made by the government of the United States to take direct cognizance and regulation of the utterances of the political press, and were altogether the result of the peculiar and critical politics of the time, when the government was untried and good men actually feared that it was within the power of an unrestrained press to endanger its perpetuity by undermining the popular confidence in its *personnel*. (*c*) The fierce partisanship of the press of that era was the reflex of the public mind itself, and it cannot be said of these editors that they were any worse or any better than the people who read their writings and delighted in their gall and wormwood. But as time passed there came, gradually but surely, an improvement in the tone and character of the American press.

Causes and effects of these laws.

Of the journalism of this period, considered from a professional point of view, it is not possible to speak in high terms. Among the editors of that day were many men of great versatility and of marked intellectual gifts. Much of the political writing was powerful, and there can be no doubt that it exercised marked and continual influence upon the public mind, frequently leading public opinion, and sometimes determining important political results. Of journalism in the professional sense there was little, if any. (*d*) By this is meant that the business of making a newspaper had not yet come to be regarded as a profession distinct and clearly defined in itself, and was not pursued by those who sought it with a view to making it such a profession, men of all pursuits, if they had any literary tastes, regarding themselves as qualified, without any special training or experience. It frequently happened that they linked it to other occupations, and as the earlier editors had been booksellers and stationers, the later ones were lawyers, *litterateurs*, ministers, or business men. The profits of most newspaper ventures were small, and, as a necessary consequence, the remuneration given to men who were employed as editorial writers and managers was uniformly meager. An

Little professional journalism.

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*a* Charles Holt, publisher of *The Bee*, incurred a fine of $200 under the sedition law in 1800, which Congress, nearly half a century afterward, repaid him, principal and interest.—Munsell's *Typographical Miscellany*.

*b* The following quotation, from Henry S. Randall's *Biography of Thomas Jefferson*, fairly represents the view of the sedition law generally taken by the anti-federalists at the time:

"It has been said that the victims of the sedition law were few. We do not know the number, but they were surely enough for the purposes of intimidation. * * * * When we look at the cases and decisions under our sedition law of 1798 we cannot fail to become convinced that its aim and intent were not to prevent or punish real sedition—actual, open, or secret machinations against our institutions and laws. Its manifest object was to shield the federal government from damaging censure, to arm it with power to put down political opposition; in a word, to confer on it authority during its shorter political tenure about equivalent to that then possessed and exercised in political affairs by the government of Great Britain."

*c* Franklin, in the second part of his autobiography, written about the time of the close of the revolution, alludes to the scrupulous care he always exercised to prevent the insertion of objectionable matter in his journal; and, commenting upon the changed tone of the American press, he adds: "Now many of our printers make no scruple of gratifying the malice of individuals by false accusations of the fairest characters among themselves, augmenting animosity even to the producing of duels, and are, moreover, so indiscreet as to print scurrilous reflections on the government of neighboring states, and even on the conduct of our best national allies, which may be attended with the most pernicious consequences."

*d* On the subject of the personal and literary character of the journalists of this epoch there can be no better authority than Mr. Thomas, who knew personally so many of them and so many of their colonial predecessors. In his *History of Printing* Mr. Thomas quotes with approval some remarks from Miller's *Retrospect of the Eighteenth Century*, in the course of which it is said: "In the earlier part of the century talents and learning at least, if not virtue, were thought necessary in the conductors of public journals," to which Mr. Thomas adds the comment: "This has not been generally so much the case in America as in Europe. From the earliest period too many of our gazettes have been in the hands of persons who were destitute both of talents and literature. But in later times the number of editors who fall under this description has become greater than formerly."—II. 203.

accurate impression of the character of the business and the manner of its conduct, especially in the smaller cities and towns, is given in the following extract from an address containing some account of the early history of the Providence *Journal:*

> In and about the year 1820, although there were as many newspapers as the community required, there was no systematic and well-managed journalism. A printer and publisher, for the purpose of extending his business, put forth proposals and issued a subscription for a new paper. If the number of subscribers was, in his opinion, sufficient to pay the expense, he engaged a person to edit and supervise the paper. At that time literary labor of this description was so meanly compensated that no lawyer, physician, or schoolmaster would undertake the business for merely the monetary remuneration. In the case of the first editor of the *Journal* there was no demand or stipulation for pay. That person saw the necessity of a sacrifice by some one for the advancement of great public interests, and he consented to a temporary supervision of the *Journal.* A reference to the early files of that paper, now in the editorial library, will enable you to estimate the amount of labor bestowed. It was almost exclusively in the night season that the *Journal* was edited, as a relaxation from the daily labors of another profession, and it was understood from the beginning that so soon as the *Journal* could be considered as securely established another editor should be procured. At the end of the first year the name of the editor was omitted from the imprint in consequence of the increase of professional business, but he continued for several years thereafter an informal oversight of and contribution to its columns, for which, and for all previous labors, he received the sum of $500.

## DE TOCQUEVILLE ON THE AMERICAN PRESS.

De Tocqueville on the American press.

It is easy, familiar as we are with the journalism of the present day, to belittle the comparative excellence of that out of which it grew. An impartial and contemporaneous opinion is therefore desirable, and has been furnished in the admirable treatise of M. Alexis de Tocqueville on *Democracy in America*, written in 1835. M. de Tocqueville was amazed during his travels through the United States at the progress of the press, and says:

> The number of periodical and occasional publications which appear in the United States actually surpasses belief. There is scarcely a hamlet which has not its own newspaper. The facility with which journals can be established induces a multitude of individuals to take part in them; but as the extent of competition precludes the possibility of considerable profit, the most distinguished classes of society are rarely led to engage in these undertakings. But such is the number of the public prints, that, even if they were a source of wealth, writers of ability could not be found to direct them all. The journalists of the United States are usually placed in a very humble position, with a scanty education and a vulgar turn of mind.

From this severe commentary the eminent Frenchman turns to a discussion of the methods and the influence of the American newspaper, and continues:

> The will of the majority is the most general of laws, and it establishes certain habits which form the characteristics of each peculiar class of society. The characteristics of the French journalist consist in a violent, but frequently an eloquent and lofty manner of discussing the politics of the day, and the exceptions to this habitual practice are only occasional. The characteristics of the American journalist consist in an open and coarse appeal to the passions of the populace, and he habitually abandons the principles of political science to assail the characters of individuals, to track them into private life, and disclose all their weaknesses and errors.

And yet again:

> The personal opinions of the editors have no kind of weight in the eyes of the public; the only use of a journal is that it imparts a knowledge of certain facts, and it is only by altering or distorting the statement of those facts that a journalist can contribute to the support of his own views.

In contrast with the harshness of this generalization and the conclusion, elsewhere reached, that "the power of the press is much greater in France than in the United States", M. de Tocqueville concedes, "notwithstanding this limitation of the resources of the press," that "its influence in America is immense. It is the power which impels the circulation of political life through all the districts of that vast territory. Its eye is constantly open to detect the secret springs of political designs, and to summon the leaders of all parties to the bar of public opinion. It rallies the interests of the community round certain principles, and it draws up the creed which factions adopt, for it affords a means of intercourse between parties which hear and which address each other without ever having been in immediate contact. When a great number of the organs of the press adopt the same line of conduct their influence becomes irresistible; and public opinion, when it is perpetually assailed from the same side, eventually yields to the attack. In the United States each separate journal exercises but little authority, but the power of the periodical press is only second to that of the people".

## THE TYPICAL NEWSPAPERS OF THE PERIOD.

The leading newspapers of the party press.

The best representatives of the American political press in this peculiar and formative period were: On the federalist side, the *Columbian Centinel*, established in Boston in 1784 by Benjamin Russell, and conducted by him for a period of forty years; the *New England Palladium*, begun as the *Massachusetts Mercury* in 1793, by Alexander Young and Samuel Etheridge; the *Minerva*, established in New York in 1793, long ably edited by Noah Webster, and the nucleus of the present New York *Commercial Advertiser;* the New York *Packet*, which had survived the Revolution and was shortly thereafter made a daily by its enterprising publisher, Samuel Loudon; the New York *Evening Post*, established in 1801, under the auspices of Alexander Hamilton, John Jay, and their political associates, and continuing its uninterrupted publication down to the present day; in Philadelphia, *Peter Porcupine's Gazette*, established in 1792 by that restless and vehement English agitator, William Cobbett; the *Connecticut Courant*, the Salem *Gazette*, and others of lesser influence. On the republican side the most influential journals were located at Philadelphia while it remained the seat of the federal government, and were the *Aurora*, established in 1790 by Benjamin Franklin Bache, (*a*) and edited after his death by William Duane, and the *National Gazette*, established in 1791 by Philip Freneau, while

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*a* See ante, page 5.

employed under Thomas Jefferson in the State Department. In New York the leading republican newspapers were *Greenfield's New York Journal*, a continuation of Holt's ante-revolutionary *Journal*, and rechristened about the beginning of the century the *American Citizen*, when it was edited by James Cheetham; the *Morning Chronicle*, established in 1802 by the friends of Aaron Burr, and edited by Dr. Peter Irving; while in Boston there was the *Gazette* that Edes and Gill had founded, the chief pillar of the revolutionary cause in New England, but espousing the losing side in the debate upon the Constitution and expiring in 1798; the *Independent Chronicle*, established in Boston in 1776, in the midst of the revolution, and until the close of the century the leading New England organ of the Jeffersonian school of politics; and the Boston *Patriot*, established in 1809, consolidated with the *Independent Chronicle* in 1817, and published as a daily until its absorption in the Boston *Advertiser* in 1831. The Richmond *Enquirer*, founded in 1804 by Thomas Ritchie, was a potential organ throughout the South.

Russell's *Centinel.*

Of all these journals Russell's *Centinel* may be accepted as the best type of the early political newspaper of the United States. During the greater part of its existence the *Centinel* was meager, fragmentary, and ill-arranged in its news and trivial and provincial in its original matter; but its blows were steady and heavy. Russell delighted in ingenious devices to attract attention, and pictures, curious mechanical arrangements of type, reckless displays, capitals and punctuation marks, and extravagant allegories and travesties in prose and verse were his constant resort to supplement his argument. After the election of Washington to the presidency the *Centinel* grew steadily in position and influence, and in spite of its constant and disgraceful personalities won great prosperity, and deserved it. Russell drew around him the most eminent federalist writers of America, and during the later years of his proprietorship his paper became an epitome of the history of the world. Mr. Buckingham is probably not too strong in praise when he says of it:

> As a vehicle of useful and accurate intelligence the *Centinel* secured to itself a reputation superior to that of any other American newspaper. Russell had a peculiar mode of condensing and arranging the contents of foreign journals and presenting in the most readable shape all the incidents then (1790–1815) agitating Europe. Through the whole of this period, and for some years afterward, the *Centinel* was an indispensable source of news for the country printers, every one of whom relied upon it for matter to fill up the news department of his paper. Subscribers in the country also increased beyond all precedent. It was everywhere known and everywhere read, and if industry in collecting and fidelity in republishing information that was important to be known are worthy of credit never was popularity more honestly earned. (*a*)

*Niles' Register.*

One of the most praiseworthy journalistic ventures of this era—the one which, on the whole, has been of greatest service to the history of the country—was *Niles' Register*, established as a weekly at Baltimore in 1811 by Hezekiah Niles, who published it until 1836. The *Register* was from week to week and year to year a repository of the documentary and political history of the country, reported with an impartial fidelity which modern journalism may emulate but cannot surpass, and it attained a national circulation, because it supplied, with a degree of fullness not attempted by the local journals, the details of the political progress of the country. *Niles' Register* is now the most frequently quoted periodical in the works of writers upon American history, and its value as a reference record was so well understood at the time that Mr. Niles republished the series in thirty-six volumes. This publication was continued by his son, W. O. Niles, until June 27, 1849, making a series of seventy-six volumes in all. A journal just like the *Register* would not be a successful undertaking in these days, for the functions peculiarly its own have been absorbed by the daily and weekly press, and are by them discharged with the same fidelity. The *Register* finally disappeared, not because its usefulness was ended, but because the service it rendered was discharged by other journals, which also did other service to which it could not attain.

The partisan press.

Partisanship and personality continued in the American press throughout the entire second era in its history, and continue to-day, constantly breaking out in assaults upon personal character and motives as malignant and disgraceful as anything that degraded the files of the earlier journals. The great mass of the newspapers of the United States continued to be conducted in the interests of one or the other of the existing political parties, and still continue to be so conducted, and they will so continue for an indefinite time to come. It is neither unnatural nor improper that this relationship should exist. The free press is the vehicle through which the public seeks and finds its political expression, and the undue partisanship which is the inevitable result of such close association is largely counteracted by the nearly equal division of the American press in its political associations. As journals grow stronger in their financial basis they come to be conducted as business enterprises of other kinds are conducted. The dependence upon political connection ceases to be essential to existence, and thereafter ceases to work the unfortunate results which undoubtedly attended the first establishment of this relationship.

Enlarging field of journalism.

With the development of the country other functions of the newspaper began to have at least an equal importance with its partisanship, and so, imperceptibly almost, to modify the character of the journalism of the United States. There came an extraordinary increase of business, and the field of the newspaper expanded correspondingly, its columns being more and more sought as a medium of business communication and announcement. As their numbers increased the newspapers felt the vitalizing

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*a* Buckingham's *Reminiscences*, ii, 77.

First daily newspapers.

influence of competition and began to rival each other in the promptness and fullness with which they gathered the news of the day. The first daily newspaper made its appearance. This was the *American Daily Advertiser*, of Philadelphia, in 1784. (*a*) The second daily newspaper, the New York *Daily Advertiser*, appeared in New York the year following. Boston followed with a daily, the *Polar Star and Boston Advertiser*, in 1796, and it failing, with the *Federal Gazette and Daily Advertiser* in 1798. The names adopted by these first experiments in daily journalism were significant of an early recognition of the important field for money-getting which lay all undeveloped in the matter of advertising.

Rapid development of advertising.

Up to this time the advertisements of all existing papers had been a wholly minor feature of their columns. On the other hand, the attention given to maritime and commercial intelligence was slight and fitful; but soon after the revolution advertisements began to be an equal source of revenue with subscriptions, and the prices charged for them increased correspondingly. The development of this feature of American newspapers was so sudden and extensive that British journals commented with surprise upon the comparatively extensive advertising patronage of the journals printed in the large cities of the United States.

It is true of the early publishers that they dedicated their earnings to the improvement of their publications, so that both in typography and in the amount and character of the reading matter published they steadily improved.

## RECORD OF THE EARLY PRESS.

Statistics of this era.

Record of the American press in 1810.

It is impossible to trace the growth of newspapers during this second period with anything like statistical accuracy, owing to the failure of the journals of that era to record this development in their columns and of any one else to make record of it. Mr. Thomas, who preserved the greater part of the data we possess regarding the colonial press, brought his record nominally down to the year 1810, in which his *History of Printing* was published. The one hundred and fifty journals of whose existence he was aware in 1800 had increased in these ten years to three hundred and sixty-six, or more than double—a ratio of increase quite as remarkable at that time as the ratio discovered in the last census year, when more papers were established and more died than the whole number in existence in 1810. His list of American journals in 1810 is here reproduced, as the most important contribution that has or can be made to the literature of the journalism of that period. It has been supplemented, so far as possible, with a record of the subsequent history of the journals enumerated by him:

### NEW HAMPSHIRE (12 papers).

[*f.* Federal republican; *r.* republican, opposed to the federalists; *n.* neutral; *w.* weekly; *s.w.* semi-weekly; *t.w.* tri-weekly; *published before the revolution.]

| Titles. | Towns. | Subsequent history. |
|---|---|---|
| *r.* New Hampshire Gazette, **w* | Portsmouth | Now published as weekly ed. of Daily Chronicle. |
| *f.* Portsmouth Oracle, *w* | do | Since suspended. |
| *f.* Intelligencer, *w* | do | Do. |
| *n.* Sun, *w* | Dover | Do. |
| *f.* Farmers' Museum, *w* | Walpole | Do. |
| *n.* Farmers' Cabinet, *w* | Amherst | Still published. |
| *f.* Dartmouth Gazette, *w* | Hanover | Since suspended. |
| *f.* Concord Gazette, *w* | Concord | Do. |
| *r.* New Hampshire Patriot, *w* | do | Do. |
| *f.* New Hampshire Sentinel, *w* | Keene | Still published |
| *f.* Coos Courier, *w* | Haverhill | Since suspended. |
| *f.* Constitutionalist, *w* | Exeter | Do. |

### MASSACHUSETTS (32 papers).

| | | |
|---|---|---|
| *f.* Columbian Centinel, *s.w.* | Boston | These journals all disappeared at various dates in the foundations of the present Boston Daily and Weekly Advertiser. |
| *r.* Independent Chronicle, *s.w* | do | |
| *f.* New England Palladium, *s.w* | do | |
| *r.* Boston Patriot, *s.w.* | do | |
| *f.* Boston Gazette, *s.w* | do | |
| *f.* Repertory, *s.w* | do | |
| *n.* Fredonian, *w* | do | |
| *f.* Massachusetts Spy, **w* | Worcester | Still published daily and weekly. |
| *r.* National Ægis, *w* | do | Now published as weekly ed. of Evening Gazette. |
| *f.* Salem Gazette, *s.w* | Salem | Still published. |
| *r.* Essex Register, *s.w* | do | Do. |
| *f.* Newburyport Herald, *s.w* | Newburyport | Still published daily and weekly. |
| *r.* Independent Whig, *w* | do | Since suspended. |
| *f.* Merrimack Intelligencer, *w* | Haverhill | Do. |
| *f.* Hampshire Gazette, *w* | Northampton | Still published. |

*a* This paper grew out of the *Pennsylvania Packet, or General Advertiser*, established in 1771. The *American Advertiser* continued to be published until 1837.

### MASSACHUSETTS—Continued.

| Titles. | Towns. | Subsequent history. |
|---|---|---|
| *r.* Anti-Monarchist, *w* | Northampton | Since suspended. |
| *f.* Greenfield Gazette, *w* | Greenfield | Now Gazette and Courier. |
| *f.* Hampshire Federalist, *w* | Springfield | Since suspended. |
| *f.* Farmers' Herald, *w* | Stockbridge | Do. |
| *r.* Sun, *w* | Pittsfield | Still published. |
| *f.* Berkshire Reporter, *w* | do | Since suspended. |
| *f.* Political Recorder, *w* | Leominster | Do. |
| *f.* New Bedford Mercury, *w* | New Bedford | Still published daily and weekly. |
| *r.* Old Colony Gazette, *w* | do | Since suspended. |
| *f.* Portland Gazette, *w* | Portland (now Maine) | Afterward changed to Advertiser; still published. |
| *r.* Eastern Argus, *w* | do | Still published; now daily, weekly, and tri-weekly. |
| *f.* Freeman's Friend, *w* | do | Since suspended. |
| *f.* Gazette of Maine, *w* | Buckstown (now Maine) | Afterward consolidated with Advertiser. |
| *f.* Eagle, *w* | Castine (now Maine) | Since suspended. |
| *r.* American Advocate, *w* | Hallowell (now Maine) | Do. |
| *f.* Herald of Liberty, *w* | Augusta (now Maine) | Do. |
| *r.* Weekly Visitor, *w* | Kennebunk (now Maine) | Do. |

### RHODE ISLAND (7 papers).

| Titles. | Towns. | Subsequent history. |
|---|---|---|
| *f.* Newport Mercury, **w* | Newport | Still published. |
| *r.* Rhode Island Republican, *w* | do | Suspended. |
| *f.* Providence Gazette, **w* | Providence | Do. |
| *r.* Columbian Phœnix, *w* | do | Do. |
| *f.* Rhode Island American, *s. w* | do | Do. |
| *f.* Herald of the United States, *w* | Warren | Do. |
| *r.* Bristol County Register, *w* | do | Do. |

### CONNECTICUT (12 papers).

| Titles. | Towns. | Subsequent history. |
|---|---|---|
| *f.* Connecticut Gazette, **w* | New London | Since suspended. |
| *f.* Connecticut Journal, **w* | New Haven | Still published. |
| *f.* Connecticut Herald, *w* | do | Since suspended. |
| *f.* Connecticut Courant, **w* | Hartford | Still published. |
| *r.* American Mercury, *w* | do | Since suspended. |
| *f.* Connecticut Mirror, *w* | do | Do. |
| *n.* Norwich Courier, *w* | Norwich | Now published as weekly ed. of Morning Bulletin. |
| *f.* Connecticut Intelligencer, *w* | Danbury | Suspended. |
| *f.* Windham Herald, *w* | Windham | Do. |
| *f.* Bridgeport Advertiser, *w* | Bridgeport | |
| *f.* Bridgeport Gazette, *w* | do | |
| *f.* Middlesex Gazette, *w* | Middletown | Since suspended. |

### VERMONT (15 papers).

| Titles. | Towns. | Subsequent history. |
|---|---|---|
| *f.* Vermont Journal, *w* | Windsor | Still published. |
| *r.* Vermont Republican, *w* | do | Suspended 1834. |
| *f.* Washingtonian, *w* | do | Suspended after 1813. |
| *r.* Green Mountain Farmer, *w* | Bennington | Since suspended. |
| *f.* Reporter, *w* | Brattleboro' | Merged into the Brattleboro' Messenger in 1826. |
| *f.* Vermont Centinel, *w* | Burlington | Suspended 1880. |
| *f.* Vermont Courier, *w* | Rutland | Suspended May 30, 1810. |
| *r.* Rutland Herald, *w* | do | Still published; now daily and weekly. |
| *f.* Green Mountain Patriot, *w* | Peacham | Since suspended. |
| *r.* North Star, *w* | Danville | Still published. |
| *f.* Champlain Reporter, *w* | Saint Albans | Suspended 1811. |
| *f.* Watchman, *w* | Montpelier | Now published as Vermont Watchman and State Journal. |
| *r.* Freeman's Press, *w* | do | Suspended 1816. |
| *r.* Weekly Wanderer, *w* | Randolph | Suspended 1810. |
| *f.* Middlebury Mercury, *w* | Middlebury | Since suspended. |

## NEW YORK (67 papers).

| Titles. | Towns. | Subsequent history. |
|---|---|---|
| *f.* New York Gazette and General Advertiser, daily | New York | Suspended 1840. |
| *f.* New York Evening Post, daily | do | Still published. |
| *f.* New York Herald, *s. w* | do | Since suspended. |
| *n.* American Citizen, daily | do | Established 1806; suspended 1810. |
| *n.* Republican Watch Tower, *s. w* | do | Established 1806; since suspended. |
| *f.* Commercial Advertiser, daily | do | Still published. |
| *f.* Spectator, *s. w* | do | Established 1798; suspended. |
| *r.* Public Advertiser, daily | do | Established 1807; suspended 1812. |
| *r.* New York Journal, *s. w* | do | Established 1810; suspended. |
| *r.* Columbian, daily | do | Established 1810; since suspended. |
| Columbian, *s. w* | do | Do. |
| *n.* Mercantile Advertiser, daily | do | Established 1809; suspended. |
| Price Current, *w* | do | Since suspended. |
| *f.* Washington Republican, *s. w* | do | Do. |
| *f.* Albany Gazette, *s. w* | Albany | Established 1782; suspended 1845. |
| *r.* Albany Register | do | Established 1788; suspended 1817. |
| *f.* Balance and New York State Journal, *s. w* | do | Established 1808; suspended 1811. |
| *r.* Suffolk Gazette, *w* | Sag Harbor | Established in 1791 as Long Island Herald; suspended 1811. |
| *r.* Long Island Star, *w* | Brooklyn | Established 1809; suspended after 1850. |
| Saratoga Gazette, *w* | Saratoga | Suspended 1816. |
| American Eagle, *w* | Watertown | Since suspended. |
| *r.* Westchester Gazette, *w* | Peekskill | Do. |
| *f.* Somers Museum, *w* | Somers | Do. |
| *r.* Orange County Gazette, *w* | Goshen | In 1813 changed to Independent Republican; still published. |
| *f.* Spirit of Seventy-Six and Patriot, *w* | do | Now published as Goshen Democrat. |
| *r.* Political Index, *w* | Newburgh | Suspended after 1850. |
| *f.* Ulster Gazette, *w* | Kingston | Established 1798; since suspended. |
| *r.* Plebeian, *w* | do | Established 1805; since suspended. |
| *r.* Political Barometer, *w* | Poughkeepsie | Established 1802; since suspended. |
| *f.* Poughkeepsie Journal, *w* | do | Now called Poughkeepsie Eagle, daily and weekly. |
| *f.* Northern Whig, *w* | Hudson | Suspended 1824. |
| *r.* Bee, *w* | do | United with Columbia Republican in 1822. |
| *f.* American Eagle, *w* | Catskill | Suspended 1810. |
| *r.* Catskill Recorder, *w* | do | Still published. |
| *f.* Lansingburgh Gazette, *w* | Lansingburgh | Do. |
| *f.* Troy Gazette, *w* | Troy | Suspended before 1818. |
| *r.* Farmers' Register, *w* | do | Suspended 1832. |
| *n.* Northern Budget, *w* | do | Still published as a Sunday paper. |
| *f.* Northern Post, *w* | Salem | Suspended after 1850. |
| *r.* Washington Register, *w* | do | Established in 1802 and published several years. |
| *r.* American Monitor, *w* | Plattsburgh | Established in 1807 and published a short time. |
| *f.* Waterford Gazette, *w* | Waterford | Suspended 1816. |
| *r.* Advertiser, *w* | Ballston | Established 1804; suspended 1815. |
| *f.* Independent American, *w* | do | Now called Ballston Journal. |
| *f.* Mohawk Advertiser, *w* | Schenectady | Published only in 1810. |
| *r.* Cabinet, *w* | do | Suspended 1857. |
| *f.* Montgomery Republican, *w* | Johnstown | Established 1806; suspended 1836. |
| *r.* Montgomery Monitor, *w* | do | Established 1808; removed. |
| *r.* Bunker Hill, *w* | Herkimer | Established 1810; suspended 1812. |
| *f.* American, *w* | do | Grew out of above; suspended 1813. |
| *f.* Utica Patriot, *w* | Utica | Still published; now Utica Morning Herald and Gazette. |
| *r.* Columbian Gazette, *w* | do | |
| Chenango Patriot, *w* | Oxford | Established 1807; suspended 1811. |
| Hemisphere, *w* | Watertown | Since suspended. |
| *r.* Pilot, *w* | Cazenovia | Established 1808; suspended 1823. |
| *f.* Freeholder, *w* | Peterborough | Established 1808; suspended 1813. |
| *f.* Manlius Times, *w* | Manlius | Established 1808; suspended 1829. |
| *f.* Ontario Repository, *w* | Canandaigua | Established 1803; suspended 1856. Afterward revived, and still published as Repository and Messenger. |
| *r.* Genesee Messenger, *w* | do | Established 1806; consolidated with Repository January, 1862. |
| *r.* Cornucopia, *w* | Batavia | Suspended 1811. |
| *f.* Geneva Gazette, *w* | Geneva | Established 1797; suspended 1836. Revived in 1845, and still published. |
| *r.* Otsego Herald, *w* | Otsego | Established 1795; suspended 1821. |
| *f.* Cooperstown Federalist, *w* | Cooperstown | Established in 1808 as Observer; still published as Freeman's Journal. |
| *n.* American Farmer, *w* | Owego | Now called Owego Gazette. |
| *f.* True American, *w* | Schoharie | Established 1809; suspended 1812. |
| *r.* American Herald, *w* | do | Suspended soon after 1812. |
| *r.* Republican Messenger, *w* | Sherburne | Since suspended. |

## NEW JERSEY (8 papers).

| Titles. | Towns. | Subsequent history. |
|---|---|---|
| *f.* Trenton Federalist, *w* | Trenton | Since suspended. |
| *r.* True American, *w* | do | Do. |
| *r.* New Jersey Journal, *w* | Elizabethtown | Now published as weekly edition of Daily Journal, Elizabethtown. |
| *f.* Guardian, or New Brunswick Advertiser, *w* | New Brunswick | Since suspended. |
| *r.* Republican Herald, *w* | do | Do. |
| *r.* Palladium of Liberty, *w* | Morristown | Do. |
| *f.* Genius of Liberty, *w* | do | Do. |
| *r.* Centinel of Freedom, *w* | Newark | Now published as weekly edition of Daily Advertiser. |

## PENNSYLVANIA (73 papers).

| Titles. | Towns. | Subsequent history. |
|---|---|---|
| *f.* Pennsylvania Gazette,* *w* | Philadelphia | Since suspended. |
| *f.* American Daily Advertiser, daily | do | Now published as North American, d. and t. w. |
| *f.* True American and Commercial Advertiser, daily | do | Consolidated with North American. |
| *f.* Gazette of the United States, daily | do | Do. |
| *f.* Gazette of the United States (for the country), *s. w* | do | Do. |
| *f.* Philadelphia Gazette, daily | do | Since suspended. |
| *r.* Aurora, daily | do | Do. |
| *r.* Aurora (for the country), *s. w* | do | Do. |
| *f.* Political and Commercial Register, daily | do | Do. |
| *f.* Freeman's Journal, daily | do | Do. |
| *f.* Freeman's Journal (for the country), *s. w* | do | Do. |
| *r.* Democratic Press, daily | do | Do. |
| *r.* Democratic Press (for the country), *t. w* | do | Do. |
| *r.* Democratic Press (for the country), *w* | do | Do. |
| *r.* Pennsylvania Democrat, *w* | do | Do. |
| *r.* Evening Star, daily | do | Do. |
| *f.* Amerikanischer Beobachter, German, *w* | do | Do. |
| Hope's Philadelphia Price Current, *w* | do | Do. |
| Literary Reporter, occasionally | do | Do. |
| *r.* Another German Paper, *w* | do | Do. |
| Der Wahre Amerikaner, German, *w* | Lancaster | Do. |
| *f.* Der Volksfreund, German, *w* | do | Still published. |
| *f.* Lancaster Journal, *w* | do | In 1839 merged in the Intelligencer. |
| *r.* Intelligencer and Weekly Advertiser, *w* | do | Still published as Intelligencer, daily and weekly. |
| *f.* Pennsylvania Correspondent, *w* | Doylestown | Now published as Bucks County Intelligencer. |
| *f.* Luzerne Federalist, *w* | Wilkesbarre | Suspended 1818. |
| *r.* Susquehanna Democrat, *w* | do | Suspended about 1835. |
| *n.* Cumberland Register, *w* | Carlisle | Since suspended. |
| *f.* Carlisle Herald, *w* | do | Still published. |
| *r.* Carlisle Gazette, *w* | do | Since suspended. |
| *r.* Unparteüsche Amerikaner, German, *w* | do | Do. |
| *f.* Pittsburgh Gazette, *w* | Pittsburgh | Now published as Commercial Gazette, d. and w. |
| *f.* Tree of Liberty, *w* | do | Since suspended. |
| *r.* Commonwealth, *w* | do | Do. |
| *r.* Western Star, *w* | Lewistown | Now published as Gazette. |
| *f.* Der Standhafte Patriot, German, *w* | Reading | Since suspended. |
| *f.* Weekly Advertiser, *w* | do | Do. |
| *r.* Readinger Adler, German, *w* | do | Still published; oldest German newspaper. |
| *r.* Reading Eagle, *w* | do | Since suspended. |
| *r.* Genius of Liberty, *w* | Union | Still published. |
| *f.* Chester and Delaware Federalist, *w* | West Chester | Still published daily and weekly. |
| *r.* American Republican, *w* | Downingtown | Since suspended. |
| *f.* Bedford Gazette, *w* | Bedford | Still published. |
| *n.* People's Instructor, German and English | Easton | Do. |
| *f.* Der Northampton Correspondent, German, *w* | do | Do. |
| *f.* Pennsylvania Herald, *w* | do | Since suspended. |
| *r.* Northampton Farmer *w* | do | Do. |
| *f.* Mirror | Presque Isle | Do. |
| *r.* Dauphin Guardian, *w* | Harrisburg | Do. |
| *f.* Oracle of Dauphin, *w* | do | Do. |
| *n.* The Times, *w* | do | Do. |
| Harrisburgher Zeitung, German, *w* | do | Do. |
| *f.* Norristown Herald, *w* | Norristown | Still published. |
| *r.* Weekly Register, *w* | do | Do. |
| *f.* Centinel, *w* | Gettysburg | Still published; now Star and Sentinel. |
| *f.* Gettysburg Gazette, *w* | do | Since suspended. |
| *r.* Brownsville Gazette, *w* | Brownsville | Do. |
| *n.* Western Repository, *w* | do | Do. |

PENNSYLVANIA—Continued.

| Titles. | Towns. | Subsequent history. |
|---|---|---|
| *f.* York Recorder, *w* | York | Now published as Republican. |
| *r.* Expositor, *w* | do | |
| Farmers' Register, *w* | Greensburgh | Since suspended. |
| *f.* Crawford Weekly Messenger, *w* | Meadville | Do. |
| *f.* Franklin Repository, *w* | Chambersburg | Still published. |
| *r.* Republican, *w* | do | Suspended 1828. |
| Minerva, *w* | Beavertown | Since suspended. |
| *r.* Eagle, *w* | Huntingdon | Do. |
| *f.* Huntingdon Gazette, *w* | do | Do. |
| *r.* Republican Argus, *w* | Northumberland | Suspended in 1816 or 1817. |
| *f.* Sunbury and Northumberland Gazette, *w* | do | Suspended 1819. |
| *f.* Western Corrector, *w* | Washington | Since suspended. |
| *f.* Western Telegraphe, *w* | do | Do. |
| *r.* Reporter, *w* | do | Now published as weekly edition of Daily Reporter. |
| *r.* Weekly Messenger, *w* | Frankford | Since suspended. |

DELAWARE (3 papers).

| | | |
|---|---|---|
| *r.* American Watchman, *s. w* | Wilmington | Since suspended. |
| *r.* Delaware Gazette, *s. w* | do | Still published; now daily and weekly. |
| Delaware Freeman, *w* | do | Since suspended. |

MARYLAND (21 papers).

| | | |
|---|---|---|
| *f.* Maryland Gazette,* *w* | Annapolis | Still published. |
| *r.* Maryland Republican, *s. w* | do | Do. |
| *f.* Federal Gazette and Baltimore Advertiser, daily | Baltimore | Since suspended. |
| *f.* Federal Gazette and Baltimore Advertiser (for the country), *t. w* | do | Do. |
| *r.* Whig, daily | do | Do. |
| *r.* Whig (for the country), *t. w* | do | Do. |
| *f.* Federal Republican and Commercial Gazette, daily | do | Do. |
| *f.* Federal Republican and Commercial Gazette (for the country), *t. w* | do | Do. |
| *r.* Evening Post, daily | do | Do. |
| *r.* Evening Post (for the country), *t. w* | do | Do. |
| *r.* American and Commercial Advertiser, daily | do | Still published daily and weekly. |
| *r.* American and Commercial Advertiser (for the country), *t. w* | do | Not now published. |
| Recorder, *w* | do | Since suspended. |
| *f.* Fredrickstown Herald, *w* | Fredrickstown | |
| *r.* Republican Gazette, *w* | do | |
| *r.* Hornet, or Republican Advocate, *w* | do | |
| *f.* Der Westliche Correspondent, German, *w* | Hagerstown | Since suspended. |
| *f.* Hagerstown Gazette, *w* | do | Do. |
| *r.* Maryland Herald, etc., *w* | do | Do. |
| *r.* Republican Star, *w* | Easton | Still published. |
| *f.* People's Monitor, *w* | do | Since suspended. |

DISTRICT OF COLUMBIA (6 papers).

| | | |
|---|---|---|
| *r.* National Intelligencer, *t. w* | Washington | Suspended. |
| *r.* Universal Gazette, *w* | do | Do. |
| *r.* Monitor, *t. w* | do | Do. |
| *n.* Spirit of Seventy-Six, *s. w* | do | Do. |
| *f.* Independent American, *t. w* | Georgetown | Do. |
| *f.* Alexandria Daily Advertiser, daily | Alexandria | Now published as Gazette, d. & t. w. |

VIRGINIA (23 papers).

| | | |
|---|---|---|
| *f.* Virginia Patriot, *s. w* | Richmond | Suspended. |
| *r.* Enquirer, *s. w* | do | Do. |
| *f.* Virginia Argus, *s. w* | do | Do. |
| *f.* Norfolk Gazette, *t. w* | Norfolk | Do. |
| *n.* Norfolk Herald, *s. w* | do | Do. |
| *r.* Petersburg Intelligencer, *s. w* | Petersburg | Do. |
| *r.* Republican, *s. w* | do | Do. |
| *f.* Virginia Herald, *w* | Fredericksburg | Do. |
| *r.* Republican Constitution, *w* | Winchester | Do. |
| *f.* Centinel, *w* | do | Do. |

VIRGINIA—Continued.

| Titles. | Towns. | Subsequent history. |
|---|---|---|
| *f.* Winchester Gazette, *w* | Winchester | Suspended. |
| *r.* Democratic Lamp, *w* | do | Do. |
| *r.* Lynchburg Star, *w* | Lynchburg | Do. |
| *r.* Lynchburg Press, *w* | do | In 1818 changed to Virginian; still published. |
| *r.* Staunton Eagle, *w* | Staunton | Suspended. |
| *r.* Republican Farmer, *w* | do | Do. |
| *f.* Washingtonian, *w* | Leesburg | Still published. |
| *r.* Republican Press, *w* | do | Since suspended. |
| *r.* Republican Luminary, *w* | Wythe C. H. | Do. |
| *r.* Holstein Intelligencer, *w* | Abingdon | Do. |
| *f.* Virginia Telegraphe, *w* | Lexington | Now published as Gazette. |
| *r.* Monongalia Gazette, *w* | Morgantown | Since suspended. |
| *r.* Farmers' Register, *w* | Charlestown | Do. |

## NORTH CAROLINA (10 papers).

| | | |
|---|---|---|
| *f.* Wilmington Gazette, *w* | Wilmington | Since suspended. |
| *f.* Raleigh Minerva, *w* | Raleigh | Do. |
| *n.* Star, *w* | do | Do. |
| *r.* Raleigh Register, etc., *w* | do | Suspended after 1856. |
| *f.* Carolina Federal Republican, *w.* | New Berne | Since suspended. |
| *r.* True Republican, *w* | do | Do. |
| *f.* Edenton Gazette, *w* | Edenton | Do. |
| *n.* North Carolina Journal, *w* | Halifax | Do. |
| *f.* Fayetteville Intelligencer, *w* | Fayetteville | Do. |
| *r.* Elizabeth City Gazette, *w* | Elizabeth City | Do. |

## SOUTH CAROLINA (10 papers).

| | | |
|---|---|---|
| *r.* City Gazette, daily | Charleston | Since suspended. |
| *r.* Carolina Gazette, *w* | Georgetown | Do. |
| *f.* Times, daily | do | Do. |
| *f.* Charleston Courier, daily | Charleston | Now published as News and Courier, d., t. w., & w. |
| *f.* Carolina Messenger, *w* | do | Suspended. |
| *n.* Strength of the People, *s. w* | Georgetown | Do. |
| *n.* Brazen Face, *w* | Charleston | Do. |
| *f.* Georgetown Gazette, *s. w* | do | Do. |
| *r.* South Carolina State Gazette, *w* | Columbia | Do. |
| *r.* Miller's Weekly Messenger, *w* | Pendleton | Do. |

## GEORGIA (13 papers).

| | | |
|---|---|---|
| *f.* Columbian Museum, *s. w* | Savannah | Since suspended. |
| *r.* Republican and Savannah Ledger, *t. w* | do | Suspended after 1829. |
| *r.* Public Intelligencer, *s. w* | do | Since suspended. |
| Mirror of the Times, *w* | Augusta | Do. |
| *f.* Augusta Herald, *w* | do | Do. |
| Columbian Centinel, *w* | do | Do. |
| *r.* Augusta Chronicle, *w* | do | Now published as Chronicle and Constitutionalist. d., t. w., and w. |
| *r.* Louisville Gazette, *w* | Louisville | Since suspended. |
| *r.* Georgia Argus, *w* | Milledgeville | Do. |
| *r.* Georgia Journal, *w* | do | Afterward removed to Macon. |
| Milledgeville Intelligencer, *w* | do | Since suspended. |
| *f.* Monitor, *w* | Washington | Suspended after 1820. |
| *r.* Georgia Express, *w* | Athens | Since suspended. |

## KENTUCKY (17 papers).

| | | |
|---|---|---|
| *r.* Kentucky Gazette, *w* | Lexington | Published nearly 75 years. |
| *r.* Lexington Reporter, *w* | do | Consolidated with Observer in 1832 |
| *f.* Western World, *w* | Frankfort | Since suspended. |
| *r.* Guardian of Freedom, *w* | do | Do. |
| *r.* Argus of Western America, *w* | do | Do. |
| *r.* Palladium, *w* | do | Do. |
| *r.* Candid Review, *w* | Bardstown | Do. |
| *r.* Globe, *w* | Richmond | Do. |
| *r.* Auxilliary, *w* | Washington | Do. |
| *r.* Dove, *w* | do | Do. |
| *r.* Farmers' Library, *w* | Louisville | Do. |

### KENTUCKY—Continued.

| Titles. | Towns. | Subsequent history. |
|---|---|---|
| *f.* Louisville Gazette, *w* | Louisville | Since suspended. |
| *r.* Farmers' Friend, *w* | Russellville | Do. |
| *r.* Mirror, *w* | do | Do. |
| Political Theater, *w* | Lancaster | Do. |
| *r.* Western Citizen, *w* | Paris | Still published. |
| *r.* Informant, *w* | Danville | Suspended. |

### TENNESSEE (6 papers).

| | | |
|---|---|---|
| *r.* Knoxville Gazette, *w* | Knoxville | Suspended. |
| *f.* Western Centinel, *w* | do | Do. |
| *r.* Tennessee Gazette, *w* | Nashville | Do. |
| *r.* Review, *w* | do | Do. |
| *r.* Carthage Gazette, *w* | Carthage | Do. |
| *r.* United States Herald, *w* | Clarksville | Now published as Chronicle. |

### OHIO (14 papers).

| | | |
|---|---|---|
| *f.* Supporter, *w* | Chillicothe | Since suspended. |
| *f.* Scioto Gazette, *w* | do | Still published. |
| *r.* Fredonian, *w* | do | Since suspended. |
| *r.* Independent Republican, *w* | do | Do. |
| *r.* Whig, *w* | Cincinnati | Do. |
| *r.* Liberty Hall, *w* | do | Now published as Gazette, d., s. w., and w. |
| *n.* Advertiser, *w* | do | Since suspended. |
| *r.* Muskingum Messenger, *w* | Zanesville | Do. |
| *r.* Ohio Gazette, *w* | Marietta | Now published as Marietta Register. |
| *f.* Commentator, *w* | do | Since suspended. |
| Ohio Patriot, *w* | Lisbon | Still published (now New Lisbon). |
| Western Herald, *w* | Steubenville | Still published daily and weekly. |
| *r.* Impartial Expositor, *w* | Saint Clairsville | Since suspended. |
| *r.* Western Star, *w* | Lebanon | Still published. |

### TERRITORY OF MICHIGAN (1 paper).

| | | |
|---|---|---|
| Michigan Essay, *w* | Detroit | Established 1809; published but a short time. |

### INDIANA TERRITORY (1 paper).

| | | |
|---|---|---|
| Western Sun, *w* | Saint Vincennes | Still published; now daily and weekly. |

### MISSISSIPPI TERRITORY (4 papers).

| | | |
|---|---|---|
| *f.* Weekly Chronicle, *w* | Natchez | Suspended. |
| Mississippi Messenger, *w* | do | Do. |
| *r.* Natchez Gazette, *w* | do | Do. |
| Mississippian, *w* | do | Do. |

### TERRITORY OF ORLEANS (10 papers).

| | | |
|---|---|---|
| *f.* Orleans Gazette, English and French, daily | New Orleans | Suspended. |
| *f.* Orleans Gazette (for the country), *w* | do | Do. |
| *f.* Louisiana Gazette, daily | do | Do. |
| *f.* Louisiana Gazette (for the country), *s. w* | do | Do. |
| *r.* Louisiana Courier, English and French, *t. w* | do | Do. |
| Telegraphe, English and French, *t. w* | do | Do. |
| *f.* Friend of the Laws, English and French, *t. w* | do | Do. |
| Moniteur de la Louisiane, French, *t. w* | do | Do. |
| El Mississippi, Spanish, *s. w* | do | Do. |
| The Messenger | do | Do. |

### LOUISIANA (1 paper).

| | | |
|---|---|---|
| Missouri Gazette, *w* | Saint Louis | Suspended. |

GENERAL STATEMENT FOR 1810.

| States. | Daily. | Tri-weekly. | Semi-weekly. | Weekly. | Total. | No. of copies circulated annually. |
|---|---|---|---|---|---|---|
| Connecticut | ...... | ...... | ...... | 12 | 12 | 657, 800 |
| District of Columbia | 1 | 3 | 1 | 1 | 6 | 41, 600 |
| Delaware | ...... | ...... | 2 | 1 | 3 | 166, 400 |
| Georgia | ...... | 1 | 2 | 10 | 13 | 707, 200 |
| Kentucky | ...... | ...... | ...... | 17 | 17 | 618, 800 |
| Massachusetts | ...... | ...... | 9 | 23 | 32 | 2, 873, 000 |
| Maryland | 5 | 5 | 1 | 10 | 21 | 1, 903, 200 |
| New York | 7 | ...... | 8 | 51 | *67 | 4, 139, 200 |
| New Jersey | ...... | ...... | ...... | 8 | 8 | 332, 800 |
| New Hampshire | ...... | ...... | ...... | 12 | 12 | 624, 000 |
| North Carolina | ...... | ...... | ...... | 10 | 10 | 416, 000 |
| Ohio | ...... | ...... | ...... | 14 | 14 | 473, 200 |
| Pennsylvania | 9 | 1 | 3 | 57 | †73 | 4, 542, 200 |
| Rhode Island | ...... | ...... | 1 | 6 | 7 | 3, 332, 800 |
| South Carolina | 3 | ...... | 2 | 5 | 10 | 842, 400 |
| Tennessee | ...... | ...... | ...... | 6 | 6 | 171, 600 |
| Virginia | ...... | 1 | 6 | 16 | 23 | 1, 289, 600 |
| Vermont | ...... | ...... | ...... | 15 | 15 | 582, 400 |
| TERRITORIES. | | | | | | |
| Indiana | ...... | ...... | ...... | 1 | 1 | 15, 600 |
| Michigan | ...... | ...... | ...... | 1 | 1 | ............ |
| Mississippi | ...... | ...... | ...... | 4 | 4 | 83, 200 |
| Orleans | 2 | 4 | 2 | 1 | *10 | 748, 800 |
| Louisiana | ...... | ...... | ...... | 1 | 1 | 15, 600 |
| Total | 27 | 15 | 37 | 282 | 366 | 24, 577, 400 |

*1 period of issue not given included in total.
†1 occasionally and 2 period of issue not given included in total.

The untrustworthiness of these figures for circulation in 1810 will be seen from an analysis of New York. There were seven dailies printed in that city in that year, and if we assign to them the entire 4,139,200 given the state as an annual circulation we reduce their average daily issue for 310 times a year to 1,907 and leave not a sheet for the sixty other papers then printed, of which eight were semi-weekly. Indiana is given one paper, with 15,000 issues, which means, apparently, 288 papers a week for fifty-two weeks.

This list omits, of course, a large number of periodicals which were established in the interval since the close of the war, and which had ceased to exist in 1810. Of this class of journals there were quite as many, in proportion to the whole number, as there have since been at any period. Quite a large list of them might be given, but inasmuch as it must be incomplete the effort has not been made. Dailies, weeklies, semi-weeklies, and tri-weeklies were constantly being started, especially in cities like New York and Philadelphia, during this period. Leaving out of the account all that failed or were absorbed by more successful enterprises, we find that there were in 1810 seven dailies in New York city, nine in Philadelphia, five in Baltimore, two in Charleston and one in Georgetown, South Carolina, two in New Orleans, and one in Alexandria, making twenty-seven dailies then published. We can trace through other sources the upward progress of the daily press in New York city in the years immediately subsequent, and the figures given below indicate the proportions of circulation to population, not only for that city, but with comparative accuracy for each of the other large cities of the United States. They are obtained from the *Newspaper Record*, compiled by Lay & Brother, of Philadelphia, with the assistance of W. T. Coggeshall, then state librarian of Ohio, in 1856, a work which is not only valuable as supplying the only connecting link with Thomas' history, but noteworthy also as being the first attempt to publish a complete newspaper directory of the United States:

Daily press of 1810.

Daily press of New York city in 1816, 1820, and 1832.

16

NEW YORK CITY DAILY NEWSPAPERS IN 1860.

| | Circulation. |
|---|---|
| Mercantile Advertiser | 2, 000 |
| Gazette | 1, 750 |
| Evening Post | 1, 600 |
| Commercial Advertiser | 1, 200 |
| Courier | 920 |
| Columbian | 825 |
| National Advocate | 875 |
| Total | 9, 170 |

### NEW YORK CITY DAILY NEWSPAPERS IN 1820.

| | Circulation. |
|---|---|
| Mercantile Advertiser | 1,000 |
| Gazette | 1,500 |
| Evening Post | 2,000 |
| Commercial Advertiser | 2,000 |
| Columbian | 800 |
| National Advocate | 1,200 |
| Daily Advertiser | 1,300 |
| American | 1,000 |
| Total | 10,800 |

### NEWSPAPERS IN NEW YORK STATE IN 1832.

| | Number. | Number of copies. | Issued annually. |
|---|---|---|---|
| Daily | 13 | 18,200 | 5,032,800 |
| Semi-weekly | 12 | 19,200 | 1,996,800 |
| Weekly | 33 | 56,000 | 2,912,000 |
| Semi-monthly | 3 | 3,000 | 72,000 |
| Monthly | 3 | 2,000 | 24,000 |
| Total in New York city | 64 | 98,400 | 10,037,600 |
| Out of the city | 194 | | * 5,400,000 |
| Total in the state | 258 | | 15,437,600 |

* Estimated.

### NEWSPAPERS IN NEW YORK STATE IN 1850.

| | New York city. | Other places. | Total. |
|---|---|---|---|
| Daily | 14 | 42 | 56 |
| Semi- and tri-weekly | 7 | 8 | 15 |
| Weekly | 58 | 268 | 326 |
| Sunday | 8 | 1 | 9 |
| Semi-monthly | 5 | 8 | 13 |
| Monthly | 14 | 11 | 25 |
| Total | 106 | 338 | 444 |

New York and London daily press.

At the date when these figures begin there were undoubtedly more daily newspapers circulated in London than in New York city, but the difference closed up rapidly with the lapse of years, until in 1850 the number printed and sold in New York had grown to be nearly double the number in London.

Development of the provincial press.

While the daily press of the large cities was thus developing the weekly newspaper was pushing itself throughout the country wherever the stalwart enterprise of the period blocked out new villages and settlements. (*a*) These weekly newspapers partook largely of the characteristics of the earlier weekly papers of the metropolis, and were modeled after them in appearance and contents. The first newspaper in the Mississippi territory had appeared in 1779. In 1793 the *Centinel of the North-Western Territory* was started in Cincinnati by William Maxwell, the first newspaper and the first printing office beyond the Ohio river. Nathaniel Willis, a Boston printer, established the Scioto *Gazette* in Chillicothe in 1796, and in 1799 the *Western Spy and Hamilton Gazette* was issued. The first periodical publication in Indiana territory appeared at Vincennes in 1808, and in the same year the *Missouri Republican* was founded at Saint Louis, then a small trading-post. Kentucky had seen her first newspaper in 1787 at Lexington, under the auspices of John Bradford, and in 1809 Michigan had a small paper, published half in English and half in French, at Detroit. The record of the establishment of these and other pioneer papers is given in detail, so far as obtainable, in the appendix to this report, containing a summary statement of the development of the press in the several states of the United States. The daily newspaper began to make its appearance in the larger provincial towns between 1815 and 1830, the Albany *Daily Advertiser* being founded in 1815, and the Rochester *Daily Advertiser* in 1826. In 1832 there were in New York state, outside of the metropolis, but seven daily papers, (*b*) three of which were printed in Albany,

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*a* The publication of this paper commenced within less than thirty months after the first blow was struck in laying out our village of Moscow. The place was then a thicket of wood, without a human habitation. At present we have a flourishing settlement, in which many useful arts and professions are exercised, and three schools established, at which the number of scholars is nearly eighty.—*Genesee* (*N. Y.*) *Farmer*, 1817.

*b* Coggeshall in *Newspaper Record*, 1856.

two in Troy, and two in Rochester. In 1824 there were eleven daily papers in Philadelphia and twelve in New York, with a circulation varying from 1,000 to 4,000 copies. In 1828 the whole number of the American press had increased to 863, with a yearly issue of 68,117,798 copies. In 1830 the number was estimated at 1,000, while the census of 1840 returned 1,403 newspapers and periodicals, with a yearly issue of 195,838,673 copies. The following table, also compiled by Mr. Coggeshall, conveys at a glance the progress of the American press from 1776 to 1840, at which latter date the third era of journalism in this country may be said to have been well under way:

| States. | 1776. | 1810. | 1828. | 1840. |
|---|---|---|---|---|
| Maine | | | 29 | 30 |
| Massachusetts | 7 | 32 | 78 | 91 |
| New Hampshire | 1 | 12 | 17 | 27 |
| Vermont | | 14 | 21 | 30 |
| Rhode Island | 2 | 7 | 24 | 16 |
| Connecticut | 4 | 11 | 33 | 33 |
| New York | 4 | 66 | 161 | 245 |
| New Jersey | | 8 | 22 | 33 |
| Pennsylvania | 9 | 72 | 185 | 187 |
| Delaware | | 2 | 4 | 6 |
| Maryland | 2 | 21 | 37 | 45 |
| District of Columbia | | 6 | 9 | 14 |
| Virginia | 2 | 23 | 34 | 51 |
| North Carolina | 2 | 10 | 20 | 27 |
| South Carolina | 3 | 10 | 16 | 17 |
| Georgia | 1 | 13 | 18 | 34 |
| Florida | | 1 | 2 | 10 |
| Alabama | | | 10 | 28 |
| Mississippi | | 4 | 6 | 30 |
| Louisiana | | 10 | 9 | 34 |
| Tennessee | | 6 | 8 | 40 |
| Kentucky | | 17 | 23 | 38 |
| Ohio | | 14 | 66 | 123 |
| Indiana | | | 17 | 73 |
| Michigan | | | 2 | 32 |
| Illinois | | | 4 | 43 |
| Missouri | | | 5 | 35 |
| Arkansas | | | 1 | 9 |
| Wisconsin | | | | 6 |
| Iowa | | | | 4 |
| Total | 37 | 359 | 861 | 1,403 |

# THIRD PERIOD: 1835-1880.

# THIRD PERIOD.

## PREVIOUS FEDERAL AND STATE CENSUSES OF THE NEWSPAPER PRESS.

Causes of the present development of the American press.

This sketch of the rise and development of the American newspaper has now reached the period of time which marks the commencement of the third and present era in its history. It is not possible to assign the beginning of this era to any particular year or event, its coming being due to a variety of causes, which may be enumerated in the following order: First, the establishment of the penny press; second, the development of railroads as a means for the distribution of newspapers, the transmission of news reports, and the reduction of heavy postage rates; third, the discovery of telegraphy, and its immediate application to the purposes of journalism; and fourth, but not less important than other causes, the improvements of the printing press, which have rendered it possible to print large editions of newspapers in a short time.

The press a public necessity.

The contrast between the primitive journalism of the United States and that which may be taken as typical of its present development is wholly in keeping with the general growth of the country. It has passed from a desultory and hap-hazard pursuit into a well-organized, thoroughly-equipped, and largely-remunerative business and profession combined, which employs the best brains, reaps the amplest rewards, and exerts an influence somewhat vague perhaps in its character and of disputed potency as compared with other mediums of influencing public opinion, but still a force recognized in every quarter as of the highest importance in the political, social, and material progress of the country. Considered merely in its statistical aspects, the condition of the American newspaper press at this culminating period in the third era of its history indicates a growth which has no parallel in any other country in the world, and is hardly paralleled by that of any other phase of industrial development in the United States. The significance of these statistics is immensely enhanced by the peculiarly intimate relation the periodical press bears to every other field of development in our civilization. It has made itself the exponent and the reflex of every other industry and profession. There is now no field of thought or labor which does not command its special organs of opinion and information, adapted to the varying conditions of different latitudes and conflicting interests. Underlying this remarkable development of the press we cannot fail to recognize, as a self-evident proposition, the necessary dependence of the community upon the newspaper press for the discharge of certain functions which society requires at certain hands, and upon the discharge of which the well-regulated daily life of the people depends. The conditions of this daily life require some general medium of communication between man and man. Thus, notices of marriages and deaths, business announcements of every conceivable description, official publications and notifications required by law, an infinite variety of details, of both public and private character, relating to the mails, the trains, the churches, the schools, etc., all these have come to depend upon the periodical press for publicity. The expedients of primitive society for supplying the place of this press were many and unique, but were confessedly inadequate, even in a primitive society. The press has thus wound itself around the very pillars of our institutions, and its own growth is an inseparable consequence of growth in every other direction. Quite as much to this necessary and increasing relation of the periodical press to the development of the country as to either of the four causes enumerated above must be assigned the explanation of the important and interesting condition in which the newspaper is found at the Tenth Census.

Plan of the discussion.

The influence of the various causes enumerated in the rapid growth of newspapers in this country will be considered in their turn in the presentation of the statistics elicited by the Tenth Census in reference to the newspaper press, and in the elucidation of these statistics it will frequently be necessary to reach backward and pick up the scattered threads of history which underlie the present condition of the American press. But the year 1880 finds both the newspaper and the periodical press in the fullest development of the characteristics of this third era, and the various features of newspaper growth for the past forty years can therefore be most advantageously traced in connection with the statistics now to be discussed.

Earlier censuses of the American press.

State censuses and the press.

A large part of the information presented in the series of tables submitted herewith has never before been gathered, either in a census or in any other form. Cognizance was first taken of the newspaper press as a subject of specific investigation in the federal census of 1840, the census of that year containing an enumeration of the newspapers and periodicals then published, with an approximation of their circulation. Subsequently there was some effort on the part of private individuals to gather in a rough form the number of papers published in the United States, their characteristics, and their approximate circulation, and these figures have been gathered together in this report, with a view to showing the gradual development of the American press. Several of the states in their state censuses have made a special feature of the statistics of the press; but comparatively so few of them have any state census at all, and of those which do so few have devoted any attention to this branch of

New York, 1865.

Massachusetts, 1875.

Ohio, 1877.

Wisconsin.

Michigan.

Indiana, 1879.

Kansas.

investigation that it has been found impossible to make any general use of their figures by way of illustrating this development. The census of New York taken in 1865 contained an alphabetical list of all the newspapers and periodicals published in that year in the state, together with a summarized estimate of their circulation; and the next and last census, that of 1875, ignored the press altogether as a subject of investigation. The Massachusetts census of 1875 gave a list of all the newspapers published in that state in the year previous, with a series of accompanying tables, which indicated their number, their character, and their circulation by periods of issue. The report of the secretary of the state of Ohio, published in 1877, contained a full list of all the newspapers, serials, and other periodicals published in that state in the year previous, but without any statistical data accompanying it. The Wisconsin "Blue-Book", of annual publication, contains each year a list of the newspapers and periodicals of that state; so also does that of Michigan. The first annual report of the bureau of statistics of the state of Indiana (1879) contains the most complete attempt yet made by the authorities of any state to compile the statistics of its newspaper press. The figures obtained from these various state reports are summarized in the appendix to this report. The first biennial report of the board of agriculture of the state of Kansas (1877-'78) contains a carefully-prepared history of the newspapers published in the several counties, without statistical data regarding them. The data given include the number, circulation, politics, and general character, number of employés, and amount paid in wages of all the newspaper establishments in the state.

Value of press statistics.

The above includes all that has been done, so far as I am able to discover, by any of the states toward the collection of the statistics of the newspaper press. It is a field of inquiry so easily covered, and the statistics to be elicited are subject to such constant and interesting variation, that it seems proper to suggest that in all state censuses hereafter attempted special attention should be given to this subject of investigation. Accurate lists of the newspapers published in the several states are of great value to many individuals for a variety of purposes; and they constitute, beside, a very material element in the history of the state. The newspapers have come to rank side by side with the schools, the churches, and the libraries as an educating and elevating influence in society, and differ from these civilizing institutions only in the sense that they are private enterprises. But they are alike dependent upon public support, sustaining an official relation to the civil institutions, and attaining in every locality the character and the influence which make them, all things considered, the best possible index of the real character of the communities they represent.

## DEFECTS OF PREVIOUS CENSUSES OF THE PRESS.

Method of censuses of 1840, 1850, 1860, and 1870.

In the two decades intervening the methods of inquiry concerning the press by the federal census mainly followed the plan adopted in the census of 1850. The statistics were gathered by the regular enumerators in the course of their collection of population and industrial statistics, and included only the data of the number of periodicals, their circulation, the character of the several publications, and the periods of issue. The census of 1840 had a series of tables devoted to the printing and binding industry. The statistics of the newspaper press, as regards number and periods of issue, given in that census have been reproduced elsewhere. In addition to these figures, the census of 1840 gave 447 binderies, and to these and 1,552 printing offices (which included the newspaper establishments) assigned 11,523 hands employed and $5,873,815 capital invested. There was no attempt to estimate the value of the gross product, although this was done for other industries, and there has been no effort in subsequent censuses to estimate the amount of capital invested. In the Eighth and Ninth Censuses there were given in the tables of the manufacturing statistics approximate figures for the printing industry in bulk, embracing newspapers, book and job printing, under separate heads, in the Eighth Census, and grouping all branches, with the addition of photographic albums, in the Ninth Census. (*a*) The most casual examination of these tables, either in the Eighth or the Ninth Census, shows them

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(*a*) STATISTICS OF PRINTING ACCORDING TO CENSUS OF 1870.

| | No. of establishments. | Steam engines. | | Water wheels. | | Hands employed. | | | | Capital. | Wages. | Materials. | Products. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Horse-power. | No. | Horse-power. | No. | All. | Males above 16. | Females above 15. | Youth. | | | | |
| Printing and publishing (not specified).* | 311 | 2, 698 | 187 | 20 | 1 | 10, 668 | 8, 718 | 1, 231 | 719 | $16, 839, 993 | $7, 156, 332 | $11, 398, 131 | $28, 995, 214 |
| Printing, book | 40 | 458 | 28 | ........ | ...... | 1, 390 | 920 | 352 | 118 | 2, 128, 993 | 760, 275 | 1, 525, 773 | 3, 568, 823 |
| Printing, newspaper | 1, 199 | 3, 135 | 302 | 74 | 9 | 13, 130 | 11, 343 | 718 | 1, 069 | 14, 947, 887 | 8, 168, 515 | 8, 709, 632 | 25, 393, 029 |
| Printing, job | 609 | 1, 440 | 174 | 15 | 4 | 5, 555 | 4, 458 | 499 | 598 | 6, 007, 354 | 2, 710, 234 | 2, 966, 709 | 8, 511, 934 |
| Total | 2, 159 | 7, 731 | 691 | 109 | 14 | 30, 743 | 25, 439 | 2, 800 | 2, 504 | 39, 924, 227 | 18, 795, 356 | 24, 600, 245 | 66, 469, 000 |
| Printing and publishing, census of 1860. | 1, 666 | ........ | ...... | ........ | ...... | 20, 159 | †17, 826 | †2, 333 | ...... | 19, 622, 318 | 7, 588, 996 | 12, 844, 288 | ‡31, 063, 898 |

* Includes photograph albums. † Total number males and females. ‡ Value of products in 1850, $11,586,549; increase 1860 over 1850, 168 per cent.

to be unreliable as an indication of the real status of the printing industry in the years covered. The value of the newspaper product in 1860 was placed at $20,653,371, which was claimed to be an increase from $11,352,705 in 1850; and the total value of all the printing products enumerated above, as grouped in the Ninth Census, was returned as $66,469,000, as against a total by the Eighth Census, exclusive of photograph albums, of $39,678,043. If the figures for 1860 were abnormally small, as the importance of the combined industry at the time would indicate, those given for 1870 were utterly inadequate to determine the dimensions of the printing business at that time. The present inquiry has discovered the value of the gross product of the newspaper establishments alone to be $87,441,132 22, and if to these figures is added the value of the products of all the book publishing establishments and job-printing offices in the United States the grand aggregate would approximate $150,000,000. Great as has been the advancement in all the industries relating to printing, it can hardly be pretended that, except in the single branch of newspapers, the value of their product has doubled in the ten years.

Incompleteness of earlier press statistics.

## PLAN OF THE PRESENT INQUIRY.

In enlarging the field of inquiry the aim has been to gather all the facts in relation to the press which will aid in determining its proper rank among the various industries which invite the investment of American brains, capital, and enterprise; which will be of service to the craft itself in studying the conditions of business success; which will afford the parties who supply the material wants of the publishers—the paper manufacturers, the press-makers, and the type-founders—a correct knowledge of the quantity of those supplies in use or likely to be used hereafter; and which, finally, may be required to estimate something of the educational influence of the press of the United States as a steadily progressing medium of intercommunication and self-education between and for the masses of the people.

Aim of this inquiry.

The pursuit of several inquiries to this end has been attended with numerous and perplexing difficulties, and some illustrations of these difficulties may be given. The great majority of the newspapers of the United States are published in connection with a job-printing office, upon which the publishers rely as an equal source of revenue. This is invariably the case with the weekly local newspapers, which constitute the bulk of the American press of to-day. As a rule, the publishers of these newspapers keep no separate accounts of the outgo and income from these two sources of revenue. Many of them, in filling out the schedules sent them for the statistics of their newspaper publication, returned to the Census Office the figures for the newspaper and the job-printing industry combined, and to detect when this had been done, and to make the proper separation when necessary, was a delicate and difficult undertaking. The task can be somewhat simplified in future censuses by consolidating every inquiry which relates in any manner to the printing and publishing business under one investigation and arranging the schedules sent out, with a view to assisting the party making answer in the classification of the details of his double industry.

Difficulties encountered.

Job printing and newspaper publication.

Another difficulty arising in the preparation of these statistics was to draw a clearly-defined and intelligible line between publications of a permanent character and those which are in their nature ephemeral and unjournalistic. There is an immense number of publications in the United States of the latter character, hundreds of presses constantly producing them for a myriad of purposes. It may be said, in a wo that they have been rigorously excluded from this enumeration, as they embrace all the dev of advertisers to push their wares by incorporating in their advertising sheets a certain amount of attractive reading matter and emitting them at regular dates, like *bona-fide* periodicals. There is not a city in the United States which does not possess more or less of this class of periodicals, and in drawing the line between them and those which should be enumerated the rule adopted was to exclude all publications which are not sold at a stated subscription price. Publications which are distributed gratuitously to whoever will take them are not newspapers or periodicals in the real sense of the word, because their purpose is the business advantage of the publisher in other than journalistic fields, their continuance being dependent upon his caprice, rather than upon any fixed rule of periodic appearance. These include all such issues as theater programmes, the bulletins of large mercantile houses, transient political campaign sheets, and the large fashion quarterlies of ladies' furnishing houses, of which latter there are many which would seem, under any other rule, to properly belong in the census enumeration. Publications of the kind indicated are in the nature of things ephemeral. They appear and disappear with an intermittent regularity which defies enumeration, and confuses the real and important character of the American press.

Ephemeral publications.

The rule of exclusion adopted.

The census of 1870, in speaking of this difficulty, said:

> The law requires this report of newspapers and periodicals, on account of their relation to the moral, social, and intellectual condition of the people. To swamp this class of statistics by inconsiderately admitting hundreds of prospectuses, circulars, and advertising sheets, which can possibly have no such relations, would be undoubtedly an abuse. At the same time this subject has been treated liberally, and every periodical has been admitted to these tables which could establish a reasonable claim to be considered as within the purview of the census act.

The rule of exclusion adopted in this inquiry is founded upon the rulings of the Post-Office Department of the United States, which excludes all publications not here enumerated from mail-matter of the second class, and includes newspapers or periodicals mailed from a known office of publication. (*a*) The rule of the Post-Office Department is based upon reason and equity. It would have been possible, by including in this enumeration the publications which the Post-Office excludes from second-class mail, to swell the volume of American newspapers fully one-third above the figures given in this report. They add largely to the importance and the revenue of the printing business as such, but they add nothing to the influence of the press in its capacity as a medium of news communication, and cannot rightly be permitted to enter into an inquiry of this character.

The ruling of the Post-Office.

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*a* The following general rules, published by the Post-Office Department for the purpose of obtaining uniform decisions in regard to the character of publications entitled to be mailed at the second-class rate, indicate the principles upon which the department bases its definition of a periodical:

DOUBTFUL PUBLICATIONS.

1. Trade journals which are manifestly not devoted to the general interests of the whole trade which they assume to represent, and do not admit all reputable firms or houses upon equal terms to their advertising columns, but publish the price-list or other advertisement of one house, to the practical exclusion of all others in the same line of business, must be regarded as primarily designed for advertising purposes, and hence should be excluded from the pound rate allowed to second-class mail-matter.

2. When, however, the owner of a publication of this character can offer satisfactory evidence to the postmaster at the office of publication that it possesses sufficient value in the opinion of the public to induce a large enough number of subscriptions by persons who do not advertise in it and have no interest in the advertisements therein as to make the publication self-sustaining and a source of profit, independent of the benefits conferred upon the business, either of the proprietors, when they are not regularly engaged in the sole business of printing and publishing, or of the houses whose price-lists or other advertisements are published therein, then the department holds that, in the judgment of the public, the publication is originated for the dissemination of information of a public character, and the presumption against it being thus removed, it may be admitted to entry as second-class mail-matter; but this evidence must be submitted in detail to the First Assistant Postmaster-General for his ruling as to its sufficiency.

3. Publications asserted to be issued in the general interest of printers and publishers cannot be admitted to entry as second-class mail-matter when it appears that the number of their paid subscriptions is so insignificant in comparison with their exchange lists as to demonstrate that the primary object of the publishers is to advertise their own business and that of others by means of a free circulation among other publishers and printers. The assumption by the proprietors of such publications that they are entitled to the pound rate doubtless originated in a misunderstanding of the effect of the acts of June 23, 1874, July 12, 1876, and March 3, 1879. Under the act of June 8, 1872, it was enacted:

> SEC. 184. That the following mail-matter shall be allowed to pass free in the mail:
>
> * * * * * * * * *
>
> Seventh. Newspapers, periodicals, and magazines, reciprocally interchanged between publishers, and not exceeding sixteen ounces in weight, to be confined to a single number of each publication.

The act of June 23, 1874 (section 5), prohibited free exchanges, and fixed the rate of postage upon "all newspapers and periodical publications mailed from a known office of publication or news agency, and addressed to regular subscribers or news agents", at two cents per pound when published once a week or oftener, and at three cents per pound when published less frequently.

This was modified by the act of July 12, 1876 (section 15), which provided:

> That transient newspapers and magazines, regular publications designed primarily for advertising purposes, or for free circulation, or for circulation at nominal rates, shall be admitted to and transmitted in the mails at the rate of one cent for every two ounces or fractional part thereof, and one cent for each two additional ounces or fractional part thereof.

The act of March 3, 1879, which fixed a uniform second-class rate of two cents per pound, contains the following proviso to section 14:

> *Provided, however*, That nothing herein contained shall be so construed as to admit to the second-class rate regular publications designed primarily for advertising purposes, or for free circulation, or for circulation at nominal rates.

The rate of two cents per pound does not cover the cost of transportation, but was agreed to by Congress in accordance with the uniform policy of the United States government from the first inception of the postal system, which has been to favor the diffusion of intelligence among the people by throwing upon the general public a large portion of the cost of carrying legitimate newspapers and periodicals to subscribers.

The acts of July 12, 1876, and of March 3, 1879, show, however, that it was not the intention of Congress to permit the liberal rates of postage, given for the purpose of encouraging the diffusion of intelligence by legitimate publications, to be abused for the mailing of mere advertising sheets at the expense of the public; and there is nothing in the law to induce the belief that Congress proposed that advertising agents, type-founders, press-builders, and dealers in printers' supplies should enjoy the privilege of distributing their advertisements regularly among their customers or prospective patrons at the pound rate, while it prohibited a wholesale grocer from sending a publication descriptive of his goods in the same manner and at the same rate to all retail dealers.

4. The rule just indicated for the exclusion of so-called printers' publications, designed primarily for the purpose of free exchanging, should also be applied to so-called "amateur" publications, and the same evidence of a self-sustaining subscription-list required of them as of trade journals before admission to entry as second-class mail-matter.

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6. The list of legitimate subscribers to entitle a publication to entry as second-class mail-matter must be composed of those persons only who themselves make and pay their subscriptions. * * * *

7. The regular sale to news agents of the whole or greater part of the issue of any publication is sufficient evidence that it has a legitimate list of subscribers.

8. After a publication has been admitted to entry as second-class mail-matter, the regular mailing by the publisher of sample copies in quantities exceeding the number sent to regular subscribers, as well as the continuous mailing of such copies to the same person, will be taken as evidence that it is primarily designed for free circulation, and its transmission at the second-class rate should be discontinued.

9. If one number of the current issue of a publication which has been admitted to the second-class rate be so changed as to assume the character of an advertising sheet within the intent of the statute, and be fraudulently mailed as second-class mail-matter, or presented for mailing at the pound rate, the right of the publication to the second-class rate is thereby destroyed, as it cannot be said to "regularly be issued at stated intervals". It cannot again be admitted to the pound rate until its regularity of publication as second-class mail-matter is re-established.

## ALMANACS AND ANNUAL PUBLICATIONS.

Annual publications.

Almanacs.

For the same reason no effort has been made in this inquiry to make a record of the annual publications in the United States. Such an effort was made in the censuses of 1850 and 1860, and abandoned in that of 1870. The census of 1850 reported four annual publications, with a circulation of 47,500; that of 1860 sixteen annuals, with a circulation of 807,570. Exactly what kind of periodicals these were it is impossible now to discover; but it is obvious from the large figures given for circulation that they were in the nature either of literary or holiday annuals, of which there have been at various times many and excellent ones published in the United States, or of almanacs, of which there always have been, and still are, very many more. The literary annuals, once so popular, can be more properly classified as books, which in fact they are, and they appear once, twice, or oftener, as they are profitable or otherwise. Of the almanacs there are an immense number and variety in the United States, which are sold at a stated price, beside the innumerable quantity published by individual enterprise for gratuitous distribution as a successful method of advertising. These almanacs, and particularly those of a political character, like the New York *Tribune Almanac*, the Albany *Evening Journal Almanac*, and the Philadelphia *Ledger Almanac*, as well as those of a religious character, published either by religious organizations or newspapers, are in the nature of serials, but they are for a purpose and of a character apart and distinct from the character and purpose of periodical publications, and to admit them into the enumeration would therefore have simply been confusing. Another reason for not admitting them appeared in the impossibility of obtaining, with the resources at the command of the Census Office, an accurate enumeration of the whole number of these almanacs now published in the United States and sold at a stated price. New enterprises of this character constantly appear and disappear again after a single publication. The history and statistics of almanacs in the United States offer an inviting field of investigation, but not in connection with the statistics of the newspaper press. (*a*)

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*a* The annals of almanacs in America begin with the first introduction of printing in the new world north of Mexico. In 1639 appeared at Cambridge *An Almanac Calculated for New England*, by Mr. William Pierce, Mariner. This was printed by Stephen Daye, and no copy of it has been preserved. It was the first book printed in the colonies, preceding by a twelvemonth the famous *Bay Psalm Book, or New England Version of the Psalms*, published by the same printer at Cambridge in 1640. Cambridge continued to issue almanacs almost every year, and in 1676 the first Boston almanac was printed by John Foster, who published the same year the first book ever printed in Boston. The first Philadelphia almanac was put forth in 1686, edited by Daniel Leeds and printed by William Bradford. New York followed with its first almanac in 1697, by J. Clapp. Samuel Clough issued his first almanac in Boston in 1700, which was continued until 1708, under the title of the *New England Almanac*, a copy of which for 1703, a dingy little book of twelve leaves, measuring three and a half inches by five and a half, is before us. The title is as follows: "The New England Almanac of the Year of our Lord MDCCIII. Being Third after Leap Year, and from the Creation, 5652, discovery of America, by Columbus, 211, Reign of our Gracious Queen Anne (which began March 8, 1702), the 2 year. Wherein is Contained Things necessary and common in such a Composure. Licensed by his Excellency the Governour. Boston, printed by B. Green and J. Allen, for the Booksellers, and are to be sold at their Shops. 1703." The second page bears the traditional and repulsive wood-cut professing to show what parts the moon governs in man's body, corresponding to the twelve signs of the zodiac. The weather predictions are curious. For April 26 is foretold "misling weather mixt with some dripling showers". The eclipses of the year 1703, "in the judgement both of Divines and Astrologers," are supposed to portend "great alterations, mutations, changes, and troubles to come upon the world". The "Comet or Athereal Blaze" seen in 1702 is said to have led to "bloodshed, droughts, clashing of armies, and terrible diseases among men".

Of almanacs which have been published in long series in this country the following list embraces some of the more notable: Nathaniel Ames' *Astronomical Diary and Almanac*, started at Boston in 1725, and continued more than half a century, about 60,000 copies of which were sold annually; Titan Leeds' *American Almanac*, Philadelphia, 1726; T. Godfrey's *Pennsylvania Almanac*, begun in Philadelphia in 1729; *Poor Richard's Almanac*, by Richard Saunders (Benjamin Franklin), continued by others as *Poor Richard Improved*, Philadelphia, 1733–1786; *Father Abraham's Almanac*, by Abraham Weatherwise, Philadelphia, 1759–1799; Nathaniel Low's *Astronomical Diary or Almanac*, Boston, 1762–1827; Isaiah Thomas' *Massachusetts, Connecticut, Rhode Island, New Hampshire, and Vermont Almanac*, Worcester, Massachusetts, and Boston, 1775–1822; R. B. Thomas' *Farmers' Almanac*, Boston, 1793–1877; the *Massachusetts Register and Almanac*, Boston, established by Mein and Fleming, 1767–1877; Webster's *Calendar, or the Albany Almanac*, 1784–1877, the oldest family almanac continuously published extant in the United States; Bickerstaff's *Boston and New England Almanac*, 1768–1814, continued as Bickerstaff's *Rhode Island Almanac*, Providence, 1815–1877; *Poor Will's Almanac*, Philadelphia, 1770 to 1840, or later; the *Virginia Almanac*, Williamsburgh and Richmond, 1751 to 1829, and later; the *South Carolina and Georgia Almanac*, Charleston, 1760 to 1800, and later; *North American Calendar*, Wilmington, Delaware, 1796 to 1844, and later; Dudley Leavitt's *New England Almanac*, Exeter and Concord, New Hampshire, 1797 to 1877; Thomas Spofford's *Farmers' Almanac*, Boston, 1817 to 1845; John Gruber's *Town and Country Almanac*, Hagerstown, Maryland, 1822 to 1877; the *Maine Farmers' Almanac*, by D. Robinson, Hallowell, 1818 to 1877; Daboll's *New England Almanac*, New London, Connecticut, 1777 to 1877; and Allen's *New England Almanac*, Hartford, 1806 to 1833, or later. Many of these almanacs are preserved in private families, though but few are to be found in our public libraries. It was an early habit in New England to preserve the almanacs from year to year, carefully stitched together, and to annotate them frequently with family records or current events. The generally worthless character which has been attributed to the English almanacs of the last century must be modified as regards some of the American family almanacs. Benjamin Franklin, the illustrious printer and statesman, is justly declared by a French encyclopædist to have put forth the first popular almanac which spoke the language of reason. In truth, the homely maxims and pithy, proverbial counsels of *Poor Richard*, although not all originated by Franklin, constitute to this day a breviary of life and conduct admirable in some respects for the use of the young.

In the later days of the American revolution the almanacs put forth by Nathaniel Low at Boston, price "4 coppers single", contained political articles vigorously defending the liberties of the people, and exerting a great influence at the New England fireside in inspiring young and old with the love of freedom.

Virginia was early in the field with *Warne's Almanac*, printed at Williamsburgh in 1731. The first almanac printed in Connecticut

## THE PRESS SCHEDULES.

The schedules adopted.

In arranging for the collection of all the information desired regarding the newspaper and the periodical press it was decided to send out but two sets of schedules, one of which was prepared with especial reference to the daily press and papers published adjunct thereto, and the other for all classes of publications of a periodic character. (*a*) The daily press, notwithstanding its comparatively small number, is such an enormous interest—equal nearly in its gross product to the product of all the other

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was issued at New London in 1765 by T. Green. The first Rhode Island almanac was issued at Newport in 1728 by James Franklin, and the first Providence almanac by Benjamin West, in 1763. The first in Maryland of which we have any trace appeared at Annapolis in 1763.

Of agricultural and medical almanacs, the latter an outgrowth of the present century, the name is legion. Comic almanacs appear to have been first published in the United States about 1834, and have had an enormous circulation. Of the religious or denominational almanacs, the *Church Almanac* of the Protestant Episcopal church was begun in 1830; the *Catholic Almanac and Directory* (continued under various names to the present time) in 1833; the *Methodist Almanac* in 1834; the *Universalist Register* in 1836; the *Baptist Almanac* in 1842; the *Congregational Almanac* in 1846; the *American Unitarian Register and Year-Book* in 1846; the *Presbyterian Historical Almanac* in 1858; and the *Family Christian Almanac* in 1821. Most if not all of these are still continued annually.

The class of political almanacs, or almanacs issued by public journals, began with the first *Whig Almanac*, issued by Horace Greeley in 1838, continued since 1855 as the *Tribune Almanac*. The chief feature of this publication has been its full tables of election statistics. The *World Almanac* was first issued in 1868, and the New York *Herald Almanac* in 1872. The *Evening Journal Almanac*, of Albany, dates from 1860, and the *Public Ledger Almanac*, Philadelphia, from 1870. Many other journals, east and west, publish annual almanacs.

Of more extensive publications, under the name of almanacs, published in this country the *National Calendar*, edited by Peter Force, was the prototype. This work was published at Washington from 1820 to 1836 (with a three-years interval from 1825 to 1827, when no calendar was issued), and was a useful official register of the government, with abstracts of public documents and other valuable information. The *American Almanac and Repository of Useful Knowledge*, first published at Cambridge, Massachusetts, in 1830 (two years after the first issue of the *British Almanac*), was continued annually under various editors and publishers till the year 1861, when the publication ceased. This carefully-edited publication embodied much astronomical and meteorological information, that department frequently extending to one hundred pages. The official statistics of Congress and the general government and of the various states, with a chronicle of events and obituary notices, made up the remainder of the work. The *United States Almanac, or Complete Ephemeris*, edited by John Downes, appeared at Philadelphia for the years 1843, 1844, and 1845. It was nearly one-half made up of astronomical matter and tables, valuable chiefly to those versed in the higher mathematics. The *National Almanac and Annual Record* for the years 1863 and 1864 was published at Philadelphia by George W. Childs, and contained a vast amount of useful and thoroughly-digested information. The *American Year-Book and National Register*, edited by David N. Camp, appeared from the Hartford press for the year 1869 in an octavo of 824 pages, and was the most extensive attempt to combine a work of general information and reference with the calendar which the country has seen. It has not been continued.

Many almanacs are printed in this country in foreign languages. The pioneer of the German almanacs was issued by Sower, of Germantown, Pennsylvania, in 1738, and continued by him and his successors to the present day. Franklin's *Poor Richard's Almanac* was translated into German by A. Armbruster, who was in partnership with Franklin from 1754 to 1758. German almanacs are now printed and circulated in large editions in nearly all the middle and western states of the Union. In French, the *Almanack Français des États Unis*, established in 1848 in New York, is still published.—Ainsworth R. Spofford, in the *American Almanac* for 1878.

[a] These schedules were as follows:

(1.) DAILY JOURNALS, INCLUDING WEEKLY, SEMI-WEEKLY, OR TRI-WEEKLY PAPERS CONNECTED WITH THEM.

[The publisher will please send to the Superintendent of Census, in inclosed wrapper, one copy of the daily paper, and one copy of weekly or other journal connected therewith, of date nearest to July 4, 1880. The journals received in response to this request will be classified, bound, and deposited in the Smithsonian Institution, to constitute a complete and permanent memorial of the newspaper press of the United States.]

1. Name of journal and place of publication, with the county and state.
2. State whether morning or evening.
3. State whether a Sunday edition is published.
4. State if a weekly, semi-weekly, or tri-weekly paper is published in connection with the daily.
5. State the general scope and character of the journal.
6. If published in a language other than English, indicate what language.
7. Date of original establishment of the journal.
8. Names of the journals, if any, merged or consolidated with it since its original establishment.
9. Subscription price of daily, ———; weekly, ———; semi-weekly, ———; tri-weekly, ———.
10. Price of each paper per single copy.
11. The average circulation per issue of the daily during the census year ending June 1, 1880: Of the weekly, ———; of the semi-weekly, ———; of the tri-weekly, ———.
12. Aggregate number of copies printed and circulated during census year: Of the daily, ———; weekly, ———; semi-weekly, ———; tri-weekly, ———.
13. State the percentage of the circulation of each which is sold within the city or town of publication.
14. Value of the annual products in dollars, ———.
15. Total number of persons employed in manufacture: Male, ———; female, ———.
16. Number employed in editorial and reportorial work, ———.
17. Amount annually paid in wages, ———.
18. State the percentage of receipts from advertising and from subscriptions: From advertising, ——— per cent.; from subscription. ——— per cent.
19. Average number of ems of type set to each issue of daily.
20. Number of pounds of type required for uses of the journal.

periodicals in the United States combined—that the distinct and separate inquiry regarding it was wholly justified, and it was rendered necessary in the acquisition of accurate figures by the fact that from the greater number of daily newspaper establishments there issued other papers, adjunct thereto (weeklies, semi-weeklies, and tri-weeklies), constituting a class of papers of peculiar features, never before separately reported in a census. The general inquiries relating to all other periodicals were of such uniform character as to warrant the belief that the single schedule would suffice for the weekly village newspaper and the staid metropolitan quarterly, leaving the separation into classes to be done in the Census Office proper. The results of the inquiry have shown that this belief was well founded, the simpler method avoiding much confusion and mistake. Both classes of schedules sent out were returned with remarkable promptness and fullness from nearly every section of the Union, and if the information given was not always accurate, the error was generally obviously due to the lack of definite information on the part of the publisher, and experience in handling the returns enabled revision to be easily and accurately made.

Separate inquiry regarding the daily press.

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21. Number of presses in use, with names, character, and capacity of each.
22. Horse-power of engines.
23. Size of sheet and number of pages.
24. Average number of pounds of paper used for each edition of daily, ——; weekly, ——; semi-weekly, ——; tri-weekly, ——; number reams for each, ——.
25. State if stereotype plates are used in printing.

(2) JOURNALS AND MISCELLANEOUS PERIODICALS OTHER THAN DAILY.

[The publisher will please send to the Superintendent of Census, in inclosed wrapper, one copy of his journal or periodical of date nearest to July 4, 1880. The newspapers and periodicals received in response to this request will be classified, bound, and deposited in the Smithsonian Institution, to supply a complete and permanent memorial of the periodical press of the United States.]

1. Name of publication.
2. Town, county, and state in which published.
3. How often published.
4. State the general purpose and character of the publication.

The following classification is suggested, with the expectation that periodicals not properly coming under either head will indicate their scope and character specifically under (18) Miscellaneous.

1. News and family reading.
2. News and politics.
3. Religion and theology, with denominational relations, if any.
4. Agriculture, horticulture, stock-raising, dairy, etc.
5. Commerce and finance.
6. Trade journals generally.
7. Insurance, railroads, etc.
8. General literature, including monthly and quarterly magazines.
9. Sunday newspapers.
10. Medicine and surgery.
11. Law.
12. Science and mechanics.
13. Freemasonry, odd fellowship, temperance, etc., including the publications of societies.
14. Education and history, including the periodicals of educational and historical societies.
15. Society, art, music, and fashion.
16. College and school periodicals.
17. Children's periodicals, including Sunday-school papers.
18. Miscellaneous.

5. Date when the periodical was established.
6. Give the names of periodicals, if any, consolidated with it since original establishment.
7. Average circulation per issue during census year ending June 1, 1880.
8. Aggregate number of copies printed during census year.
9. What percentage of the circulation is sold within city or town of publication.
10. Subscription price.
11. Price per copy.
12. State the percentage of receipts from advertising and subscriptions: From advertising, —— per cent.; from subscriptions, —— per cent.
13. Gross value of the annual product in dollars.
14. If published in a language other than English, state what language.
15. State if the periodical is regularly illustrated.
16. State whether the publishers do their own printing, in whole or in part.
17. If so, the name, character, and number of presses in use.
18. Nature of power employed, and what horse-power.
19. Average number of ems of type set to each issue.
20. Number of pounds of type required for uses of the periodical.
21. Size of sheet or page, and number of pages.
22. Average number of pounds of paper used to each issue, ——; number reams, ——.
23. State whether stereotype plates are used.
24. Number of persons employed in manufacture: Male, ——; female, ——.
25. Number of persons employed solely in editorial work.
26. Amount paid annually in wages.
27. If publishers do not do their own printing, please state name and address of printing-house employed.

Publishers of weekly newspapers, in responding to the inquiries of this schedule, will confer a favor by adding, in the space below, the names of any periodicals that may have been established or suspended within the town or immediate vicinity during the census year ending June 1, 1880.

Some defects in the method of inquiry other than as noted above have been suggested during the preparation of these statistics; but there seems good reason to believe that by the results obtained the way has been prepared and the basis established upon which it will be possible hereafter to present in complete and intelligible form all the details in regard to the decennial progress of the newspaper press which it will be of advantage to know.

## NUMBER AND DIVISION OF THE NEWSPAPER AND PERIODICAL PRESS.

Press of 1880 by periods of issue.

The first of the tables submitted with this report shows that there actually existed during the census year 11,314 periodical publications of all kinds in the United States. Of these, 971 were daily newspapers; 8,633 were weekly newspapers and periodicals, of which number 804 were weekly editions of daily journals; 133 were semi-weekly newspapers, of which 41 were connected with daily newspapers; 73 were tri-weeklies, of which 41 were connected with dailies; 40 were bi-weekly publications; 1,167 were monthly periodicals; 160 were semi-monthly periodicals; 2 were tri-monthly periodicals; 13 were bi-monthly periodicals; 116 were quarterly periodicals; and 6 were semi-annual periodicals.

Newspapers devoted to news, politics, and family reading.

Division into newspapers and periodicals.

The periodical press.

Classes of periodicals.

The division of these publications into their several classes, as well as the division by periods of issue, is indicated in this table; and in this regard attention is called to the fact that all journals which, in strict phraseology, are newspapers are grouped under the general heading of those devoted to "news, politics, and family reading". To this group belongs the entire daily press, all of which was devoted primarily to the dissemination of the news, political, commercial, and general, with varying specialties in a number of cases, as also the great bulk of the weekly publications, whose mission it is to supply their readers with the local news of their several communities, a *résumé* of the general news of the world for the current week, with other departments of miscellaneous or family reading matter. The majority of these weekly newspapers are identified with one or the other of the existing political parties, and all of them discuss political questions more or less, though in many cases from the standpoint of a neutral or independent journal. All the semi-weekly and tri-weekly newspapers belong in this group, as do a few of the bi-weeklies, semi-monthlies, and monthlies. None of the remainder have any title to be regarded as newspapers, being classed as periodicals, magazines, and other publications, which appear at stated periods, and are concerned with other interests than the mere publication or discussion of the news. This distinction between the newspaper and the periodical is drawn sharply in the English press directories, and is a just and proper one to be made by the census. Dividing the American press in accordance with it, the 11,314 publications reported resolve themselves into 8,863 newspapers and 2,451 periodicals. The latter are classified in Table I according to their general purposes, and have been divided for convenience into the following fourteen classes: Religious journals (553 in number); agricultural (173); commercial and trade, which includes market journals (284); financial journals (25); insurance and railroad journals (54); general literature, which includes not only the monthly and quarterly magazines, both literary and critical, but also the weekly family story papers, etc. (189); medical and surgical journals (114); law journals and digests (45); journals relating to science and mechanics (68); journals which advocate temperance, or are the organs of organizations like the freemasons, odd fellows, etc. (149); educational journals, including college and school publications (248); journals devoted to society, art, music, and fashion, including ladies' journals (72); children's periodicals, including Sunday school papers (217); and miscellaneous, under which latter head were grouped a heterogeneous assortment of papers (260 in number) too infinitely subdivided in their objects to warrant separate classification, and covering almost every phase of life, study, or pursuit not embraced in the above classes. The 481 illustrated papers reported are included in one or another of the above classes, as are also the newspapers or periodicals published in the German or other languages than the English.

It is evident that the development of periodical literature in the United States has not been less remarkable than that of the newspaper proper.

## COMPARATIVE RATE OF NEWSPAPER INCREASE.

Extraordinary development of the newspaper press.

Table XI has been prepared with a view to showing at a glance the actual number of newspapers published at the time of the taking of each of the four last censuses, the increase between 1870 and 1880 being enormous, reaching almost 100 per cent. It has long been evident to those who have given the matter attention that the last decade has been exceptional, not only in the history of the United States, but of the whole world, in the multiplication of printing presses. It has witnessed the rehabilitation of the newspaper press in the southern states, as well as a healthy rate of growth there, and an almost reckless audacity among the pioneer printers of the great and growing West. Even in long and thickly-settled states like New York and Massachusetts the increase is quite as remarkable, being in the former nearly one-third, and in the latter nearly one-half.

The most notable increase reported is in the direction of the weekly newspaper press: an increase which was in such rapid progress at the time this census was taken that it was difficult, and indeed impossible, to trace all the new establishments that properly belonged in the enumeration of the census year. The actual number of new journals reported of all classes as established within the census year is given at 1,127, which is 10 per cent. of the whole number. Deducting from this number the 833 suspended papers, we find the net increase of the year to be 294. This increase in the census year is 2.60 per cent. of the total number of papers published in 1880. The actual increase in the number of papers published in the census year over those published in 1870 is 92.71 per cent., and the increase in their circulation in 1880 over that reported in 1870 is 52.48 per cent. The rate of increase indicated in previous censuses was as follows:

Number of new papers established; ratio of increase.

Comparative rate of increase in number and circulation.

| | Per cent. |
|---|---|
| Increase in number, 1870 over 1860 | 44.93 |
| Increase in number, 1860 over 1850 | 60.37 |
| Increase in circulation, 1870 over 1860 | 52.54 |
| Increase in circulation, 1860 over 1850 | 165.71 |

As a basis for estimating the future growth of the American press, the increase given for the census year, namely, 2.60 per cent., may be safely taken as the lowest ratio of annual increase that will prevail during the ensuing ten years.

## SUSPENSION AND CONSOLIDATION OF NEWSPAPERS.

The statistics of the establishment and suspension of new publications have such an important bearing upon the stability of the American press that they have been made the basis of a special table (VII), in which the existing press is grouped by decades in respect to age. It appears from this table that 5,429 of the 11,314 journals of 1880 were established between 1870 and 1880, 1,731 between 1860 and 1870, 903 between 1850 and 1860, 1,216 in all previous years, and 117 with no date given. A simple calculation will show that, of the 5,871 journals reported in the census of 1870, 1,904 must have since suspended publication, and by comparing this number with the number of journals that suspended in the census year 1880 (833) we can form some idea of the large number of newspapers that must have been both established and suspended during the course of the decade, no record of which appears in either census.

Establishment and suspension of newspapers.

One column in Table VII reports 1,640 as the number of consolidations represented in existing journals, and sheds light upon an important aspect of journalistic development in the United States. The consolidation of rival newspapers and periodicals in fields that prove not sufficiently nutritive for both is constantly in progress. As a rule, the stronger absorbs the weaker, and, as the latter may frequently be the journal of earlier establishment, it happens that many existing papers claim a date of establishment much earlier than that which witnessed the first publication under their titular designation, the titles of the absorbed papers being frequently retained as a secondary caption, more especially if they indicate an earlier date of establishment. There are a number of existing journals each of which represents all that remains of from half a dozen to a dozen periodicals. (*a*)

Newspaper consolidations.

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*a* The history of the Boston *Daily Advertiser* is such a curious illustration of the fact in question that it is here reproduced complete, as recently stated in the columns of that journal. There is some confusion in regard to several links in the chain, owing to the carelessness with which early files have been preserved, but the following is as accurate as it can be made:

1. The *Essex Gazette*, founded in Salem August 2, 1768, by Samuel Hall, was moved to Cambridge in the summer of 1775. Mr. Hall continued the publication there, under the title of the *New England Chronicle or the Weekly Gazette*. The following year, 1776, at the close of the siege, the place of publication, with the press and types, was moved across the river. The property and good-will was bought by Powars & Willis, who changed the title in November of that year to—

2. The *Independent Chronicle and Universal Advertiser*. The new publishers disposed of their interest in 1783 to (Thomas) Adams & Nourse, who continued the *Chronicle* semi-weekly until May, 1800. It then became the property of (Abijah) Adams & Rhoades, the latter being the editor until his death, in 1819. The *Chronicle* was then sold to Ballard & Wright, and united with—

3. The *Boston Patriot*, established in 1809 by Everett & Monroe, a supporter of Madison's administration and of the war of 1812. The two papers being united, were published daily under the title of the *Independent Chronicle and Boston Patriot* until 1831, when they were bought by Nathan Hale and merged with the *Daily Advertiser*.

4. The *Columbian Centinel*, started as the *Massachusetts Centinel and Republican Journal* in March, 1784, was owned by Mayor Benjamin Russell, publisher and editor from 1786 to 1828, when he retired, disposing of the property to (Joseph T.) Adams & Hudson. Two years latter, 1830, the new proprietors bought—

5. The *New England Palladium*, and continued its publication, the two papers containing nearly the same reading matter. The *Palladium*, started as the *Massachusetts Mercury* in 1793, had had a brilliant career of its own for nearly forty years, under the management of Alexander Young and Thomas Minns. In 1836 the proprietors of the *Centinel* and *Palladium* bought and absorbed—

6. The *Boston Gazette*, the fourth newspaper in Boston bearing that name, started as the *Boston Price Current and Marine Intelligencer* in September, 1795, and known for some years subsequently as *Russell's Gazette*. Four years later, 1840, the owners, oppressed by their

The number of these consolidations given in the table does not represent the actual number typified in existing newspapers, which I assume to be much larger. Many of these absorptions and consolidations have occurred in the past, of which the present proprietors of the surviving journals have no knowledge and made no report; in other cases the failure to report was by accident or by design; and it has frequently happened that the elimination of a rival newspaper has occurred by purchase outright of good-will and appurtenances, the rival disappearing, leaving no sign. Such a suspension is in the nature of an absorption, and no suspensions of this class are represented in the figures given.

Comparative stability of British and American press.

The most stable press in the world is that of Great Britain. In proportion to the number of newspapers published in the United Kingdom, there is among them a greater average longevity than the press of any other country can show. The press of the United States stands second to that of Great Britain in stability, and what it lacks in this respect may be said to be due to its prematurity alone. In every state and every city of the Union it has advanced faster than the community itself, overleaping its field, so to speak; and it has suffered the consequences in a remarkable and uninterrupted mortality. In this tendency to anticipate American journalism presents one of its chief points of contrast to that of every other country. It is a tendency largely due, in the first instance, to the total freedom from all government tax and supervision—a freedom such as the press now enjoys nowhere else in the world, save in Great Britain, and has but briefly enjoyed there. Everywhere on the continent of Europe the right to regulate the utterances of the press is claimed to inhere in the government, and is frequently exercised, even to the total suppression of offending journals of character and long standing, and it is impossible, where the conditions of existence are so totally different, to make any effective comparison with the press of the United States, and none has been attempted in this report. The causes of the instability observable in the continental press differ as widely from those in operation in the United States as do the spirit and character of the governments of these nations.

## THE HALF-CENTURY PRESS.

Half-century newspapers.

To complete the record under this topic I have prepared a list of the existing newspapers in the United States which have been in existence for fifty years or longer. This list includes a number of daily newspapers which have grown out of weekly establishments, and which are therefore entitled to the antiquity belonging to the latter, and is made up from the schedules returned by the publishers themselves. Several journals are included in it about whose title to the date of establishment claimed there may be a reasonable question raised, as they are built upon the foundations of earlier newspapers which expired, or are revivals of newspaper enterprises which were suspended for a longer or shorter period. Even including all such, the list embraces but 370 establishments, and is as enumerated on the following pages. (*a*)

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repeated acquisitions and responsibilities, transferred the entire property and good-will of these several newspapers to Mr. Hale, and they also became from that time a part of the *Daily Advertiser*.

7. The *Repertory*, first published in Boston in the autumn of 1803, in the senate chamber of the old state-house, and afterward at the Exchange coffee-house, by William W. Clapp, was united with the *Daily Advertiser* at the outset, and the name was for a time a part of the title. Its separate publication was continued weekly under Mr. Hale's direction some time longer.

8. The *Boston Weekly Messenger*, established in 1810, of which Mr. Hale was one of the editors, formed a closer alliance with the *Daily Advertiser* in 1815, and Mr. Hale was soon after announced as the publisher. It was printed "for the country", and contained much of the reading of the *Daily Advertiser* until its separate identity was lost altogether.

The Philadelphia *North American*, which traces its origin to the Pennsylvania *Packet and General Advertiser*, established in 1771, represents the following nine papers, which disappeared in it at the dates given: *American Daily Advertiser*, 1784; *Gazette of the United States*, 1789; *Evening Advertiser*, 1793; *United States Gazette*, 1804; *True American*, 1820; *Commercial Chronicle*, 1820; *The Union*, 1820; *Commercial Herald*, 1840; and *North American*, 1839.

*a* There is a long-standing controversy as to which is the oldest American newspaper now published in the United States. Munsell claimed in 1869 that this honor belonged to the *New Hampshire Gazette* (now the weekly edition of the Portsmouth *Daily Chronicle*), founded at Portsmouth by Daniel Fowle in August, 1756. This claim was disputed by the Newport *Mercury*, which James Franklin founded upon being driven from Boston, the first number appearing June 12, 1758. The proprietors of the *Mercury* dispute the claim of the *New Hampshire Gazette* to be the oldest paper, on the ground that the *Gazette*, having suspended publication for several months in 1861, it was, when revived, a different and distinct newspaper. But this argument is fatal to the claim of the *Mercury*, since it is a fact that there is a similar episode in its own history. Solomon Southwick, who owned the *Mercury* in 1776, discontinued it in December of that year, fearing that the British, who were preparing to land, would destroy his types and press. Its publication was not resumed until January 1, 1780, when Henry Barber became its publisher. On the other hand, the Hartford *Courant*, whose predecessor, the *Connecticut Courant*, was first regularly brought out by Thomas Green November 19, 1764, claims to be the oldest living newspaper in the United States, on the ground that it has been regularly continued without interregnum or change of name from that day to this; a statement which is not true in reference to any existing papers which bear a prior date of establishment. The *Maryland Gazette*, which was first founded in 1745, keeps that date at the head of its columns, and would appear, therefore, to be the oldest existing newspaper. All the evidence, however, tends to the conclusion that the *Gazette* which was established in the year named ceased to exist in 1839. The fact is so stated in Ridgsly's *Annals of Annapolis*, and the corresponding secretary of the Maryland Historical Society, John W. M. Lee, writes that there are no files in the collections of that society later than the date named. The *Maryland Journal*, which commenced August 20, 1773, ceased publication July 1, 1797, with No. 3,429. *The American and Daily Advertiser* commenced with volume 1, No. 1, on May 14, 1799, and has continued to the present date without break as the *Baltimore American and Commercial Advertiser*.

## MASSACHUSETTS.

| | |
|---|---|
| Salem Gazette, s. w., Salem | 1768 |
| Worcester Spy, d. and w., Worcester (d. 1845) | 1770 |
| Hampshire Gazette, w., Northampton | 1786 |
| Gazette and Courier, w., Greenfield | 1792 |
| Newburyport Herald, d. and w., Newburyport (d. 1832) | 1793 |
| Haverhill Gazette, 2 dailies and w., Haverhill (d. 1877); (Evening Telephone, 1879) | 1798 |
| Pittsfield Sun, w., Pittsfield | 1800 |
| Salem Register, s. w., Salem | 1800 |
| Worcester Gazette, d. and w., Worcester (d. 1843) | 1801 |
| Baptist Missionary Magazine, m., Boston | 1803 |
| Missionary Herald, m., Boston | 1804 |
| New Bedford Mercury, d. and w. (d. 1832) | 1808 |
| Boston Daily Advertiser, d., w., and s. w., Boston | 1813 |
| Norfolk County Gazette, w., Hyde Park | 1813 |
| Congregationalist and Boston Recorder, w., Boston | 1816 |
| Christian Leader, w., Boston | 1819 |
| Watchman and Reflector, w., Boston | 1819 |
| Inquirer and Mirror, w., Nantucket | 1820 |
| Bristol County Republican, w., Taunton | 1821 |
| Christian Register, w., Boston | 1821 |
| Old Colony Memorial, w., Plymouth | 1822 |
| New England Farmer, w., Boston | 1822 |
| Salem Observer, w., Salem | 1823 |
| Zion's Herald, w., Boston | 1823 |
| Springfield Republican, d., s., and w., Springfield (d. 1844), (s. 1878) | 1824 |
| Lowell Journal, d. and w., Lowell (weekly edition Daily Courier, 1845) | 1824 |
| Evening Traveler, d., w., and s. w., Boston (d. 1845) | 1824 |
| Boston Courier, w., Boston | 1824 |
| Fall River Monitor, w., Fall River | 1826 |
| Berkshire County Eagle, w., Pittsfield | 1827 |
| Youths' Companion, w., Boston | 1827 |
| Amesbury Villager, w., Amesbury | 1828 |
| Medical and Surgical Journal, w., Boston | 1828 |
| Evening Transcript, d. and w., Boston (w. 1856) | 1830 |
| Barnstable Patriot, w., Barnstable | 1830 |
| Investigator, w., Boston | 1830 |

## RHODE ISLAND.

| | |
|---|---|
| Newport Mercury, w., Newport | 1758 |
| Providence Journal, 2 dailies, s. w., and w., Providence (w. 1824, d. 1829; Evening Bulletin, 1863) | 1820 |
| Gazette and Chronicle, w., Pawtucket | 1825 |

## CONNECTICUT.

| | |
|---|---|
| Hartford Courant, d. and w., Hartford (d. 1836) | 1764 |
| Connecticut Herald and Journal, w., New Haven (weekly edition Daily Journal and Courier, 1832) | 1766 |
| Republican Farmer, w., Bridgeport (weekly edition Evening Farmer, 1854) | 1790 |
| Norwich Courier, w., Norwich (weekly edition Morning Bulletin, 1857) | 1796 |
| Norwalk Gazette, w., Norwalk | 1800 |
| Columbian Register, w., New Haven (weekly edition Daily Register, 1840) | 1812 |
| Hartford Times, d. and w., Hartford (d. 1841) | 1817 |
| American Journal of Science and Arts, m., New Haven | 1818 |
| Christian Secretary, w., Hartford | 1822 |
| Sentinel and Witness, w., Middletown | 1823 |
| Litchfield Enquirer, w., Litchfield | 1826 |
| New Haven Palladium, d. and w., New Haven | 1829 |
| Stamford Advocate, w., Stamford | 1829 |

## NEW HAMPSHIRE.

| | |
|---|---|
| New Hampshire Gazette, w., Portsmouth (weekly edition Daily Chronicle, 1852) | 1756 |
| Cheshire Republican, w., Keene | 1793 |
| Portsmouth Journal, w., Portsmouth | 1793 |
| New Hampshire Sentinel, w., Keene | 1799 |
| Farmers' Cabinet, w., Amherst | 1802 |
| Independent Statesman, w., Concord (weekly edition Daily Monitor, 1864) | 1823 |
| Argus and Spectator, w., Newport | 1823 |
| Nashua Gazette, d. and w., Nashua (d. 1872) | 1826 |
| Morning Star, w., Dover | 1826 |
| Dover Enquirer, w., Dover | 1828 |

## NEW YORK.

| | |
|---|---|
| Hudson Gazette, w., Hudson (weekly edition Daily Register, 1866) | 1784 |
| Poughkeepsie Eagle, d. and w., Poughkeepsie (d. 1860) | 1785 |
| Catskill Recorder, w., Catskill | 1792 |
| Gazette, w., Utica (weekly edition Morning Herald and Gazette, 1847) | 1793 |
| New York Commercial Advertiser, d., New York | 1794 |
| Shipping and Commercial List, and New York Price Current, s. w., New York | 1795 |
| Washington County Post, w., Cambridge | 1798 |
| Lansingburgh Gazette, w., Lansingburgh | 1798 |
| Northern Budget, w., Troy | 1798 |
| Ballston Journal, w., Ballston Spa | 1798 |
| Goshen Democrat, w., Goshen | 1800 |
| Evening Post, d., w., and s. w., New York | 1801 |
| Ontario Repository and Messenger, w., Canandaigua | 1803 |
| Freeman's Journal, w., Cooperstown | 1808 |
| Geneva Gazette, w., Geneva | 1809 |
| Commercial Patriot and Journal, w., Buffalo (weekly edition Daily Commercial Advertiser, 1835) | 1810 |
| Republican Advocate, w., Batavia | 1811 |
| Plattsburgh Republican, w., Plattsburgh | 1811 |
| Independent Republican, w., Goshen | 1812 |
| Homer Republican, w., Homer | 1812 |
| Albany Argus, d., s., s. w., and w., Albany (d. 1825) | 1813 |
| Owego Gazette, w., Owego | 1814 |
| Steuben Farmers' Advocate, w., Bath | 1815 |
| North American Review, m., New York | 1815 |
| Ithaca Journal, d. and w., Ithaca (d. 1872) | 1815 |
| Chenango Union, w., Norwich | 1816 |
| Union and Advertiser, d., w., and s. w., Rochester (d. and s. w. 1826) | 1816 |
| Observer, d. and w., Utica (d. 1848) | 1816 |
| Penn Yan Democrat, w., Penn Yan | 1817 |
| Spirit of the Times, w., Batavia | 1818 |
| Oswego Palladium, d. and w., Oswego (d. 1863) | 1819 |
| Delaware Gazette, w., Delhi | 1819 |
| Long Island Farmer, w., Jamaica | 1819 |
| Saratoga Sentinel, w., Saratoga | 1819 |
| Schoharie Republican, w., Schoharie | 1819 |
| Poughkeepsie Telegraph, w., Poughkeepsie (weekly edition Daily Press, 1850) | 1820 |
| Allegany County Republican, w., Angelica | 1820 |
| Cherry Valley Gazette, w., Cherry Valley | 1820 |
| Columbia Republican and Star, w. (weekly edition of Daily Republican, 1847) | 1820 |

## NEW YORK—Continued.

| | |
|---|---|
| Ithaca Democrat, w., Ithaca | 1820 |
| Niagara Democrat, w., Lockport (weekly edition Daily Union, 1860) | 1821 |
| Fredonia Censor, w., Fredonia | 1821 |
| Madison Observer, w., Morrisville | 1821 |
| Lyons Republican, w., Lyons | 1821 |
| Broome Republican, w., Binghamton (weekly edition Daily Republican, 1872) | 1822 |
| Wayne Democratic Press, w., Lyons | 1822 |
| Sag Harbor Corrector, w., Sag Harbor | 1822 |
| Examiner and Chronicle, w., New York | 1823 |
| New York Observer, w., New York | 1823 |
| Sandy Hill Herald, w., Sandy Hill | 1823 |
| Yates County Chronicle, w., Penn Yan | 1823 |
| Christian Intelligencer, w., New York | 1823 |
| Re-Union, w., Watertown (weekly edition Morning Despatch, 1872) | 1824 |
| Orleans American, w., Albion | 1824 |
| Morning Standard, d. and w., Syracuse (d. 1848) | 1825 |
| Rough Notes, w., Kinderhook | 1825 |
| Princeton Review, bi-m., New York | 1825 |
| Jamestown Journal, d. and w., Jamestown (d. 1870) | 1826 |
| Elmira Gazette, d. and w., Elmira (d. 1859) | 1826 |
| Le Roy Gazette, w., Le Roy | 1826 |
| Christian Advocate, w., New York | 1826 |
| Waterloo Observer, w., Waterloo | 1826 |
| Republican Watchman, w., Greenport | 1826 |
| Republican Watchman, w., Monticello | 1826 |
| Auburn Journal, w., Auburn (weekly edition Daily Advertiser, 1844) | 1827 |
| Journal of Commerce, d., s. w., and w., New York | 1827 |
| Courrier des États Unis, d., and w., New York | 1828 |
| Home Missionary, m., New York | 1828 |
| Sailors' Magazine and Seamen's Friend, m., New York | 1828 |
| Orleans Republican, w., Albion | 1828 |
| Otsego Republican, w., Cooperstown | 1828 |
| Semi-Weekly Telegraph, s. w., Norwich | 1829 |
| Evening Journal, d., w., and s. w., Albany | 1830 |
| Saint Lawrence Republican, w., Ogdensburgh (weekly edition Daily Journal, 1855) | 1830 |
| Catskill Examiner, w., Catskill | 1830 |
| Journal and Republican, w., Lowville | 1830 |
| Quarterly Review, q., New York | 1830 |
| New York Evangelist, w., New York | 1830 |
| Hempstead Inquirer, w., Hempstead | 1830 |

## NEW JERSEY.

| | |
|---|---|
| New Jersey Journal, w., Elizabeth (weekly edition Daily Journal, 1871) | 1779 |
| State Gazette, d. and w., Trenton (d. 1847) | 1792 |
| New Brunswick Times, d. and w., New Brunswick (d. 1865) | 1792 |
| Sentinel of Freedom, w., Newark (weekly edition Daily Advertiser, 1832) | 1796 |
| True American, d. and w., Trenton (d. 1838) | 1801 |
| Fredonian, d. and w., New Brunswick (d. 1855) | 1811 |
| Sussex Register, w., Newton | 1813 |
| Bridgeton Chronicle, w., Bridgeton | 1815 |
| New Jersey Mirror, w., Mount Holly | 1818 |
| National Standard, w., Salem | 1819 |
| West Jersey Press, w., Camden | 1820 |
| Monmouth Inquirer, w., Freehold | 1820 |
| Somerset Messenger, w., Somerville | 1822 |
| Advocate and Times, w., Rahway | 1822 |
| Belvidere Apollo, w., Belvidere | 1824 |
| Mount Holly Herald, w., Mount Holly | 1826 |
| Jerseyman, w., Morristown | 1826 |
| New Jersey Herald, w., Newton | 1829 |

## PENNSYLVANIA.

| | |
|---|---|
| North American, d. and t. w., Philadelphia (d. 1784) | 1771 |
| Commercial Gazette, d., w., and s. w., Pittsburgh | 1786 |
| York Republican, w., York | 1789 |
| Franklin Repository, w., Chambersburg | 1790 |
| Intelligencer, d. and w., Lancaster (d. 1864) | 1794 |
| Die York Gazette, w., York (German) | 1795 |
| Reading Adler, w., Reading (German) | 1796 |
| Herald and Free Press, w., Norristown (weekly edition Daily Herald, 1869) | 1799 |
| Sentinel, w., Gettysburg (consolidated with Star [established 1828] 1867; now Star and Sentinel) | 1800 |
| Carlisle Herald, w., Carlisle | 1800 |
| Register and Montgomery County Democrat, w., Norristown | 1800 |
| Gazette, w., Williamsport (consolidated with Bulletin [established 1860] 1869; now Gazette and Bulletin, d. and w.) | 1801 |
| Northampton Correspondent, w., Easton (German) | 1801 |
| Bucks County Intelligencer, w., Doylestown | 1804 |
| Post, d. and w., Pittsburgh (d. 1842) | 1804 |
| Bedford Gazette, w., Bedford | 1805 |
| Genius of Liberty, w., Uniontown | 1805 |
| Herald, w., Greensburgh (consolidated with Tribune [established 1870] 1872; now Tribune and Herald) | 1807 |
| American Republican, d. and w., West Chester (d. 1878) | 1808 |
| Washington Reporter, w., Washington (weekly edition Daily Evening Reporter, 1876) | 1808 |
| Der Volksfreund und Beobachter, w., Lancaster (German) | 1808 |
| Chester County Village Record, w., West Chester | 1809 |
| Easton Sentinel, w., Easton | 1809 |
| Hanover Citizen, w., Hanover | 1810 |
| Unabhaengiger Republikaner, w., Allentown (German) | 1810 |
| Lewistown Gazette, w., Lewistown | 1810 |
| Western Press, w., Mercer | 1811 |
| Messenger, w., Waynesburgh | 1813 |
| Presbyterian Banner, w., Pittsburgh | 1814 |
| American Volunteer, w., Carlisle | 1814 |
| Wahrer Demokrat, w., Lebanon (German) | 1814 |
| Examiner, w., Washington (consolidated with Review [established 1851] 1865; now Review and Examiner, w.) | 1815 |
| York Gazette, w., York | 1815 |
| Berks and Schuylkill Journal, w., Reading, (weekly edition Daily Times and Despatch, 1857) | 1816 |
| Doylestown Democrat, w., Doylestown | 1816 |
| Columbia Spy, w., Columbia | 1816 |
| Miltonian, w., Milton | 1816 |
| Gettysburg Compiler, w., Gettysburg | 1818 |
| Argus, w., Beaver (consolidated with Radical 1868; now Argus and Radical) | 1818 |
| Westmoreland Democrat, w., Greensburgh | 1818 |
| Gazette, w., Erie | 1820 |
| Lebanon Courier, w., Lebanon | 1820 |
| American Journal of the Medical Sciences, q., Philadelphia | 1820 |
| Saturday Evening Post, w., Philadelphia | 1821 |
| Episcopal Recorder, w., Philadelphia | 1822 |
| Selin's Grove Times, w., Selin's Grove | 1822 |
| Child's World, s. m., Philadelphia | 1823 |
| Miners' Journal, d. and w., Pottsville (d. 1869) | 1824 |
| Evangelical Repository and Bible Teacher, m., Pittsburgh | 1824 |
| Bauern Freund und Demokrat, w., Pennsburg, (German) | 1824 |
| Sunday School World, m., Philadelphia | 1824 |
| Union Free Press, w., Kittaning | 1825 |
| American Journal of Pharmacy, m., Philadelphia | 1825 |
| Argus, d. and w., Easton (d. 1879) | 1826 |
| Der Pennsylvanier, w. (German), Lebanon | 1826 |
| Lutheran Observer, w., Philadelphia | 1826 |
| Journal of the Franklin Institute, m., Philadelphia | 1826 |
| Bucks County Express and Reform, w. (German), Doylestown | 1827 |
| Clearfield Republican, w., Clearfield | 1827 |
| Republican Standard, w., Uniontown | 1827 |

## PENNSYLVANIA—Continued.

| | |
|---|---|
| Danville Intelligencer, w., Danville | 1827 |
| Commercial List and Price Current, w., Philadelphia | 1827 |
| Friend, w., Philadelphia | 1827 |
| Messenger, w., Philadelphia | 1827 |
| Somerset Herald, w., Somerset | 1827 |
| Examiner, w., Lancaster (consolidated with Express 1843; now Examiner and Express, d. and w.) | 1828 |
| Bedford Inquirer, w., Bedford | 1828 |
| Millheim Journal, w., Millheim | 1828 |
| Philadelphia Inquirer, d. and t. w., Philadelphia | 1829 |
| Coal Gazette, w., Mauch Chunk | 1829 |
| Columbia Courant, w., Columbia | 1829 |
| Allentown Democrat, w., Allentown | 1830 |
| Monroe Democrat, w., Stroudsburg | 1830 |
| Germantown Telegraph, w., Germantown | 1830 |
| Godey's Lady's Book and Magazine, m., Philadelphia | 1830 |
| Monongahela Valley Republican, w., Monongahela city | 1830 |

## DELAWARE.

| | |
|---|---|
| Wilmington Gazette, d. and w., Wilmington (d. 1872) | 1784 |

## MARYLAND.

| | |
|---|---|
| Maryland Gazette, w., Annapolis | 1745 |
| American and Commercial Advertiser, d., w., and s., Baltimore | 1773 |
| Easton Star, w., Easton | 1800 |
| Frederick Examiner, w., Frederick | 1803 |
| Maryland Republican, w., Annapolis | 1809 |
| Herald and Torchlight, w., Hagerstown | 1814 |
| Easton Gazette, w., Easton | 1816 |
| American Farmer, m., Baltimore | 1819 |
| Alleganian, w., Cumberland (weekly edition Daily Times, 1876) | 1820 |
| Cambridge Chronicle, w., Cambridge | 1823 |
| Kent News, w., Chestertown | 1825 |
| Republican Citizen, w., Frederick | 1826 |
| Hagerstown Mail, w., Hagerstown | 1828 |

## VIRGINIA.

| | |
|---|---|
| Alexandria Gazette, d. and t. w., Alexandria | 1800 |
| Lexington Gazette, w., Lexington | 1804 |
| Washingtonian, w., Leesburg | 1805 |
| Shenandoah Valley, w., New Market | 1806 |
| Virginian, d., w., and t. w., Lynchburg | 1808 |
| Shenandoah Herald, w., Woodstock | 1817 |
| Spectator, w., Staunton | 1822 |
| Rockingham Register, w., Harrisonburg | 1822 |
| Richmond Whig, d., w., and s. w., Richmond | 1824 |
| Religious Herald, w., Richmond | 1828 |
| Farmville Mercury, w., Farmville | 1829 |

## NORTH CAROLINA.

| | |
|---|---|
| Durham Recorder, w., Durham | 1820 |
| Greensboro' Patriot, d. and w., Greensboro' (d. 1880) | 18 1 |
| Southerner, w., Tarboro' | 1822 |

## SOUTH CAROLINA.

| | |
|---|---|
| Georgetown Times, w., Georgetown | 1802 |
| News and Courier, d., w., s., and t. w., Charleston | 1803 |
| Enterprise and Mountaineer, w., Greenville | 1824 |
| Camden Journal, w., Camden | 1827 |
| Charleston Mercury, d. and w., Charleston (d. 1876) | 1830 |

## GEORGIA.

| | |
|---|---|
| Chronicle and Constitutionalist, d., w., and t. w., Augusta | 1785 |
| Southern Banner, w., Athens (weekly edition Daily Banner, 1879) | 1815 |
| Union and Recorder, w., Milledgeville | 1819 |
| Christian Index and Southern Baptist, w., Atlanta | 1819 |
| Telegraph and Messenger, d. and w., Macon | 1826 |
| Enquirer-Sun, d., s., and w., Columbus (d. 1858) | 1828 |

## VERMONT.

| | |
|---|---|
| Vermont Journal, w., Windsor | 1782 |
| Herald and Globe, d. and w., Rutland (d. 1861) | 1794 |
| Sentinel, w., Burlington (now Democrat and Sentinel) | 1801 |
| Vermont Watchman and State Journal, w., Montpelier | 1805 |
| North Star, w., Danville | 1807 |
| Patriot, w., Montpelier (consolidated with Argus 1850; now Argus and Patriot) | 1819 |
| Vermont Chronicle, w., Montpelier | 1825 |
| Free Press, w., Burlington (weekly edition Daily Free Press and Times, 1847) | 1828 |

## KENTUCKY.

| | |
|---|---|
| Western Citizen, w., Paris | 1809 |
| Christian Observer, w., Louisville | 1813 |
| Weekly Eagle, w., Maysville | 1819 |

## TENNESSEE.

| | |
|---|---|
| Clarksville Chronicle, w., Clarksville | 1808 |
| American, d., s. w., and w., Nashville | 1812 |
| Tribune, d. and w., Knoxville (d. 1867) | 1816 |
| Review and Journal, w., Franklin | 1825 |

## OHIO.

| | |
|---|---|
| Cincinnati Gazette, d., s. w., and w., Cincinnati | 1793 |
| Scioto Gazette, w., Chillicothe | 1800 |
| Marietta Register, w., Marietta | 1801 |
| Steubenville Herald, d. and w., Steubenville (d. 1847) | 1806 |
| Western Star, w., Lebanon | 1806 |
| Empire and Democrat, w., Dayton (weekly edition Daily Democrat, 1874) | 1808 |
| Dayton Journal, d. and w., Dayton (d. 1840) | 1808 |
| Herald of Gospel Liberty, w., Dayton | 1808 |
| Ohio Patriot, w., New Lisbon | 1808 |

## OHIO—Continued.

| | |
|---|---|
| Ohio Eagle, w., Lancaster | 1809 |
| Ohio State Journal, d. and w., Columbus (d. 1840) | 1811 |
| Western Reserve Chronicle, w., Warren | 1812 |
| Saint Clairsville Gazette, w., Saint Clairsville | 1812 |
| Belmont Chronicle, w., Saint Clairsville | 1813 |
| Telegraph, w., Hamilton (weekly edition Daily News, 1879) | 1814 |
| Springfield Republic, d., t. w., and w., Springfield (d. 1854) | 1814 |
| Butler County Democrat, w., Hamilton | 1814 |
| Canton Repository, d. and w., Canton (d. 1878) | 1815 |
| Cadiz Republican, w., Cadiz | 1815 |
| Eaton Register, w., Eaton | 1816 |
| Union Herald, w., Circleville | 1817 |
| Gallipolis Journal, w., Gallipolis | 1817 |
| Hillsboro' Gazette, w., Hillsboro' | 1818 |
| Mansfield Herald, w., Mansfield | 1818 |
| Richland Shield and Banner, w., Mansfield | 1818 |
| Delaware Gazette, w., Delaware | 1818 |
| Cleveland Herald, d., t. w., and w., Cleveland (d. 1835) | 1819 |
| Tuscarawas Advocate, w., New Philadelphia | 1819 |
| Zanesville Courier, d. and w., Zanesville (d. 1846) | 1820 |
| Newark Advocate, w., Newark | 1820 |
| Sandusky Register, d., t. w., and w., Sandusky (d. 1844) | 1822 |
| Painesville Telegraph, w., Painesville | 1822 |
| Salem Republican, w., Salem | 1824 |
| Coshocton Age, w., Coshocton | 1824 |
| Guernsey Times, w., Cambridge | 1824 |
| Athens Messenger, w., Athens | 1825 |
| Lancaster Gazette, w., Lancaster | 1826 |
| Wayne County Democrat, w., Wooster | 1826 |
| Holmes County Farmer, w., Millersburg | 1828 |
| Marion Independent, w., Marion | 1828 |
| Clermont Sun, w., Batavia | 1828 |
| Star in the West, w., Cincinnati | 1828 |
| Columbus Times, d. and w., Columbus (d. 1852) | 1829 |
| Chillicothe Advertiser, w., Chillicothe | 1829 |
| Fremont Journal, w., Fremont | 1829 |
| Standard of the Cross, w., Cleveland | 1830 |
| Norwalk Reflector, w., Norwalk | 1830 |
| Weekly Examiner, w., Bellefontaine | 1830 |
| Republican-Democrat, w., Ravenna | 1830 |

## LOUISIANA.

| | |
|---|---|
| New Orleans Price Current, s. w., New Orleans | 1822 |
| L'Abeille, d. and w., New Orleans (French) | 1827 |

## INDIANA.

| | |
|---|---|
| Western Sun, d. and w., Vincennes (d. 1879) | 1804 |
| Vevay Reveille, w., Vevay | 1817 |
| Indianapolis Journal, d., s., and w., Indianapolis | 1823 |
| Indianapolis Sentinel, d. and w., Indianapolis | 1824 |
| La Fayette Journal, d., s., and w., La Fayette | 1829 |

## MISSISSIPPI.

| | |
|---|---|
| Woodville Republican, w., Woodville | 1826 |

## FLORIDA.

| | |
|---|---|
| Weekly Floridian, w., Tallahassee | 1828 |

## ALABAMA.

| | |
|---|---|
| Huntsville Advocate, w., Huntsville | 1815 |
| Florence Gazette, w., Florence | 1819 |
| Mobile Register, d., s., and w., Mobile (d. 1830) | 1820 |
| Huntsville Democrat, w., Huntsville | 1823 |
| Morning Times, d. and w., Selma | 1825 |
| Moulton Advertiser, w., Moulton | 1827 |
| Advertiser and Mail, d. and w., Montgomery | 1828 |

## MAINE.

| | |
|---|---|
| Portland Advertiser, d. and w., Portland | 1785 |
| Eastern Argus, d., w., and t. w., Portland (d. 1832) | 1803 |
| Whig and Courier, d. and w., Bangor (d. 1834) | 1815 |
| Eastport Sentinel, w., Eastport | 1818 |
| Christian Mirror, w., Portland | 1822 |
| American Sentinel, d. and w., Bath (weekly edition of Daily Times, 1862) | 1822 |
| Kennebec Journal, d. and w., Augusta (d. 1870) | 1825 |
| Zion's Advocate, w., Portland | 1828 |
| Republican Journal w., Belfast | 1829 |

## MISSOURI.

| | |
|---|---|
| Missouri Republican, d., t. w., and s., Saint Louis, (d. 1830) | 1808 |

## ARKANSAS.

| | |
|---|---|
| Arkansas Gazette, d. and w., Little Rock | 1819 |

## MICHIGAN.

| | |
|---|---|
| Monroe Commercial, w., Monroe | 1825 |
| Post and Tribune, d., w., and t. w., Detroit | 1830 |

## DISTRICT OF COLUMBIA.

| | |
|---|---|
| African Repository, m., Washington | 1825 |

## WEST VIRGINIA.

| | |
|---|---|
| Virginia Free Press, w., Charlestown | 1821 |
| South Branch Intelligencer, w., Romney | 1830 |

## THE LAW OF NEWSPAPER GROWTH.

Is it a healthy growth?

To the question whether the remarkable growth of the newspaper and periodical press indicated in these tables is natural and healthy and likely to continue indefinitely in a somewhat corresponding ratio I can only make answer yes, and then indicate certain limitations which have suggested themselves in the course of the investigation. The more newspapers there are in a locality the more thrifty, intelligent, and enterprising that locality is found to be. Except in metropolitan districts, however, there is a well-defined limit, having its due relations to population and the character and pursuits of that population, where too many newspapers become an impediment to the prosperity, and therefore to the usefulness of each other. There is a law of supply and demand in the matter of newspaper publication which asserts itself in due progress of time, to the control of the natural tendency to overdo newspaper printing, and it is under the operation of this law that we have the extraordinary record of newspaper suspensions during the census year—a record we have seen to be not peculiar to that year. A well-established and healthy journal lives upon the evidence it is able to give in each issue of the fact of its healthfulness, and the rivals which are constantly springing up must give and maintain equal evidence of such fact to become permanent. When that is given, without taking from the similar condition of the earlier established sheet, the evidence is complete that the field is large enough for both or all. It is, however, a question which in many cases can only be tested by actual experience, and is being constantly tested in large and small towns at the cost of the experimenters, the law of the survival of the fittest prevailing with constantly increasing uniformity in the development of the newspaper press. Thus this investigation has demonstrated the fact that the overwhelming proportion of the newspaper suspensions of the census year were journals of recent establishment, quite frequently journals which had not yet completed a year of existence, and the exceptions to this law occur in cases where a particular newspaper is established for a particular purpose, political or otherwise, and is sustained, not from its earnings, but from the contributions of interested parties. Instances of this kind, I am led to believe, are becoming rarer as the functions of the newspaper and the conditions of financial success are more widely understood.

The law of newspaper growth.

The survival of the fittest.

Accepting the rule defined as the true one, it follows that the longer a journal has been established the greater is its chance for holding its own against any and all comers. A theory of this kind cannot be demonstrated by statistics; and yet it may be somewhat fortified by the figures in Table VII, which show that 1,216 of the papers existing in 1880 were established previous to 1850, in which year the total number of periodicals was 2,526. It is a fair inference that almost precisely half of the newspapers and periodicals in existence in 1850 are still alive, but many circumstances may intervene to create exceptions to the rule of a character which it is not necessary to elaborate.

Horace Greeley on the law of newspaper growth.

In determining the question whether this growth of newspapers is an abnormal one I know of no better rule to adopt than that laid down by the late Horace Greeley in his interesting testimony before a parliamentary committee of the English commons, appointed in 1851 to inquire into the expediency of the repeal of the stamp duty in Great Britain on newspapers and the duty on advertisements. Mr. Greeley was asked, "At what amount of population of a town in America do they first begin the publication of a weekly newspaper, and also a daily newspaper?" He answered the question as follows:

> With regard to newspapers, the general rule is that each town will have one. In all the free states, if a county has a population of 20,000 it has two newspapers—one of each party. The general average is about one local journal in the agricultural counties for 10,000 inhabitants. A county containing 50,000 has five journals, which are weekly papers; and when a town grows to have as many as 15,000 inhabitants, or thereabout, then it has a daily paper. Sometimes that is the case when it has as few as 10,000. It depends much on the business of the place, but 15,000 may be stated as the average at which a daily paper commences. At 20,000 they have two, and so on. In central towns, like Buffalo, Rochester, Troy, and such towns, they have from three to five daily journals, each of which prints a weekly or semi-weekly journal.

As to weeklies.

As a general statement of the case Mr. Greeley's diagnosis is nearly as accurate for to-day as it was thirty years ago. "Each town will have one" about as soon as it concentrates sufficient business to keep a respectable job-printing office alive. (*a*) In the agricultural counties the county-seat is generally the location of two weekly papers, which make it a point to collect the vicinity news of such other outlying towns as are in the county. The location at the county-seat has certain advantages in the way of official and other printing which make it always the first point in a newly developing locality for the establishing of newspapers unless there are commercial reasons which tend to carry population and business away from the county-seat, such as the location on a railroad or navigable stream. The number of weekly journals rarely gets above three in a town without the appearance of a daily there, and it is the competition of the weekly papers which frequently supplies a town with two dailies before it has amassed sufficient nutriment for the sustenance of one.

As to dailies.

---

*a* There are numerous notable exceptions to this statement, as may be illustrated by the returns from Massachusetts. The town of Chicopee, in that state, with a population of 11,286, has no newspaper. Malden, with a population of 12,017, has but one newspaper, a weekly. On the other hand, Berlin, with a population of 977, Bolton, with a population of 903, and Shrewsbury, with a population of 1,500, each had a weekly newspaper, which was printed in another town, however, in the case of Berlin and Bolton. Ayer, with a population of 1,881, and Yarmouth, with a population of 2,173, each had two newspapers. Andover, Blackstone, Montague, Millbury, West Springfield, and North Bridgewater, with over 4,000 population each, had no weekly newspapers. Quincy, Weymouth, and Milford, with over 9,000 population each, had but one weekly newspaper each.

Geographical and commercial limitations.

Large towns without dailies.

Different conditions in the western states.

Geographical and commercial configurations have much to do with these things. There are many towns in the United States of from 15,000 to 20,000 inhabitants which are still without a daily newspaper, and it is to be observed that they are almost invariably located in the eastern or middle states. Striking illustrations are Pittsfield, Massachusetts, with 13,364 population; Gloucester, Massachusetts, with 19,329; Holyoke, Massachusetts, with 21,915; Hoboken, New Jersey, with 30,999; Watervliet, New York, with 22,220; Norwalk, Connecticut, with 13,956; Chelsea, Massachusetts, with 21,782; Pawtucket, Rhode Island, with 19,030, and Yonkers, New York, with 18,892. These large towns without daily newspapers generally belong in one or the other of two categories: they are given up to manufacturing chiefly, or they are places of suburban residence for the population of large contiguous cities. Very frequently the manufacturing towns are immediately abutting large cities, from which they obtain their daily papers quite as early as they are distributed in the city of publication, and of much better quality than home enterprise can supply. This is the case in all the towns of suburban residence. This class of towns is rare in the western states, the towns there being more widely separated in distance as well as in interests, and not accessible to early editions of the better newspapers of the large cities.

In the interval since Mr. Greeley made his estimate the size of the town in which a daily will make its appearance on the average has been very considerably decreased. This fact is illustrated in detail by the following table, prepared for that purpose. It is a table which shows every city and town, with its population, in which one or more daily papers were printed in the census year:

## A LIST OF THE COUNTIES AND TOWNS IN THE SEVERAL STATES AND TERRITORIES IN WHICH DAILY NEWSPAPERS WERE PUBLISHED, WITH THE POPULATION AND NUMBER OF PAPERS IN EACH.

NOTE.—In contrast with the facts presented in this table, the following prediction, from James Grant's *History of the English Newspaper Press*, published in 1872, is suggestive: "I look forward with complete confidence to the publication, within the next ten years, throughout the British kingdom of daily papers in every town containing a population of 20,000." Mr. Grant's prediction, it is proper to add, is in no danger of verification, notwithstanding the fact that since he wrote the weekly provincial press of England has continued to develop rapidly into twice-a-week papers, and from twice-a-week papers into dailies. At the time Mr. Grant wrote there were still very many large provincial English towns without dailies. Portsmouth, for instance, with a population of 120,000, was served by one semi-weekly and one weekly paper. It had in 1880 one daily (evening), established in 1877, and two semi-weekly papers. The city of Dover, Kent county, England, population 30,000, had no daily at that time. It possessed but five weeklies in 1872, and in 1880, still without a daily, it had but four weeklies. Hastings, Sussex county, with a population of 30,000, supports no less than nine weeklies (most of them published either on Friday or Saturday) and no daily. Southampton, population 58,000, had in 1880 nine weeklies, one semi-weekly, and no daily. (See *post*, list of thirty-six English towns, with populations exceeding 20,000, in which no daily is published.)

In somewhat singular contrast to Mr. Grant's prediction is his statement elsewhere, in referring to the establishment of the Brighton *Daily News* in 1868, that "it was a bold experiment to seek to establish a daily paper in a town whose population at the time did not much exceed 70,000, and for the first two or three years it appeared doubtful whether it would succeed".

| Location. | Population. | Number of dailies published. |
|---|---|---|
| ALABAMA. | | |
| DALLAS COUNTY | 48, 433 | ........ |
| Selma | 7, 529 | 1 |
| MOBILE COUNTY | 48, 653 | ........ |
| Mobile | 29, 132 | 3 |
| MONTGOMERY COUNTY | 52, 356 | ........ |
| Montgomery | 16, 713 | 2 |
| Total | .............. | 6 |
| ARIZONA. | | |
| MARICOPA COUNTY | 5, 689 | ........ |
| Phœnix | 1, 708 | 1 |
| PIMA COUNTY | 17, 006 | ........ |
| Tombstone | 973 | 2 |
| Tucson | 7, 007 | 2 |
| YAVAPAI COUNTY | 5, 013 | ........ |
| Prescott | 1, 836 | 1 |
| Total | .............. | 6 |
| ARKANSAS. | | |
| GARLAND COUNTY | 9, 023 | ........ |
| Hot Springs | 3, 554 | 2 |
| PHILLIPS COUNTY | 21, 262 | ........ |
| Helena | 3, 652 | 2 |
| PULASKI COUNTY | 32, 616 | ........ |
| Little Rock | 13, 138 | 2 |
| Total | .............. | 6 |
| CALIFORNIA. | | |
| ALAMEDA COUNTY | 62, 976 | ........ |
| Oakland | 34, 555 | 2 |
| HUMBOLDT COUNTY | 15, 512 | ........ |
| Eureka | 2, 639 | 3 |
| LOS ANGELES COUNTY | 33, 381 | ........ |
| Los Angeles | 11, 183 | 4 |
| MONO COUNTY | 7, 499 | ........ |
| Bodie | 2, 712 | 2 |
| CALIFORNIA—Continued. | | |
| NAPA COUNTY | 13, 235 | ........ |
| Napa City | 3, 731 | 2 |
| NEVADA COUNTY | 20, 823 | ........ |
| Grass Valley | Not separated. | 1 |
| Nevada City | 4, 022 | 1 |
| SACRAMENTO COUNTY | 34, 390 | ........ |
| Sacramento | 21, 420 | 4 |
| SAN BERNARDINO COUNTY | 7, 786 | ........ |
| San Bernardino | 1, 673 | 1 |
| SAN DIEGO COUNTY | 8, 618 | ........ |
| San Diego | 2, 637 | 2 |
| SAN FRANCISCO COUNTY | 233, 959 | ........ |
| San Francisco | 233, 959 | 21 |
| SAN JOAQUIN COUNTY | 24, 349 | ........ |
| Stockton | 10, 282 | 2 |
| SANTA BARBARA COUNTY | 9, 513 | ........ |
| Santa Barbara | 3, 460 | 1 |
| SANTA CLARA COUNTY | 35, 039 | ........ |
| San José | 12, 567 | 4 |
| SOLANO COUNTY | 18, 475 | ........ |
| Vallejo | 5, 987 | 3 |
| SONOMA COUNTY | 25, 926 | ........ |
| Santa Rosa | 3, 616 | 1 |
| TEHAMA COUNTY | 9, 301 | ........ |
| Red Bluff | 2, 106 | 2 |
| YOLO COUNTY | 11, 772 | ........ |
| Woodland | 2, 257 | 1 |
| YUBA COUNTY | 11, 284 | ........ |
| Marysville | 4, 321 | 1 |
| Total | .............. | 58 |
| COLORADO. | | |
| ARAPAHOE COUNTY | 38, 644 | ........ |
| Denver | 35, 629 | 6 |

A LIST OF THE COUNTIES AND TOWNS IN WHICH DAILY NEWSPAPERS WERE PUBLISHED, ETC.—Continued.

| Location. | Population. | Number of dailies published. |
|---|---|---|
| COLORADO—Continued. | | |
| CUSTER COUNTY | 8, 080 | |
| Silver Cliff | 5, 040 | 2 |
| EL PASO COUNTY | 7, 949 | |
| Colorado Springs | 4, 226 | 1 |
| GILPIN COUNTY | 6, 489 | |
| Central City | 2, 626 | 1 |
| LAKE COUNTY | 23, 563 | |
| Leadville | 14, 820 | 6 |
| LAS ANIMAS COUNTY | 8, 903 | |
| Trinidad | 2, 226 | 1 |
| PUEBLO COUNTY | 7, 617 | |
| Pueblo | 3, 217 | 2 |
| Total | | 19 |
| CONNECTICUT. | | |
| FAIRFIELD COUNTY | 112, 042 | |
| Bridgeport | 27, 643 | 3 |
| HARTFORD COUNTY | 125, 382 | |
| Hartford | 42, 015 | 3 |
| NEW HAVEN COUNTY | 156, 523 | |
| Meriden | 15, 540 | 2 |
| New Haven | 62, 882 | 6 |
| Waterbury | 17, 806 | 1 |
| NEW LONDON COUNTY | 73, 152 | |
| New London | 10, 537 | 1 |
| Norwich | 15. 112 | 1 |
| Total | | 17 |
| DAKOTA. | | |
| BURLEIGH COUNTY | 3, 240 | |
| Bismarck | 1, 758 | 1 |
| CASS COUNTY | 8, 998 | |
| Fargo | 2, 693 | 1 |
| LAWRENCE COUNTY | 13, 248 | |
| Central | 1, 008 | 1 |
| Deadwood | 3, 777 | 4 |
| Lead City | 1, 437 | 1 |
| YANKTON COUNTY | 8, 390 | |
| Yankton | 3, 431 | 1 |
| Total | | 9 |
| DELAWARE. | | |
| NEW CASTLE COUNTY | 77, 716 | |
| Wilmington | 42, 478 | 5 |
| DISTRICT OF COLUMBIA. | | |
| Washington | 147, 293 | 5 |
| FLORIDA. | | |
| DUVAL COUNTY | 19, 431 | |
| Jacksonville | 7, 650 | 3 |
| GEORGIA. | | |
| BIBB COUNTY | 27, 147 | |
| Macon | 12, 749 | 2 |
| CHATHAM COUNTY | 45, 023 | |
| Savannah | 30, 709 | 3 |
| CLARKE COUNTY | 11, 702 | |
| Athens | 6, 099 | 1 |
| DOUGHERTY COUNTY | 12, 622 | |
| Albany | 3, 216 | 1 |
| FLOYD COUNTY | 24, 418 | |
| Rome | 3, 877 | 2 |
| FULTON COUNTY | 49, 137 | |
| Atlanta | 37, 409 | 2 |
| MUSCOGEE COUNTY | 19, 322 | |
| Columbus | 10, 123 | 2 |
| RICHMOND COUNTY | 34, 665 | |
| Augusta | 21, 891 | 2 |
| SPALDING COUNTY | 12, 585 | |
| Griffin | 3, 620 | 1 |
| Total | | 16 |

| Location. | Population. | Number of dailies published. |
|---|---|---|
| ILLINOIS. | | |
| ADAMS COUNTY | 59, 135 | |
| Quincy | 27, 268 | 4 |
| ALEXANDER COUNTY | 14, 808 | |
| Cairo | 9, 011 | 3 |
| COLES COUNTY | 27, 042 | |
| Mattoon | 5, 737 | 1 |
| COOK COUNTY | 607, 524 | |
| Chicago | 503, 185 | 18 |
| DE KALB COUNTY | 26, 768 | |
| Sycamore | 3, 028 | 1 |
| HANCOCK COUNTY | 35, 337 | |
| Warsaw | 3, 105 | 1 |
| JO DAVIESS COUNTY | 27, 528 | |
| Galena | 6, 451 | 1 |
| KANE COUNTY | 44, 939 | |
| Aurora | 11, 873 | 2 |
| Elgin | 8, 787 | 2 |
| KNOX COUNTY | 38, 344 | |
| Galesburg | 11, 437 | 2 |
| LA SALLE COUNTY | 70, 403 | |
| Ottawa | 7, 834 | 2 |
| LOGAN COUNTY | 25, 037 | |
| Lincoln | 5, 639 | 2 |
| MCLEAN COUNTY | 60, 100 | |
| Bloomington | 17, 180 | 2 |
| MACON COUNTY | 30, 665 | |
| Decatur | 9, 547 | 2 |
| MADISON COUNTY | 50, 126 | |
| Alton | 8, 975 | 2 |
| MORGAN COUNTY | 31, 514 | |
| Jacksonville | 10, 927 | 1 |
| PEORIA COUNTY | 55, 355 | |
| Peoria | 29, 259 | 6 |
| ROCK ISLAND COUNTY | 38, 302 | |
| Moline | 7, 800 | 1 |
| Rock Island | 11, 659 | 2 |
| SAINT CLAIR COUNTY | 61, 806 | |
| Belleville | 10, 683 | 3 |
| SANGAMON COUNTY | 52, 894 | |
| Springfield | 19, 743 | 4 |
| STEPHENSON COUNTY | 31, 963 | |
| Freeport | 8, 516 | 2 |
| VERMILION COUNTY | 41, 588 | |
| Danville | 7, 733 | 3 |
| WILL COUNTY | 53, 422 | |
| Joliet | 11, 657 | 4 |
| WINNEBAGO COUNTY | 30, 505 | |
| Rockford | 13, 129 | 3 |
| Total | | 74 |
| INDIANA. | | |
| ALLEN COUNTY | 54, 763 | |
| Fort Wayne | 26, 880 | 4 |
| BARTHOLOMEW COUNTY | 22, 777 | |
| Columbus | 4, 813 | 2 |
| CASS COUNTY | 27, 611 | |
| Logansport | 11, 198 | 2 |
| CLARK COUNTY | 28, 610 | |
| Jeffersonville | 9, 357 | 2 |
| DELAWARE COUNTY | 22, 926 | |
| Muncie | 5, 219 | 1 |
| ELKHART COUNTY | 33, 454 | |
| Elkhart | 6, 953 | 1 |
| FLOYD COUNTY | 24, 590 | |
| New Albany | 16, 423 | 1 |
| JACKSON COUNTY | 23, 050 | |
| Seymour | 4, 250 | 2 |

A LIST OF THE COUNTIES AND TOWNS IN WHICH DAILY NEWSPAPERS WERE PUBLISHED, ETC.—Continued.

| Location. | Population. | Number of dailies published. |
|---|---|---|
| **INDIANA—Continued.** | | |
| Jefferson county | 25, 977 | ....... |
| Madison | 8, 945 | 2 |
| Johnson county | 19, 537 | ....... |
| Franklin | 3, 116 | 1 |
| Knox county | 26, 324 | ....... |
| Vincennes | 7, 680 | 1 |
| Marion county | 102, 782 | ....... |
| Indianapolis | 75, 056 | 4 |
| Montgomery county | 27, 316 | ....... |
| Crawfordsville | 5, 251 | 1 |
| Saint Joseph county | 33, 178 | ....... |
| South Bend | 13, 280 | 2 |
| Shelby county | 25, 257 | ....... |
| Shelbyville | 3, 745 | 1 |
| Tippecanoe county | 35, 966 | ....... |
| La Fayette | 14, 860 | 3 |
| Vanderburgh county | 42, 193 | ....... |
| Evansville | 29, 280 | 5 |
| Vigo county | 45, 658 | ....... |
| Terre Haute | 26, 042 | 3 |
| Wayne county | 38, 613 | ....... |
| Richmond | 12, 742 | 2 |
| Total | ............... | 40 |
| **IOWA.** | | |
| Cass county | 16, 943 | ....... |
| Atlantic | 3, 662 | 1 |
| Clinton county | 36, 763 | ....... |
| Clinton | 9, 052 | 1 |
| Des Moines county | 33, 099 | ....... |
| Burlington | 19, 450 | 3 |
| Dubuque county | 42, 996 | ....... |
| Dubuque | 22, 254 | 3 |
| Henry county | 20, 986 | ....... |
| Mount Pleasant | 4, 410 | 2 |
| Johnson county | 25, 429 | ....... |
| Iowa city | 7, 123 | 2 |
| Lee county | 34, 859 | ....... |
| Keokuk | 12, 117 | 2 |
| Linn county | 37, 237 | ....... |
| Cedar Rapids | 10, 104 | 2 |
| Lucas county | 14, 530 | ....... |
| Chariton | 2, 977 | 1 |
| Marshall county | 23, 752 | ....... |
| Marshall | 6, 240 | 1 |
| Muscatine county | 23, 170 | ....... |
| Muscatine | 8, 295 | 2 |
| Polk county | 42, 395 | ....... |
| Des Moines | 22, 408 | 2 |
| Pottawattamie county | 39, 850 | ....... |
| Council Bluffs | 18, 063 | 2 |
| Scott county | 41, 266 | ....... |
| Davenport | 21, 831 | 4 |
| Wapello county | 25, 285 | ....... |
| Ottumwa | 9, 004 | 1 |
| Woodbury county | 14, 996 | ....... |
| Sioux City | 7, 366 | 1 |
| Total | ............... | 30 |
| **KANSAS.** | | |
| Atchison county | 26, 668 | ....... |
| Atchison | 15, 105 | 2 |
| Bourbon county | 19, 591 | ....... |
| Fort Scott | 5, 372 | 1 |
| Cherokee county | 21, 905 | ....... |
| Galena | 1, 463 | 1 |
| Cowley county | 21, 538 | ....... |
| Winfield | 2, 844 | 1 |
| **KANSAS—Continued.** | | |
| Douglas county | 21, 700 | ....... |
| Lawrence | 8, 510 | 3 |
| Franklin county | 16, 797 | ....... |
| Ottawa | 4, 032 | 2 |
| Leavenworth county | 32, 355 | ....... |
| Leavenworth | 16, 546 | 4 |
| Lyon county | 17, 326 | ....... |
| Emporia | 4, 631 | 1 |
| Sedgwick county | 18, 753 | ....... |
| Wichita | 4, 911 | 1 |
| Shawnee county | 29, 093 | ....... |
| Topeka | 15, 452 | 4 |
| Total | ............... | 20 |
| **KENTUCKY.** | | |
| Fayette county | 29, 023 | ....... |
| Lexington | 16, 656 | 2 |
| Franklin county | 18, 699 | ....... |
| Frankfort | 6, 958 | 1 |
| Jefferson county | 146, 010 | ....... |
| Louisville | 123, 758 | 5 |
| Kenton county | 43, 983 | ....... |
| Covington | 29, 720 | 1 |
| McCracken county | 16, 262 | ....... |
| Paducah | 8, 036 | 2 |
| Total | ............... | 11 |
| **LOUISIANA.** | | |
| Caddo parish | 26, 296 | ....... |
| Shreveport | 8, 009 | 2 |
| East Baton Rouge parish | 19, 966 | ....... |
| Baton Rouge | 7, 197 | 1 |
| Orleans parish | 216, 090 | ....... |
| New Orleans | 216, 090 | 10 |
| Total | ............... | 13 |
| **MAINE.** | | |
| Androscoggin county | 45, 042 | ....... |
| Lewiston | 19, 083 | 2 |
| Cumberland county | 86, 359 | ....... |
| Portland | 33, 810 | 5 |
| Kennebec county | 53, 058 | ....... |
| Augusta | 8, 665 | 1 |
| Penobscot county | 70, 476 | ....... |
| Bangor | 16, 856 | 2 |
| Sagadahoc county | 19, 272 | ....... |
| Bath | 7, 874 | 1 |
| York county | 62, 257 | ....... |
| Biddeford | 12, 651 | 1 |
| Total | ............... | 12 |
| **MARYLAND.** | | |
| Allegany county | 38, 012 | ....... |
| Cumberland | 10, 693 | 2 |
| Anne Arundel county | 28, 526 | ....... |
| Annapolis | 6, 642 | 1 |
| Baltimore city | 332, 313 | 9 |
| Frederick county | 50, 482 | ....... |
| Frederick | 8, 659 | 1 |
| Washington county | 38, 561 | ....... |
| Hagerstown | 6, 627 | 2 |
| Total | ............... | 15 |
| **MASSACHUSETTS.** | | |
| Bristol county | 139, 040 | ....... |
| Fall River | 48, 961 | 4 |
| New Bedford | 26, 845 | 2 |
| Taunton | 21, 213 | 1 |

### A LIST OF THE COUNTIES AND TOWNS IN WHICH DAILY NEWSPAPERS WERE PUBLISHED, ETC.—Continued.

| Location. | Population. | Number of dailies published. |
|---|---|---|
| **MASSACHUSETTS—Continued.** | | |
| ESSEX COUNTY | 244, 535 | ....... |
| Haverhill | 18, 472 | 3 |
| Lawrence | 39, 151 | 2 |
| Lynn | 38, 274 | 1 |
| Newburyport | 13, 538 | 1 |
| HAMPDEN COUNTY | 104, 142 | ....... |
| Springfield | 33, 340 | 3 |
| MIDDLESEX COUNTY | 317, 830 | ....... |
| Cambridge | 52, 669 | 2 |
| Lowell | 59, 475 | 4 |
| PLYMOUTH COUNTY | 74, 018 | ....... |
| Brockton | 13, 608 | 1 |
| SUFFOLK COUNTY | 387, 927 | ....... |
| Boston | 362, 839 | 11 |
| WORCESTER COUNTY | 226, 897 | ....... |
| Fitchburg | 12, 429 | 1 |
| Worcester | 58, 291 | 3 |
| Total | ............... | 39 |
| **MICHIGAN.** | | |
| BAY COUNTY | 38, 081 | ....... |
| Bay | 20, 693 | 3 |
| BERRIEN COUNTY | 36, 785 | ....... |
| Saint Joseph | 2, 603 | 1 |
| CALHOUN COUNTY | 38, 452 | ....... |
| Battle Creek | 7, 063 | 2 |
| Marshall | 3, 795 | 1 |
| CASS COUNTY | 22, 009 | ....... |
| Dowagiac | 2, 100 | 1 |
| IONIA COUNTY | 33, 872 | ....... |
| Ionia | 4, 190 | 1 |
| JACKSON COUNTY | 42, 031 | ....... |
| Jackson | 16, 105 | 2 |
| KALAMAZOO COUNTY | 34, 342 | ....... |
| Kalamazoo | 8, 057 | 2 |
| KENT COUNTY | 73, 253 | ....... |
| Grand Rapids | 32, 016 | 4 |
| LENAWEE COUNTY | 48, 343 | ....... |
| Adrian | 7, 849 | 1 |
| MONTCALM COUNTY | 33, 148 | ....... |
| Greenville | 3, 144 | 2 |
| MUSKEGON COUNTY | 26, 586 | ....... |
| Muskegon | 11, 262 | 1 |
| SAINT CLAIR COUNTY | 46, 197 | ....... |
| Port Huron | 8, 883 | 3 |
| SAGINAW COUNTY | 59, 095 | ....... |
| East Saginaw | 19, 016 | 2 |
| Saginaw | 10, 525 | 1 |
| WAYNE COUNTY | 166, 444 | ....... |
| Detroit | 116, 340 | 6 |
| Total | ............... | 33 |
| **MINNESOTA.** | | |
| HENNEPIN COUNTY | 67, 013 | ....... |
| Minneapolis | 46, 887 | 3 |
| RAMSEY COUNTY | 45, 890 | ....... |
| Saint Paul | 41, 473 | 6 |
| WINONA COUNTY | 27, 197 | ....... |
| Winona | 10, 208 | 1 |
| Total | ............... | 10 |
| **MISSISSIPPI.** | | |
| ADAMS COUNTY | 22, 649 | ....... |
| Natchez | 7, 058 | 2 |
| LAUDERDALE COUNTY | 21, 501 | ....... |
| Meridian | 4, 008 | 1 |
| WARREN COUNTY | 31, 238 | ....... |
| Vicksburg | 11, 814 | 2 |
| Total | ............... | 5 |
| **MISSOURI.** | | |
| AUDRAIN COUNTY | 19, 732 | ....... |
| Mexico City | 3, 835 | 2 |
| BUCHANAN COUNTY | 49, 792 | ....... |
| Saint Joseph | 32, 431 | 4 |
| COLE COUNTY | 15, 515 | ....... |
| Jefferson City | 5, 271 | 3 |
| GREENE COUNTY | 28, 801 | ....... |
| Springfield | 6, 522 | 1 |
| JACKSON COUNTY | 82, 325 | ....... |
| Kansas City | 55, 785 | 6 |
| JASPER COUNTY | 32, 019 | ....... |
| Carthage | 4, 167 | 2 |
| Joplin | 7, 038 | 3 |
| JOHNSON COUNTY | 28, 172 | ....... |
| Holden | 2, 014 | 1 |
| Warrensburg | 4, 049 | 1 |
| MARION COUNTY | 24, 837 | ....... |
| Hannibal | 11, 074 | 3 |
| NEWTON COUNTY | 18, 947 | ....... |
| Neosho | 1, 631 | 1 |
| PETTIS COUNTY | 27, 271 | ....... |
| Sedalia | 9, 561 | 3 |
| RANDOLPH COUNTY | 22, 751 | ....... |
| Moberly | 6, 070 | 3 |
| SAINT LOUIS CITY | 350, 518 | 9 |
| SALINE COUNTY | 29, 911 | ....... |
| Marshall | 2, 701 | 1 |
| Total | ............... | 43 |
| **MONTANA.** | | |
| DEER LODGE COUNTY | 8, 876 | ....... |
| Butte City | 3, 363 | 1 |
| LEWIS AND CLARKE COUNTY | 6, 521 | ....... |
| Helena | 3, 624 | 3 |
| Total | ............... | 4 |
| **NEBRASKA.** | | |
| CASS COUNTY | 16, 683 | ....... |
| Plattsmouth | 4, 175 | 1 |
| DODGE COUNTY | 11, 263 | ....... |
| Fremont | 3, 013 | 1 |
| DOUGLAS COUNTY | 37, 645 | ....... |
| Omaha | 30, 518 | 6 |
| HALL COUNTY | 8, 572 | ....... |
| Grand Island | 2, 963 | 1 |
| LANCASTER COUNTY | 28, 090 | ....... |
| Lincoln | 13, 003 | 3 |
| OTOE COUNTY | 15, 727 | ....... |
| Nebraska | 4, 183 | 3 |
| Total | ............... | 15 |
| **NEVADA.** | | |
| ELKO COUNTY | 5, 716 | ....... |
| Elko | 752 | 1 |
| Tuscarora | 1, 364 | 1 |
| EUREKA COUNTY | 7, 086 | ....... |
| Eureka | 4, 207 | 2 |
| HUMBOLDT COUNTY | 3, 480 | ....... |
| Winnemucca | 703 | 1 |
| LANDER COUNTY | 3, 624 | ....... |
| Austin City | 1, 679 | 1 |
| ORMSBY COUNTY | 5, 412 | ....... |
| Carson City | 4, 229 | 3 |
| STOREY COUNTY | 16, 115 | ....... |
| Gold Hill | 4, 531 | 1 |
| Virginia City | 10, 917 | 2 |
| WASHOE COUNTY | 5, 664 | ....... |
| Reno | 1, 302 | 2 |
| Total | ............... | 14 |

A LIST OF THE COUNTIES AND TOWNS IN WHICH DAILY NEWSPAPERS WERE PUBLISHED, ETC.—Continued.

| Location. | Population. | Number of dailies published. |
|---|---|---|
| NEW HAMPSHIRE. | | |
| HILLSBOROUGH COUNTY | 75, 634 | |
| Manchester | 32, 630 | 3 |
| Nashua | 13, 397 | 2 |
| MERRIMACK COUNTY | 46, 300 | |
| Concord | 13, 843 | 2 |
| ROCKINGHAM COUNTY | 49, 064 | |
| Portsmouth | 9, 690 | 2 |
| STRAFFORD COUNTY | 35, 558 | |
| Dover | 11, 687 | 1 |
| Total | | 10 |
| NEW JERSEY. | | |
| CAMDEN COUNTY | 62, 942 | |
| Camden | 41, 659 | 1 |
| CUMBERLAND COUNTY | 37, 687 | |
| Bridgeton | 8, 722 | 1 |
| Vineland | 2, 519 | 2 |
| ESSEX COUNTY | 189, 929 | |
| Newark | 136, 508 | 6 |
| HUDSON COUNTY | 187, 944 | |
| Jersey City | 120, 722 | 2 |
| MERCER COUNTY | 58, 061 | |
| Trenton | 29, 910 | 5 |
| MIDDLESEX COUNTY | 52, 286 | |
| New Brunswick | 17, 166 | 3 |
| PASSAIC COUNTY | 68, 860 | |
| Passaic | 6, 532 | 1 |
| Paterson | 51, 031 | 2 |
| UNION COUNTY | 55, 571 | |
| Elizabeth | 28, 229 | 3 |
| Plainfield | 8, 125 | 1 |
| Total | | 27 |
| NEW MEXICO. | | |
| SAN MIGUEL COUNTY | 20, 638 | |
| Las Vegas | Not separated. | 2 |
| SANTA FÉ COUNTY | 10, 867 | |
| Santa Fé | 6, 635 | 1 |
| Total | | 3 |
| NEW YORK. | | |
| ALBANY COUNTY | 154, 890 | |
| Albany | 90, 758 | 8 |
| Cohoes | 19, 416 | 1 |
| BROOME COUNTY | 49, 483 | |
| Binghamton | 17, 317 | 3 |
| CATTARAUGUS COUNTY | 55, 806 | |
| Olean | 3, 036 | 1 |
| CAYUGA COUNTY | 65, 081 | |
| Auburn | 21, 924 | 3 |
| CHAUTAUQUA COUNTY | 65, 342 | |
| Jamestown | 9, 357 | 1 |
| CHEMUNG COUNTY | 43, 065 | |
| Elmira | 20, 541 | 4 |
| COLUMBIA COUNTY | 47, 928 | |
| Hudson | 8, 670 | 2 |
| DUCHESS COUNTY | 79, 184 | |
| Poughkeepsie | 20, 207 | 3 |
| ERIE COUNTY | 219, 884 | |
| Buffalo | 155, 134 | 7 |
| GENESEE COUNTY | 32, 806 | |
| Batavia | 4, 845 | 1 |
| GREENE COUNTY | 32, 695 | |
| Catskill | 4, 320 | 1 |
| JEFFERSON COUNTY | 66, 103 | |
| Watertown | 10, 697 | 2 |
| KINGS COUNTY | 599, 495 | |
| Brooklyn | 566, 663 | 4 |
| NEW YORK—Continued. | | |
| MONROE COUNTY | 144, 903 | |
| Rochester | 89, 366 | 7 |
| MONTGOMERY COUNTY | 38, 315 | |
| Amsterdam | 9, 466 | 1 |
| NEW YORK COUNTY | 1, 206, 299 | |
| New York | 1, 206, 299 | 29 |
| NIAGARA COUNTY | 54, 173 | |
| Lockport | 13, 522 | 2 |
| ONEIDA COUNTY | 115, 475 | |
| Utica | 33, 914 | 2 |
| ONONDAGA COUNTY | 117, 893 | |
| Syracuse | 51, 792 | 4 |
| ORANGE COUNTY | 88, 220 | |
| Middletown | 8, 494 | 2 |
| Newburgh | 18, 049 | 2 |
| Port Jervis | 8, 678 | 1 |
| OSWEGO COUNTY | 77, 911 | |
| Oswego | 21, 116 | 2 |
| QUEENS COUNTY | 90, 574 | |
| Flushing | 6, 683 | 2 |
| Long Island city | 17, 129 | 2 |
| RENSSELAER COUNTY | 115, 328 | |
| Troy | 56, 747 | 4 |
| SAINT LAWRENCE COUNTY | 85, 997 | |
| Ogdensburg | 10, 341 | 1 |
| SARATOGA COUNTY | 55, 156 | |
| Saratoga Springs | 8, 421 | 1 |
| SCHENECTADY COUNTY | 23, 538 | |
| Schenectady | 13, 655 | 3 |
| STEUBEN COUNTY | 77, 586 | |
| Hornellsville | 8, 195 | 2 |
| TIOGA COUNTY | 32, 673 | |
| Owego | 5, 525 | 1 |
| TOMPKINS COUNTY | 34, 445 | |
| Ithaca | 9, 105 | 1 |
| ULSTER COUNTY | 85, 838 | |
| Kingston | 18, 344 | 2 |
| Saugerties | 3, 923 | 1 |
| WARREN COUNTY | 25, 179 | |
| Glen Falls | 4, 900 | 1 |
| WASHINGTON COUNTY | 47, 871 | |
| Granville | 1, 071 | 1 |
| Total | | 115 |
| NORTH CAROLINA. | | |
| CRAVEN COUNTY | 19, 729 | |
| New Berne | 6, 443 | 2 |
| GUILFORD COUNTY | 23, 585 | |
| Greensboro' | 2, 105 | 1 |
| HALIFAX COUNTY | 30, 300 | |
| Weldon | 932 | 1 |
| MECKLENBURG COUNTY | 34, 175 | |
| Charlotte | 7, 094 | 3 |
| NEW HANOVER COUNTY | 21, 376 | |
| Wilmington | 17, 350 | 2 |
| PASQUOTANK COUNTY | 10, 369 | |
| Elizabeth City | 2, 315 | 1 |
| WAKE COUNTY | 47, 939 | |
| Raleigh | 9, 265 | 3 |
| Total | | 13 |
| OHIO. | | |
| BELMONT COUNTY | 49, 638 | |
| Bellaire | 8, 025 | 1 |
| BUTLER COUNTY | 42, 579 | |
| Hamilton | 12, 122 | 1 |
| CHAMPAIGN COUNTY | 27, 817 | |
| Urbana | 6, 252 | 2 |

A LIST OF THE COUNTIES AND TOWNS IN WHICH DAILY NEWSPAPERS WERE PUBLISHED, ETC.—Continued.

| Location. | Population. | Number of dailies published. |
|---|---|---|
| OHIO—Continued. | | |
| CLARKE COUNTY | 41, 948 | |
| Springfield | 20, 730 | 4 |
| CUYAHOGA COUNTY | 196, 943 | |
| Cleveland | 160, 146 | 8 |
| DELAWARE COUNTY | 27, 381 | |
| Delaware | 6, 894 | 1 |
| ERIE COUNTY | 32, 640 | |
| Sandusky | 15, 838 | 1 |
| FRANKLIN COUNTY | 86, 797 | |
| Columbus | 51, 647 | 6 |
| HAMILTON COUNTY | 313, 374 | |
| Cincinnati | 255, 139 | 12 |
| JEFFERSON COUNTY | 33, 018 | |
| Steubenville | 12, 093 | 2 |
| LUCAS COUNTY | 67, 377 | |
| Toledo | 50, 137 | 4 |
| MAHONING COUNTY | 42, 871 | |
| Youngstown | 15, 435 | 2 |
| MONTGOMERY COUNTY | 78, 550 | |
| Dayton | 38, 678 | 5 |
| MUSKINGUM COUNTY | 49, 774 | |
| Zanesville | 18, 113 | 3 |
| SENECA COUNTY | 36, 947 | |
| Tiffin | 7, 879 | 1 |
| STARK COUNTY | 64, 031 | |
| Canton | 12, 258 | 1 |
| SUMMIT COUNTY | 43, 788 | |
| Akron | 16, 512 | 2 |
| Total | | 56 |
| OREGON. | | |
| CLATSOP COUNTY | 7, 222 | |
| Astoria | 2, 803 | 1 |
| MARION COUNTY | 14, 576 | |
| Salem | 2, 538 | 2 |
| MULTNOMAH COUNTY | 25, 203 | |
| Portland | 17, 577 | 4 |
| Total | | 7 |
| PENNSYLVANIA. | | |
| ALLEGHENY COUNTY | 355, 869 | |
| Allegheny | 78, 682 | 1 |
| McKeesport | 8, 212 | 1 |
| Pittsburgh | 156, 389 | 9 |
| BERKS COUNTY | 122, 597 | |
| Reading | 43, 278 | 4 |
| BLAIR COUNTY | 52, 740 | |
| Altoona | 19, 710 | 3 |
| BRADFORD COUNTY | 58, 541 | |
| Towanda | 3, 814 | 2 |
| CAMBRIA COUNTY | 46, 811 | |
| Johnstown | 8, 380 | 1 |
| CHESTER COUNTY | 83, 481 | |
| West Chester | 7, 046 | 2 |
| CLINTON COUNTY | 26, 278 | |
| Lock Haven | 5, 845 | 1 |
| CRAWFORD COUNTY | 68, 607 | |
| Meadville | 8, 860 | 2 |
| Titusville | 9, 046 | 1 |
| DAUPHIN COUNTY | 76, 148 | |
| Harrisburg | 30, 762 | 3 |
| DELAWARE COUNTY | 56, 101 | |
| Chester | 14, 997 | 2 |
| ERIE COUNTY | 74, 688 | |
| Erie | 27, 737 | 3 |
| FRANKLIN COUNTY | 49 855 | |
| Chambersburg | 6, 877 | 1 |
| LACKAWANNA COUNTY | 89, 269 | |
| Scranton | 45, 850 | 3 |
| PENNSYLVANIA—Continued. | | |
| LANCASTER COUNTY | 139, 447 | |
| Lancaster | 25, 769 | 3 |
| LAWRENCE COUNTY | 33, 312 | |
| New Castle | 8, 418 | 2 |
| LEBANON COUNTY | 38, 476 | |
| Lebanon | 8, 778 | 2 |
| LEHIGH COUNTY | 65, 969 | |
| Allentown | 18, 063 | 2 |
| LUZERNE COUNTY | 133, 065 | |
| Hazleton | 6, 935 | 2 |
| Pittston | 7, 472 | 1 |
| Wilkesbarre | 23, 339 | 4 |
| LYCOMING COUNTY | 57, 486 | |
| Williamsport | 18, 934 | 2 |
| MCKEAN COUNTY | 42, 565 | |
| Bradford | 9, 197 | 2 |
| MERCER COUNTY | 56, 161 | |
| Sharon | 5, 684 | 1 |
| MONTGOMERY COUNTY | 96, 494 | |
| Norristown | 13, 063 | 1 |
| Pottstown | 5, 305 | 1 |
| NORTHAMPTON COUNTY | 70, 312 | |
| Bethlehem | 5, 193 | 1 |
| Easton | 11, 924 | 3 |
| NORTHUMBERLAND COUNTY | 53, 123 | |
| Milton | 2, 102 | 1 |
| Sunbury | 4, 077 | 1 |
| PHILADELPHIA COUNTY | 847, 170 | |
| Philadelphia | 847, 170 | 24 |
| SCHUYLKILL COUNTY | 129, 974 | |
| Pottsville | 13, 253 | 2 |
| VENANGO COUNTY | 43, 670 | |
| Oil City | 7, 315 | 1 |
| WASHINGTON COUNTY | 55, 418 | |
| Washington | 4, 292 | 1 |
| YORK COUNTY | 87, 841 | |
| York | 13, 940 | 2 |
| Total | | 98 |
| RHODE ISLAND. | | |
| NEWPORT COUNTY | 24, 180 | |
| Newport | 15, 693 | 1 |
| PROVIDENCE COUNTY | 197, 874 | |
| Providence | 104, 857 | 5 |
| Woonsocket | 16, 050 | 2 |
| Total | | 8 |
| SOUTH CAROLINA. | | |
| CHARLESTON COUNTY | 102, 800 | |
| Charleston | 49, 984 | 2 |
| GREENVILLE COUNTY | 37, 496 | |
| Greenville | 6, 160 | 1 |
| RICHLAND COUNTY | 28, 573 | |
| Columbia | 10, 036 | 1 |
| Total | | 4 |
| TENNESSEE. | | |
| DAVIDSON COUNTY | 79, 026 | |
| Nashville | 43, 350 | 3 |
| HAMILTON COUNTY | 23, 642 | |
| Chattanooga | 12, 892 | 1 |
| KNOX COUNTY | 39, 124 | |
| Knoxville | 9, 693 | 3 |
| MADISON COUNTY | 30, 874 | |
| Jackson | 5, 377 | 1 |
| SHELBY COUNTY | 78, 430 | |
| Memphis | 33, 592 | 4 |
| Total | | 12 |

A LIST OF THE COUNTIES AND TOWNS IN WHICH DAILY NEWSPAPERS WERE PUBLISHED, ETC.—Continued.

| Location. | Population. | Number of dailies published. |
|---|---|---|
| TEXAS. | | |
| Bexar county | 30, 470 | ....... |
| San Antonio | 20, 550 | 4 |
| Cameron county | 14, 959 | ....... |
| Brownsville | 4, 938 | 1 |
| Cooke county | 20, 391 | ....... |
| Gainesville | 2, 667 | 1 |
| Dallas county | 33, 488 | ....... |
| Dallas | 10, 358 | 3 |
| Galveston county | 24, 121 | ....... |
| Galveston | 22, 248 | 3 |
| Grayson county | 38, 108 | ....... |
| Denison | 3, 975 | 2 |
| Sherman | 6, 093 | 2 |
| Harris county | 27, 985 | ....... |
| Houston | 16, 513 | 3 |
| McLennan county | 26, 934 | ....... |
| Waco | 7, 295 | 3 |
| Marion county | 10, 983 | ....... |
| Jefferson | 3, 260 | 1 |
| Tarrant county | 24, 671 | ....... |
| Fort Worth | 6, 663 | 2 |
| Travis county | 27, 028 | ....... |
| Austin | 11, 013 | 3 |
| Washington county | 27, 565 | ....... |
| Brenham | 4, 101 | 2 |
| Total | ............... | 30 |
| UTAH. | | |
| Salt Lake county | 31, 977 | ....... |
| Salt Lake City | 20, 768 | 3 |
| Weber county | 12, 344 | ....... |
| Ogden | 6, 069 | 2 |
| Total | ............... | 5 |
| VERMONT. | | |
| Chittenden county | 32, 792 | ....... |
| Burlington | 11, 365 | 2 |
| Franklin county | 30, 225 | ....... |
| Saint Albans | 7, 193 | 2 |
| Rutland county | 41, 829 | ....... |
| Rutland | 7, 502 | 1 |
| Total | ............... | 5 |
| VIRGINIA. | | |
| Alexandria county | 17, 546 | ....... |
| Alexandria | 13, 659 | 1 |
| Campbell county | 36, 250 | ....... |
| Lynchburg | 15, 959 | 2 |
| Dinwiddie county | 32, 870 | ....... |
| Petersburg | 21, 656 | 2 |
| Henrico county | 82, 703 | ....... |
| Richmond | 63, 600 | 7 |
| VIRGINIA—Continued. | | |
| Norfolk county | 58, 657 | ....... |
| Norfolk | 21, 966 | 4 |
| Portsmouth | 11, 390 | 2 |
| Pittsylvania county | 52, 589 | ....... |
| Danville | 7, 526 | 2 |
| Total | ............... | 20 |
| WASHINGTON. | | |
| King county | 6, 910 | ....... |
| Seattle | 3, 533 | 2 |
| Pierce county | 3, 319 | ....... |
| Tacoma | 1, 098 | 1 |
| Walla Walla county | 8, 716 | ....... |
| Walla Walla | 3, 588 | 1 |
| Total | ............... | 4 |
| WEST VIRGINIA. | | |
| Ohio county | 37, 457 | ....... |
| Wheeling | 30, 737 | 2 |
| Total | ............... | 2 |
| WISCONSIN. | | |
| Brown county | 34, 078 | ....... |
| Green Bay | 7, 464 | 1 |
| Dane county | 53, 233 | ....... |
| Madison | 10, 324 | 2 |
| Eau Claire county | 19, 993 | ....... |
| Eau Claire | 10, 119 | 1 |
| Fond du Lac county | 46, 859 | ....... |
| Fond du Lac | 13, 094 | 1 |
| Green county | 21, 729 | ....... |
| Monroe | 4, 195 | 1 |
| La Crosse county | 27, 073 | ....... |
| La Crosse | 14, 505 | 3 |
| Milwaukee county | 138, 537 | ....... |
| Milwaukee | 115, 587 | 7 |
| Racine county | 30, 922 | ....... |
| Racine | 16, 031 | 1 |
| Rock county | 38, 823 | ....... |
| Janesville | 9, 018 | 3 |
| Winnebago county | 42, 740 | ....... |
| Oshkosh | 15, 748 | 1 |
| Total | ............... | 21 |
| WYOMING. | | |
| Albany county | 4, 626 | ....... |
| Laramie | 2, 696 | 1 |
| Laramie county | 6, 409 | ....... |
| Cheyenne | 3, 456 | 2 |
| Total | ............... | 3 |

## THE LOCATION OF THE DAILY NEWSPAPER PRESS.

Average number of dailies in cities.

It appears from the preceding table that the 971 daily newspapers of the census year were published in 389 towns or cities, which makes an average of 2½ to each of these towns or cities. The strange anomaly is here discovered of towns of less than 4,000 inhabitants where two and sometimes three daily papers were published. The smallest town in the United States in which a daily paper was published was Elko, Nevada, with a population of 752. The smallest town in which two daily papers were published was Tombstone, Arizona, with a population of 973. The enterprising publishers of the latter town are doubtless confident that it will grow up to their stature. In California the town of Eureka, population 2,639, had three daily papers, and the town of Red Bluff, population 2,106, two daily papers. Galena, Kansas, had one daily for a population of 1,463; Greenville, Michigan, two dailies for a population of 3,144; Olean, New York, one daily for a population of 3,036; Winnemucca, Nevada, one daily for a population of 763; and Milton, Pennsylvania, one daily for a population of 2,102. These are the most striking instances of daily publications in small towns. The table may be taken as establishing another conclusion, reached elsewhere in this report: that the tendency is not to the increase in the number of daily newspapers as the size of the city increases, but rather to the increase in the circulation of those already existing. Thus, Kansas City, with 55,785 inhabitants, had six daily papers in the census year, which is one more than Louisville, Kentucky, with 123,758, sustained. It is not necessary to add that in every instance where a city is overstocked with daily newspapers the fact is at once evident upon an inspection of the issues that come from their presses and a comparison of their character, contents, and appearance with those of the newspapers printed in towns of equal size, where the number is confined to one or two. These conditions of development in the newspaper press are the incidents of our civilization, and disappear as this civilization takes on its maturer forms, the journals of every locality being more or less an accurate type of the character, condition, and pursuits of the people of that locality.

The London local press.

For the eastern manufacturing and suburban towns without dailies, to which allusion has been made, the weekly press performs very much the same service as that rendered by the London local press, so called. The latter, however, is a distinctive feature of English journalism, such as can only come in the United States with large segregations of population about a common center. This London local press has grown up entirely within the past twenty-five years. In the first issue of the *London Press Directory* (1846) there was but one of these journals recorded, the *South London Press*. There are now no less than 104 local papers published in the several outlying districts of London, including several dailies and semi-weeklies, most of them conducted in a creditable manner, and some of them reaching a high point of excellence as well as great financial prosperity. (*a*) The success of these journals may be ascribed to the necessity, long felt by the residents of the metropolitan boroughs, for some sort of representation in the press. The vestries dispose annually of revenues greater than those of many German principalities, and the annual budget of the metropolitan board of works has for many years exceeded that of at least one European kingdom; yet the daily and weekly press of London, occupied with the affairs of imperial policy, abstained from reporting the proceedings of the vestries, and chronicled the doings of the board of works in small type and obscure paragraphs. (*b*) The fact that these local weekly sheets can thrive under the very nose of the mammoth newspapers of the capital and do a good work in every considerable London borough is given as a reason for believing that there are certain functions of the local press which cannot be absorbed by the metropolitan dailies, and that the prosperity of one class of journals will continue to increase in the same ratio, though in the smaller sphere, with that of the other. For one purpose the Boston dailies serve the people of the New England towns with better success than dailies of their own can ever do; but they can never supersede the local press, whose mission it is to record and preserve the chronicles of the parish.

## THE LOCALIZATION OF THE AMERICAN PRESS.

It is the remarkable localization of the American newspaper press which distinguishes it particularly from that of any other country and constitutes what may be regarded as one of its best characteristics. The press of the United States is not concentrated, like that of other countries with a well-developed journalism, but is localized; and its tendency has been, and continues to be, constantly toward minuter localization. Every hamlet has its mouthpiece through the printing press, and every city is independent of every other city for its daily news supply. Here is the first condition met of a healthy and progressive national journalism; and it is the condition which will always keep the American press what it now is: the freest, the most self-reliant, the most loyal to home and vicinity interest, in the world.

Tables XII and XIV of this report afford striking evidence of this localization. The latter table shows that of the 2,605 counties into which the forty-six states and territories are subdivided newspapers are published in 2,073 of them. In sixteen of the thirty-eight states there was at least one newspaper published in every county within its limits. An analysis of the table shows that these sixteen states are the only ones in which it can be claimed that civilization has progressed to every county within their borders. They include all the states ordinarily classified as belonging to the New England group, and all the states which, under the like classification, are grouped as middle states. Missouri presents the most noteworthy instance of a large state of comparatively recent colonization in which a newspaper was published in every county—an instance rendered the more noteworthy from the fact that there are 114 counties within its limits, a number exceeded by only three states in the Union. The sixteen states which made the same showing were Connecticut, Delaware, Illinois, Indiana, Iowa, Maine, Maryland, Massachusetts, Missouri, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, and Vermont. It is plain that these are the only states regarding which it can be claimed that settlement in all parts has reached mature limits.

By a comparison of Tables XII and XIV it will be seen that a striking similarity of figures is presented by both. The sixteen states in which every county has a newspaper of its own are those in which the average area for

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*a* The Clerkenwell *Times* is the most striking illustration of this statement.

*b* Francis Hitchman, in *London Quarterly Review*, October, 1880.

each publication in square miles is the smallest, and they are also the states in which the aggregate number of inhabitants to the aggregate circulation per issue is the smallest. It will also be seen from Table XIV that in a majority of the counties of the northern states in which one newspaper was published there were two or more. It also shows that there were in the census year 2,459 towns and villages in the country in which one newspaper was published, 1,026 towns and villages in which two newspapers were published, 375 towns and villages with three newspapers only, 209 with four newspapers, and 329 in which five or more newspapers and periodicals were published, showing a total number of 4,398 cities, towns, and villages in which the 11,314 publications of all kinds were printed. These are statistics not duplicated nor approached anywhere in the world, and they bring out in the most striking light what may be called the distinguishing peculiarity of the American press. Literally, as Carlyle says, "a preaching friar has erected his pulpit in every village." The majority of these journals are allied to one or the other of the existing political parties, and to that extent they are *sui generis;* but each has one particular interest closer than its politics. Each one is the champion and representative of its particular locality, and is concerned, first of all, in whatever relates to the honor and material advancement of that locality. The closer home to the daily routine of the people the newspaper comes, the greater is the power it exerts. It is the local newspaper in this sense that distinguishes American journalism above that of all other countries, and is, on the whole, the most admirable product of the printing press in this country.

## THE CIRCULATION OF NEWSPAPERS.

The tables of circulation.

Tables II and III contain the important statistics relating to the general circulation of newspapers and periodicals in the United States during the census year. The details respecting the circulation of particular classes of periodicals, as the religious press, the agricultural press, etc., are given in the body of this report without tabular statement.

In regard to the circulation of newspapers and periodicals, some difficulty was experienced in a number of

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[a] In verification of this statement, and for the general purpose of supplying a basis of comparison in number and circulation between Haven, from his *Newspaper and Bank Directory of the World* (1881), is given:

| | Countries. | Population. | Daily publications. | | | | Publications less frequent than dailies and more frequent than weeklies. | | | | Weekly publications. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Number. | Total circulation per issue. | Total annual circulation. | Average circulation of each per issue. | Number. | Total circulation per issue. | Total annual circulation. | Average circulation of each per issue. | Number. | Total circulation per issue. | Total annual circulation. | Average circulation of each per issue. |
| 1 | United States | 50, 183, 015 | 970 | 4, 314, 249 | 1, 346, 045, 688 | 4, 447 | 175 | 277, 410 | 31, 499, 572 | 1, 585 | 8, 674 | 20, 467, 676 | 1,064, 319, 152 | 2, 359 |
| 2 | British America | 4, 515, 933 | 67 | 237, 788 | 74, 189, 856 | 3, 549 | 33 | 42, 004 | 5, 107, 960 | 1, 272 | 444 | 921, 345 | 47, 909, 940 | 2, 075 |
| 3 | Austria-Hungary | 37, 741, 413 | 150 | 928, 535 | 290, 631, 455 | 6, 190 | 180 | 210, 840 | 25, 539, 020 | 1, 171 | 584 | 728, 401 | 37, 876, 852 | 1, 246 |
| 4 | Belgium | 5, 476, 668 | 81 | 730, 215 | 228, 557, 295 | 9, 015 | 15 | 76, 800 | 9, 656, 400 | 5, 120 | 373 | 1, 480, 050 | 76, 962, 600 | 3, 968 |
| 5 | Bulgaria | 1, 859, 000 | | | | | 6 | 3, 800 | 395, 200 | 634 | 3 | 2, 100 | 109, 200 | 700 |
| 6 | Denmark | 1, 989, 464 | 57 | 127, 395 | 39, 874, 635 | 2, 235 | | | | | 4 | 37, 000 | 1, 924, 000 | 9, 250 |
| 7 | France | 39, 066, 372 | 363 | 3, 887, 650 | 1, 216, 834, 450 | 10, 709 | 386 | 679, 260 | 85, 949, 240 | 1, 759 | 1, 505 | 4, 186, 870 | 217, 717, 240 | 2, 781 |
| 8 | German Empire | 45, 194, 172 | 863 | 3, 577, 799 | 1, 119, 851, 087 | 4, 145 | 1,848 | 2,595, 531 | 341, 721, 224 | 1, 404 | 1, 335 | 3, 799, 136 | 197, 555, 072 | 2, 845 |
| 9 | England | 24, 608, 391 | 154 | 3, 250, 875 | 1, 017, 523, 875 | 21, 109 | 127 | 1,137, 664 | 123, 850, 584 | 8, 958 | 1, 563 | 12, 144, 308 | 631, 504, 016 | 7, 769 |
| 10 | Scotland | 3, 734, 370 | 22 | 477, 065 | 149, 321, 345 | 21, 684 | 18 | 105, 000 | 11, 996, 400 | 5, 833 | 170 | 1, 222, 600 | 63, 575, 200 | 7, 191 |
| 11 | Ireland | 5, 159, 839 | 20 | 210, 998 | 66, 042, 374 | 10, 549 | 32 | 159, 023 | 21, 198, 788 | 4, 969 | 139 | 709, 026 | 36, 869, 352 | 5, 100 |
| 12 | Wales | 1, 359, 895 | 4 | 36, 000 | 11, 268, 000 | 9, 000 | 6 | 82, 600 | 8, 590, 400 | 13, 766 | 70 | 301, 956 | 15, 701, 712 | 4, 314 |
| 13 | Greece | 1, 679, 775 | 16 | 23, 900 | 7, 480, 700 | 1, 493 | 13 | 13, 000 | 1, 352, 000 | 1, 000 | 49 | 21, 350 | 1, 110, 200 | 435 |
| 14 | Italy | 27, 769, 475 | 148 | 630, 600 | 197, 377, 800 | 4, 260 | 88 | 131, 770 | 18, 024, 240 | 1, 497 | 450 | 780, 230 | 40, 571, 960 | 1, 733 |
| 15 | Netherlands | 3, 866, 456 | 39 | 182, 760 | 59, 457, 480 | 4, 686 | 115 | 277, 866 | 33, 364, 864 | 2, 416 | 267 | 556, 953 | 28, 961, 556 | 2, 085 |
| 16 | Sweden | 4, 568, 900 | 11 | 69, 400 | 21, 722, 200 | 6, 309 | 97 | 107, 750 | 12, 942, 800 | 1, 111 | 74 | 191, 600 | 9, 963, 200 | 2, 589 |
| 17 | Norway | 1, 806, 900 | 20 | 57, 550 | 18, 013, 150 | 2, 877 | 61 | 45, 850 | 5, 740, 800 | 751 | 42 | 84, 150 | 4, 375, 800 | 2, 003 |
| 18 | Portugal | 4, 432, 050 | 29 | 147, 600 | 46, 198, 800 | 5, 089 | 14 | 14, 480 | 1, 862, 120 | 1, 034 | 113 | 109, 612 | 5, 699, 824 | 969 |
| 19 | Roumania | 5, 073, 000 | 16 | 27, 100 | 8, 482, 300 | 1, 694 | 1 | 1, 400 | 218, 400 | 1, 400 | 2 | 4, 200 | 218, 400 | 2, 100 |
| 20 | Russia | 85, 426, 142 | 88 | 404, 024 | 94, 089, 248 | 4, 591 | 37 | 44, 050 | 6, 117, 800 | 1, 190 | 131 | 326, 732 | 16, 990, 064 | 2, 475 |
| 21 | Spain | 16, 625, 860 | 220 | 619, 359 | 193, 859, 367 | 2, 815 | 29 | 51, 690 | 4, 598, 640 | 1, 782 | 389 | 863, 755 | 44, 915, 260 | 2, 220 |
| 22 | Switzerland | 2, 846, 102 | 62 | 217, 950 | 68, 218, 350 | 3, 515 | 160 | 282, 650 | 15, 708, 680 | 1, 766 | 156 | 260, 780 | 13, 560, 560 | 1, 671 |
| 23 | Turkey | 19, 090, 000 | 30 | 57, 600 | 18, 028, 800 | 1, 920 | 27 | 24, 600 | 2, 698, 800 | 911 | 53 | 50, 780 | 2, 640, 560 | 958 |
| 24 | British India | 193, 596, 603 | 35 | 51, 458 | 16, 096, 354 | 1, 470 | 15 | 12, 062 | 1, 502, 072 | 804 | 183 | 128, 868 | 6, 701, 136 | 704 |
| 25 | Chinese Empire | 400, 000, 000 | 8 | 23, 670 | 7, 408, 710 | 2, 959 | | | | | 7 | 2, 857 | 148, 564 | 408 |
| 26 | Hong-Kong | 139, 144 | 7 | 5, 300 | 1, 658, 900 | 757 | | | | | 2 | 1, 500 | 78, 000 | 750 |
| 27 | Japan | 34, 338, 304 | 83 | 428, 000 | 133, 964, 000 | 5, 156 | 39 | 42, 500 | 4, 604, 000 | 1, 090 | 19 | 33, 500 | 1, 742, 000 | 1, 763 |
| 28 | Malay Archipelago | 30, 187, 829 | 16 | 38, 200 | 11, 956, 600 | 2, 387 | 15 | 5, 050 | 624, 000 | 337 | 10 | 2, 960 | 153, 920 | 296 |
| 29 | Algeria | 2, 867, 626 | 2 | 2, 700 | 845, 100 | 1, 350 | 19 | 21, 000 | 3, 418, 480 | 1, 105 | 14 | 12, 240 | 636, 480 | 874 |
| 30 | Egypt | 5, 517, 627 | 11 | 26, 000 | 8, 138, 000 | 2, 363 | 1 | 500 | 130, 000 | 500 | 11 | 33, 900 | 1, 762, 800 | 3, 081 |
| 31 | South Africa | 1, 406, 496 | 6 | 23, 500 | 7, 355, 500 | 3, 917 | 16 | 28, 250 | 4, 219, 800 | 1, 765 | 47 | 62, 550 | 3, 252, 600 | 1, 330 |
| 32 | West Africa | 1, 598, 070 | | | | | | | | | 6 | 2, 050 | 106, 600 | 342 |
| 33 | Mexico | 10, 000, 000 | 41 | 102, 826 | 32, 184, 538 | 2, 508 | 28 | 34, 350 | 4, 498, 000 | 1, 226 | 146 | 174, 630 | 9, 080, 760 | 1, 196 |
| 34 | Central America | 2, 650, 000 | 10 | 17, 660 | 26, 667, 600 | 1, 766 | 1 | 8, 000 | 1, 248. 000 | 8, 000 | 32 | 57. 675 | 2, 999, 100 | 1, 802 |
| 35 | West Indies | 4, 500, 000 | 47 | 85, 200 | 5, 527, 580 | 1, 813 | 34 | 21, 200 | 2, 529, 000 | 623 | 88 | 74, 870 | 3, 893, 240 | 850 |
| 36 | Cuba | 1, 508, 761 | 38 | 76, 700 | 24, 007, 100 | 2, 018 | 4 | 1, 400 | 166, 400 | 350 | 17 | 21, 650 | 1, 125, 800 | 1, 273 |
| 37 | Argentine Republic | 2, 500, 000 | 11 | 34, 300 | 10, 735, 900 | 3, 118 | 8 | 1, 750 | 254, 800 | 219 | 19 | 6, 150 | 319, 800 | 324 |
| 38 | Bolivia | 2, 000, 000 | 2 | 2, 500 | 782, 500 | 1, 250 | 1 | 600 | 93, 600 | 600 | 24 | 5, 860 | 304, 720 | 244 |
| 39 | Brazil | 10, 000, 000 | 68 | 151, 950 | 33, 271, 900 | 2, 234 | 22 | 18, 325 | 1, 939, 600 | 833 | 166 | 164, 725 | 8, 565, 700 | 992 |
| 40 | Chili | 2, 500, 000 | 64 | 60, 290 | 18, 870, 770 | 942 | 13 | 14, 600 | 1, 622, 400 | 1, 123 | 15 | 21, 000 | 1, 092, 000 | 1, 400 |
| 41 | Ecuador | 1, 350, 000 | 2 | 3, 600 | 1, 126, 800 | 1, 800 | 6 | 7, 800 | 811, 200 | 1, 300 | | | | |
| 42 | Peru | 2, 700, 000 | 15 | 16, 400 | 5, 133, 200 | 1, 093 | 2 | 3, 000 | 312, 000 | 1, 500 | 5 | 6, 800 | 353, 600 | 1, 360 |
| 43 | Uruguay | 450, 000 | 18 | 37, 400 | 11, 706, 200 | 2, 077 | 7 | 2, 000 | 208, 000 | 286 | 27 | 9, 550 | 496, 600 | 353 |
| 44 | United States of Colombia | 3, 000, 000 | 10 | 9, 500 | 2, 973, 500 | 950 | 3 | 4, 300 | 447, 200 | 1, 433 | 12 | 22, 400 | 1, 164, 800 | 1, 867 |
| 45 | Venezuela | 1, 882, 236 | 15 | 28, 950 | 9, 061, 350 | 1, 930 | 4 | 4, 150 | 396, 400 | 1, 037 | 88 | 57, 250 | 2, 977, 000 | 734 |
| 46 | Australia | 2, 743, 256 | 45 | 135, 000 | 42, 255, 000 | 3, 000 | 88 | 88, 000 | 10, 556, 000 | 1, 000 | 263 | 236, 700 | 12, 308, 400 | 900 |
| 47 | Tasmania | 115, 600 | 4 | 7, 000 | 2, 191, 000 | 1, 750 | 4 | 3, 502 | 457, 912 | 875 | 4 | 5, 150 | 267, 800 | 1, 287 |
| 48 | New Zealand | 489, 500 | 45 | 104, 850 | 32, 818, 050 | 2, 330 | 36 | 31, 550 | 3, 845, 400 | 876 | 61 | 101, 925 | 5, 300, 100 | 1, 671 |
| 49 | Polynesia | 303, 985 | | | | | 1 | 1, 000 | 104, 000 | 1, 000 | 14 | 15, 645 | 813, 540 | 1, 117 |

quarters in securing accurate figures, owing to the natural repugnance of proprietors to reveal an item which it is to their benefit to have regarded as larger than it actually is. The well-known tendency of newspaper publishers to exaggerate circulation has revealed itself in several instances during the course of this inquiry. It is proper, therefore, to state that this branch of the statistics submitted has been subjected to thorough revision, in which all the collateral evidence at command has been brought to bear to test and frequently to revise the figures supplied in each case. Conscious that no such statement can be absolutely accurate, I believe the methods adopted have secured a closer approximation to the truth than has ever before been reached, and that, as indicative of the volume of the regular circulation of the American press, these figures afford substantial grounds upon which to base an estimate of its influence.

Difficulty of securing accurate figures.

In the first of the tables relating to circulation, the subject is treated by the average and in the aggregate by the several states and territories. In treating the statistics of aggregate circulation there has been no difficulty beyond that above stated. There was an aggregate circulation per issue of 3,566,395 daily newspapers, 3,961,057 weekly newspapers issued from the offices of daily newspapers, 15,962,353 weeklies not connected with dailies and all other than monthlies, and 8,139,881 monthlies—making an aggregate circulation per issue (including 150,000 not separately reported) of 31,779,686. These aggregate circulations per issue culminate in an aggregate total number of copies printed annually of 1,100,607,219 daily newspapers, 202,244,024 weekly newspapers connected with dailies, 663,543,866 of other weeklies, semi-weeklies, etc. (excluding only monthlies), 94,853,100 monthly periodicals, and a grand aggregate for all classes and kinds of newspapers and periodicals (including 6,600,000 not separately reported) of 2,067,848,209—figures whose significance may be comprehended more easily by comparing them with the statistics of the national debt. The daily newspapers, whose circulation per issue is smaller than that of any other class, defining them by periods of issue, represent in the grand aggregate of copies printed in the census year more than one-half of the total number.

Aggregate circulation of newspapers and periodicals.

The aggregate circulation per issue, both for dailies and weeklies, if not for monthlies, is the largest attained anywhere in the world, (*a*) and shows an increase of 52.48 per cent. over the aggregate of 1870, while the percentage

| Publications less frequent than weeklies and more frequent than monthlies. | | | | Monthly publications. | | | | Bi-monthlies and quarterlies. | | | | Half-yearlies, annuals, and occasionals. | | | | Aggregate of all classes. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number. | Total circulation per issue. | Total annual circulation. | Average circulation of each per issue. | Number. | Total circulation per issue. | Total annual circulation. | Average circulation of each per issue. | Number. | Total circulation per issue. | Total annual circulation. | Average circulation of each per issue. | Number. | Total circulation per issue. | Total annual circulation. | Average circulation of each per issue. | Number. | Total circulation per issue. | Total annual circulation. | |
| 174 | 1,016,937 | 25,423,425 | 5,844 | 1,121 | 7,623,367 | 91,480,404 | 6,800 | 86 | 939,132 | 3,820,328 | 10,920 | 7 | 35,000 | 45,000 | 5,000 | 11,207 | 34,673,771 | 2,562,633,569 | 1 |
| 17 | 163,591 | 4,089,775 | 9,623 | 60 | 258,672 | 3,104,064 | 4,311 | 3 | 3,000 | 16,000 | 1,000 | .... | ........ | ........ | ...... | 624 | 1,626,400 | 134,417,595 | 2 |
| 432 | 482,735 | 12,723,700 | 1,117 | 338 | 326,314 | 3,915,768 | 965 | 53 | 37,715 | 195,060 | 711 | 66 | 55,235 | 219,720 | 837 | 1,803 | 2,769,775 | 371,101,575 | 3 |
| 25 | 201,100 | 4,826,400 | 8,044 | 92 | 349,480 | 4,193,760 | 3,799 | 1 | 1,500 | 9,000 | 1,500 | 4 | 17,000 | 17,000 | 4,250 | 591 | 2,856,145 | 324,222,455 | 4 |
| 1 | 500 | 12,000 | 500 | 1 | 400 | 4,800 | 400 | .... | ........ | ........ | ...... | .... | ........ | ........ | ...... | 11 | 6,800 | 521,200 | 5 |
| .... | ........ | ........ | ...... | .... | ........ | ........ | ...... | .... | ........ | ........ | ...... | .... | ........ | ........ | ...... | 81 | 164,395 | 41,798,635 | 6 |
| 229 | 696,550 | 15,694,500 | 3,041 | 574 | 1,636,305 | 19,635,660 | 2,850 | 117 | 204,750 | 984,100 | 1,750 | 91 | 302,150 | 396,100 | 3,320 | 3,265 | 11,593,535 | 1,557,211,299 | 7 |
| 301 | 1,852,838 | 44,437,032 | 4,738 | 517 | 1,675,857 | 20,110,284 | 3,241 | 219 | 688,680 | 4,474,610 | 3,144 | 356 | 6,309,725 | 19,936,900 | 17,724 | 5,529 | 20,499,566 | 1,748,086,209 | 8 |
| 42 | 138,412 | 3,321,888 | 3,295 | 1,034 | 6,775,500 | 81,306,000 | 6,552 | 171 | 411,198 | 1,686,260 | 2,404 | 369 | 1,736,948 | 1,998,696 | 4,707 | 3,460 | 25,594,905 | 1,861,191,319 | 9 |
| 1 | 1,000 | 24,000 | 1,000 | 56 | 619,412 | 7,432,944 | 11,061 | 3 | 54,000 | 220,000 | 18,000 | 1 | 400 | 400 | 400 | 271 | 2,479,477 | 232,570,289 | 10 |
| 1 | 3,500 | 84,000 | 3,500 | 31 | 114,075 | 1,368,900 | 3,679 | 3 | 5,700 | 22,800 | 1,900 | 1 | 2,500 | 2,500 | 2,500 | 227 | 1,204,822 | 125,588,714 | 11 |
| .... | ........ | ........ | ...... | 22 | 111,300 | 1,335,600 | 5,059 | 1 | 5,000 | 20,000 | 5,000 | .... | ........ | ........ | ...... | 103 | 536,856 | 36,915,712 | 12 |
| .... | ........ | ........ | ...... | 10 | 8,500 | 102,000 | 850 | .... | ........ | ........ | ...... | 1 | 50 | 200 | 50 | 89 | 66,800 | 10,045,100 | 13 |
| 208 | 313,740 | 8,017,920 | 1,508 | 256 | 438,520 | 5,262,240 | 1,713 | 6 | 16,500 | 68,000 | 2,750 | 18 | 46,300 | 104,200 | 2,572 | 1,174 | 2,357,660 | 269,426,360 | 14 |
| 8 | 13,465 | 323,160 | 1,683 | 3 | 36,800 | 441,600 | 12,266 | .... | ........ | ........ | ...... | 3 | 3,000 | 12,000 | 1,000 | 435 | 1,070,844 | 122,560,660 | 15 |
| 19 | 108,600 | 2,596,400 | 5,716 | 50 | 66,400 | 796,800 | 1,328 | 35 | 44,100 | 224,050 | 1,260 | 17 | 6,700 | 25,700 | 394 | 303 | 594,550 | 48,271,150 | 16 |
| 12 | 12,350 | 296,400 | 1,029 | 45 | 50,400 | 604,800 | 1,120 | 1 | 3,000 | 12,000 | 3,000 | .... | ........ | ........ | ...... | 181 | 253,300 | 29,042,950 | 17 |
| 10 | 21,800 | 619,200 | 2,180 | 12 | 11,650 | 139,800 | 971 | .... | ........ | ........ | ...... | 1 | 1,000 | 1,000 | 1,000 | 179 | 306,142 | 54,520,144 | 18 |
| .... | ........ | ........ | ...... | .... | ........ | ........ | ...... | .... | ........ | ........ | ...... | .... | ........ | ........ | ...... | 19 | 32,700 | 8,919,100 | 19 |
| 38 | 64,490 | 3,119,560 | 1,697 | 119 | 259,793 | 3,117,516 | 2,183 | 22 | 49,500 | 288,000 | 2,250 | 19 | 28,580 | 102,220 | 1,504 | 454 | 1,177,169 | 123,824,408 | 20 |
| 50 | 79,387 | 2,099,088 | 1,588 | 57 | 79,925 | 959,100 | 1,402 | 1 | 2,000 | 12,000 | 2,000 | 4 | 6,200 | 19,700 | 1,550 | 750 | 1,702,316 | 46,463,155 | 21 |
| 39 | 47,960 | 1,284,640 | 1,229 | 65 | 100,420 | 1,205,040 | 1,545 | 16 | 17,000 | 87,200 | 1,062 | 14 | 14,600 | 58,400 | 1,043 | 512 | 941,360 | 100,122,870 | 22 |
| 2 | 1,250 | 30,000 | 625 | 9 | 11,300 | 135,600 | 1,256 | .... | ........ | ........ | ...... | .... | ........ | ........ | ...... | 121 | 145,530 | 23,533,760 | 23 |
| 27 | 17,546 | 443,024 | 649 | 103 | 65,285 | 783,420 | 633 | 10 | 13,180 | 57,280 | 1,318 | .... | ........ | ........ | ...... | 373 | 288,399 | 25,573,286 | 24 |
| .... | ........ | ........ | ...... | 6 | 11,050 | 132,600 | 1,841 | 1 | 550 | 3,300 | 550 | .... | ........ | ........ | ...... | 22 | 38,127 | 7,693,174 | 25 |
| 3 | 2,200 | 57,200 | 733 | .... | ........ | ........ | ...... | 1 | 700 | 4,200 | 700 | 1 | 1,200 | 1,200 | 1,200 | 14 | 10,900 | 1,799,500 | 26 |
| 67 | 88,000 | 2,592,000 | 1,313 | 38 | 66,000 | 792,000 | 1,737 | 5 | 8,000 | 36,000 | 1,600 | .... | ........ | ........ | ...... | 251 | 666,000 | 143,730,000 | 27 |
| 1 | 250 | 6,000 | 250 | 7 | 5,100 | 61,200 | 743 | .... | ........ | ........ | ...... | 2 | 850 | 3,400 | 425 | 51 | 52,410 | 12,805,120 | 28 |
| 2 | 1,000 | 24,000 | 500 | 14 | 9,600 | 115,200 | 4,800 | 3 | 1,700 | 9,200 | 566 | .... | ........ | ........ | ...... | 54 | 48,240 | 5,048,460 | 29 |
| 2 | 1,300 | 33,800 | 650 | 1 | 400 | 4,800 | 400 | .... | ........ | ........ | ...... | .... | ........ | ........ | ...... | 26 | 62,100 | 10,069,400 | 30 |
| .... | ........ | ........ | ...... | 2 | 4,500 | 54,000 | 2,250 | 1 | 4,000 | 24,000 | 4,000 | .... | ........ | ........ | ...... | 72 | 122,800 | 14,905,900 | 31 |
| 2 | 550 | 13,200 | 275 | .... | ........ | ........ | ...... | .... | ........ | ........ | ...... | .... | ........ | ........ | ...... | 8 | 2,600 | 119,800 | 32 |
| 24 | 18,890 | 462,960 | 787 | 40 | 45,300 | 543,600 | 1,132 | 2 | 1,300 | 6,800 | 650 | 2 | 8,000 | 3,200 | 400 | 283 | 378,096 | 46,779,858 | 33 |
| 16 | 12,765 | 306,360 | 798 | 12 | 5,400 | 64,800 | 450 | .... | ........ | ........ | ...... | .... | ........ | ........ | ...... | 71 | 101,500 | 10,145,840 | 34 |
| 15 | 9,260 | 233,160 | 617 | 24 | 18,500 | 222,000 | 770 | 2 | 1,000 | 6,000 | 500 | 3 | 1,900 | 1,900 | 633 | 213 | 211,930 | 33,552,900 | 35 |
| 7 | 8,550 | 89,300 | 507 | 13 | 9,200 | 110,400 | 707 | 2 | 1,000 | 6,000 | 500 | .... | ........ | ........ | ...... | 81 | 113,500 | 25,505,000 | 36 |
| 1 | 300 | 7,200 | 300 | .... | ........ | ........ | ...... | .... | ........ | ........ | ...... | .... | ........ | ........ | ...... | 39 | 42,500 | 11,317,700 | 37 |
| .... | ........ | ........ | ...... | .... | ........ | ........ | ...... | .... | ........ | ........ | ...... | .... | ........ | ........ | ...... | 27 | 8,960 | 1,180,820 | 38 |
| 4 | 8,000 | 234,000 | 2,000 | 12 | 14,900 | 178,800 | 1,241 | .... | ........ | ........ | ...... | 7 | 6,050 | 24,200 | 864 | 279 | 363,950 | 44,214,200 | 39 |
| .... | ........ | ........ | ...... | 3 | 6,500 | 78,000 | 2,166 | .... | ........ | ........ | ...... | .... | ........ | ........ | ...... | 95 | 102,390 | 21,663,170 | 40 |
| .... | ........ | ........ | ...... | .... | ........ | ........ | ...... | .... | ........ | ........ | ...... | .... | ........ | ........ | ...... | 8 | 11,400 | 1,938,000 | 41 |
| .... | ........ | ........ | ...... | 4 | 3,000 | 36,000 | 750 | .... | ........ | ........ | ...... | .... | ........ | ........ | ...... | 26 | 29,200 | 5,834,800 | 42 |
| .... | ........ | ........ | ...... | 5 | 1,700 | 20,400 | 340 | .... | ........ | ........ | ...... | .... | ........ | ........ | ...... | 57 | 50,650 | 12,431,200 | 43 |
| 11 | 11,900 | 290,600 | 1,082 | 4 | 3,700 | 44,400 | 925 | .... | ........ | ........ | ...... | .... | ........ | ........ | ...... | 40 | 51,800 | 4,920,500 | 44 |
| 7 | 6,675 | 180,600 | 953 | 2 | 4 200 | 50,400 | 2,100 | 1 | 800 | 4,800 | 800 | .... | ........ | ........ | ...... | 117 | 102,025 | 12,670,550 | 45 |
| 5 | 4,000 | 104,000 | 800 | 46 | 69,000 | 828,000 | 1,500 | 4 | 4,000 | 16,000 | 1,000 | .... | ........ | ........ | ...... | 451 | 536,700 | 66,067,400 | 46 |
| 1 | 950 | 22,800 | 950 | 6 | 8,550 | 102,600 | 1,425 | .... | ........ | ........ | ...... | .... | ........ | ........ | ...... | 19 | 25,152 | 3,042,112 | 47 |
| 2 | 1,600 | 41,600 | 800 | 25 | 28,300 | 339,600 | 1,132 | .... | ........ | ........ | ...... | 1 | 150 | 600 | 150 | 170 | 268,375 | 42,345,350 | 48 |
| 1 | 500 | 13,000 | 500 | 2 | 2,560 | 30,720 | 1,280 | .... | ........ | ........ | ...... | 3 | 1,200 | 1,200 | 400 | 21 | 20,905 | 962,460 | 49 |

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the press of the United States and that of other countries of the globe, the following table, kindly furnished by H. P. Hubbard, of New of increase in population in the decade was 30.08 per cent. The difference between these percentages may be taken as indicating the increase in the newspaper-reading habits of the American people. It is, however, worthy of note that the average circulation of all the periodicals published in 1880 is not as large as that indicated in other United States censuses. The average circulation of the 2,526 publications reported in 1850 was 2,036; that of the 4,051 publications reported in 1860, 3,373; that of the 5,871 publications reported in 1870, 3,550; while the average circulation of the 11,314 publications reported in 1880 is but 2,809. A large part of this difference, it is believed, is due to the much more rigid scrutiny to which the statistics of circulation were subjected in 1880.

Circulation of New York daily newspapers.

The largest aggregate daily circulation of any state occurs in New York, where 996,561 copies are printed daily, which is 27.94 per cent. of the entire daily circulation of the country, while only 11.84 per cent. of the entire number of daily papers are published in that state. The statistics of New York thus forcibly illustrate the fact that the aggregate circulation of newspapers is not dependent in any degree upon the number of those newspapers. The fact may be shown in the same way with respect to weekly newspapers and periodicals of all classes of issue.

Daily newspaper circulation in other states.

Pennsylvania shows the second largest aggregate daily circulation, Massachusetts the third, Illinois the fourth, Ohio the fifth, and California the sixth. Excluding the territories, Florida shows the smallest aggregate daily circulation, with West Virginia second, Vermont and Mississippi third, and Arkansas fourth.

Circulation of weekly newspapers by states.

New York also shows the largest aggregate circulation of weekly newspapers, the figures being double those of Pennsylvania, which comes next in order. Illinois stands third, Ohio fourth, Massachusetts fifth, and Missouri sixth. The states in which the aggregate weekly circulation is the smallest are, in their order (excluding the territories again): Nevada, Delaware, Florida, Rhode Island, Oregon, South Carolina, and Colorado.

Circulation of monthly periodicals.

New York shows the largest aggregate circulation of monthly periodicals, Pennsylvania being second, Maine third, Ohio fourth, and Massachusetts fifth. Maine is brought into this prominence by the great success that attends the publication of several magazines devoted to family reading in Portland and Augusta.

Table III.

The figures localizing the average circulation of the several classes of newspapers have a certain value, but they may easily mislead. In a town where two newspapers are published, one with a circulation of 10,000 and the other of 2,000, it is correct to say that the average circulation of the papers published in that town is 6,000; but in so saying we are not giving a true conception of the division. In order to avoid the misconceptions which may thus arise a table (No. III) has been prepared, which further classifies the press of the United States by the volume of circulation. Nine groups were made, as follows:

I. Periodicals having a circulation of 50,000 or over.
II. Periodicals having a circulation of 25,000 and under 50,000.
III. Periodicals having a circulation of 15,000 and under 25,000.
IV. Periodicals having a circulation of 10,000 and under 15,000.
V. Periodicals having a circulation of 5,000 and under 10,000.
VI. Periodicals having a circulation of 3,000 and under 5,000.
VII. Periodicals having a circulation of 1,000 and under 3,000.
VIII. Periodicals having a circulation of 500 and under 1,000.
IX. Periodicals having a circulation of less than 500.

Division of newspapers by volume of circulation.

A profitable average daily circulation.

Group VIII was found to contain the largest number of weeklies, and Group VII the largest number of daily newspapers. The fact indicated in Table II, that the daily newspapers of the United States will average a larger circulation than the weekly press, was thus verified. In the last class, that of journals with a circulation of less than 500, are included 86 dailies, 1,216 weeklies, and 188 publications of all other periods of issue. Missouri boasted the largest number (14) of these dailies of meager issue, California the second largest number (12), and Ohio the third largest number (7). These were generally dailies which had been established in the census year or immediately previous to it, and were incidental to the crude civilization of newly-founded towns. There were but 268 daily journals with a circulation of 3,000 and over, and the largest group of these (112) was under 5,000 in average daily issue. A circulation which can be regularly maintained between these figures is rightly regarded as a healthy and profitable one, where undue competition is not the reason for failure to reach higher figures and expenses can be kept down to a corresponding ratio. The greater portion of the daily journals whose circulation is placed at 1,000 and under 3,000 are profitable pieces of property on the more limited scale. Receipts from advertising bear an intimate relation to circulation, and the journals which run from 10,000 to 15,000, and from these figures upward, are the ones which enjoy large returns from the capital and labor invested. Their number is limited, there being but 84 in the whole country. Of these, 34 have a daily circulation of 10,000 and less than 15,000, 25 have a circulation of 15,000 and less than 25,000, 18 have a circulation of 25,000 and less than 50,000, and 7 have a circulation of 50,000 and over, 3 of the latter number exceeding 100,000 in their daily issue.

## THE RELATION OF CIRCULATION TO POPULATION.

Circulation of daily newspapers as related to population.

The relation of the circulation of daily newspapers to population offers an interesting and perplexing field of inquiry. The daily journal is of course read regularly to any marked extent only in sections of country that are thickly settled or can be promptly reached by rail from the cities. The entire aggregate circulation of the daily papers of the mammoth state of Texas (30,297) is less than that of the daily journals of little Rhode Island (41,402). No conclusions as to the relative intelligence of a people or their alertness in public affairs can justly be based upon such statistics; nor is it possible to make comparisons between cities with a view to like deductions.

Daily circulation in twenty-six cities.

This is the conclusion to be drawn from the following table, which gives the number and circulation of the 232 daily journals published in twenty-six of the principal cities of the United States, with the population of each city and the number of inhabitants to each copy issued daily:

| Number of daily papers published in the city of— | Total number. | Morning. | Evening. | Aggregate circulation per issue. | Population of city. | No. of inhabitants to each copy issued. | Rank. |
|---|---|---|---|---|---|---|---|
| New York, New York | 29 | 20 | 9 | 765, 843 | 1, 206, 299 | 1. 58 | 2 |
| Philadelphia, Pennsylvania | 24 | 13 | 11 | 375, 274 | 847, 170 | 2. 26 | 9 |
| Brooklyn, New York | 4 | ...... | 4 | 48, 537 | 566, 663 | 11. 67 | 26 |
| Chicago, Illinois | 18 | 10 | 8 | 220, 577 | 503, 185 | 2. 28 | 10 |
| Boston, Massachusetts | 11 | 6 | 5 | 221, 315 | 362, 839 | 1. 64 | 4 |
| Saint Louis, Missouri | 9 | 8 | 1 | 99, 364 | 350, 518 | 3. 52 | 16 |
| Baltimore, Maryland | 9 | 6 | 3 | 128, 643 | 332, 313 | 2. 58 | 11 |
| Cincinnati, Ohio | 12 | 8 | 4 | 117, 549 | 255, 139 | 2. 17 | 8 |
| San Francisco, California (two papers publish morning and evening editions) | 21 | 11 | 10 | 143, 232 | 233, 959 | 1. 63 | 3 |
| New Orleans, Louisiana | 10 | 6 | 4 | 37, 565 | 216, 090 | 5. 76 | 21 |
| Cleveland, Ohio | 8 | 2 | 6 | 48, 730 | 160, 146 | 3. 29 | 14 |
| Pittsburgh, Pennsylvania | 9 | 6 | 3 | 111, 001 | 156, 389 | 1. 41 | 1 |
| Buffalo, New York | 7 | 2 | 5 | 26, 100 | 155, 134 | 5. 94 | 22 |
| Washington, District of Columbia | 5 | 3 | 2 | 34, 500 | 147, 293 | 4. 27 | 18 |
| Newark, New Jersey | 6 | 4 | 2 | 18, 300 | 136, 508 | 7. 46 | 23 |
| Louisville, Kentucky | 5 | 4 | 1 | 22, 215 | 123, 758 | 5. 57 | 20 |
| Jersey City, New Jersey | 2 | ...... | 2 | 11, 176 | 120, 722 | 10. 80 | 25 |
| Detroit, Michigan | 6 | 3 | 3 | 41, 533 | 116, 340 | 2. 80 | 13 |
| Milwaukee, Wisconsin | 7 | 4 | 3 | 24, 300 | 115, 587 | 4. 76 | 19 |
| Providence, Rhode Island | 5 | 2 | 3 | 29, 900 | 104, 857 | 3. 51 | 15 |
| Albany, New York | 8 | 3 | 5 | 32, 842 | 90, 758 | 2. 76 | 12 |
| Indianapolis, Indiana | 4 | 3 | 1 | 35, 587 | 75, 056 | 2. 11 | 7 |
| Charleston, South Carolina | 2 | 1 | 1 | 6, 300 | 49, 984 | 7. 93 | 24 |
| Saint Paul, Minnesota | 6 | 3 | 3 | 19, 893 | 41, 473 | 2. 08 | 6 |
| Atlanta, Georgia | 2 | 1 | 1 | 8, 800 | 37, 409 | 4. 25 | 17 |
| Springfield, Massachusetts | 3 | 1 | 2 | 18, 464 | 33, 340 | 1. 81 | 5 |

The number of papers published in these twenty-six cities is considerably larger than the total number (72) with a circulation of 5,000 and less than 10,000, while included among them are a large number which belong in the class with circulations of less than 3,000, and even in the class below.

Analysis of the table.

There are not, however, a dozen cities in the United States, not included in this twenty-six, which sustain daily journals with circulations regularly kept between 5,000 and 10,000. In these cities such a circulation is obtained by exceptional facilities for supplying a thickly-settled surrounding country with daily papers. The average number of inhabitants to each daily paper printed in these twenty-six cities, taking them together, was 2.48, and, accepting this average for any city of 50,000 inhabitants, the aggregate circulation of all its daily papers would be but 20,161. The fact that seventeen of the twenty-six cities in the table show a larger ratio of daily circulation to population is simply evidence that they have superior facilities over the other nine for outside circulation, the ratio being increased correspondingly. New Orleans, which is an isolated city in this respect, averages one copy to every 5.76, and Washington, District of Columbia, which is situated in like manner, averages one copy to every 4.27, which is an extraordinary average for a city thus situated and with so large a colored population. Milwaukee, Wisconsin, with an average of one copy to every 4.76, is the best illustration on this point afforded by a northern city. On the other hand, Brooklyn, with an average of 11.67 to every daily paper printed there, and standing lowest in the list, doubtless has as many newspaper readers in proportion to population as any city in the Union, the low average being explained by the fact that the newspapers of New York city are circulated there simultaneously with those of its own manufacture and share with the latter the favor of the reading public. Newark, New Jersey, which ranks twenty-third, and Jersey City, which ranks twenty-fifth, are accounted for in the same way. It is to be noticed that the latter city, with a population of

120,722, has a smaller aggregate circulation of daily newspapers published in its midst than the aggregate we have estimated as a fair average circulation for a city of 50,000. The city of Springfield, Massachusetts, has been introduced into this table for the purpose of illustrating the relations of newspaper circulation to the geographical and commercial situation of a town. With a population of 33,340, three Springfield newspapers circulated daily 18,464 copies (nearly 75 per cent. of which circulation was in the towns and villages within prompt railroad reach, the *Republican* penetrating every morning into four states), which was over a hundred more than Newark, New Jersey, circulated with its population of 136,508. On the other hand, the daily journals printed in Newark, New Jersey, were largely confined in circulation to that city, being met on the east by the more pretentious papers of New York and on the west by those of Philadelphia, while thousands of copies of the newspapers of these two cities were sold every day in Newark.

Newspaper diffusion in the United States.

Table XII has shown us that the aggregate circulation per issue of the press of the United States is equivalent to one copy regularly sent to every 1.58 inhabitants returned by the Tenth Census. It may be assumed that every paper published and circulated is read by an average of at least two persons, the majority of those issued penetrating into families numbering from three to four persons. In other words, newspapers enough are now printed to supply every person of a reading age with a journal to read as often at least as once a week. Of course we have many adults who never read a newspaper, but it is not, as elsewhere, for the lack of them; and as the years pass the diffusion of the American newspaper is growing more penetrating and minute. The newspaper diffusion of the United States, due to its minute localization, as already considered, reaches a degree unattained in any other country, and warrants the claim in its behalf of an exceptional influence upon the opinions of the people of the whole country. The average number of inhabitants to circulation in the several states, as shown in Table XII, is subject to certain qualifications, which reduce the disparities exhibited in that table very largely. There are certain cities which are known as "newspaper centers", from which are issued every day, week, and month thousands of newspapers and periodicals which are circulated outside the states in which the cities of publication are located. Table XV is an exhibit of the press statistics of the ten principal cities of this character, viz, New York, Philadelphia, Boston, Chicago, Cincinnati, Baltimore, Saint Louis, San Francisco, New Orleans, and Louisville. It will be observed that the ten states in which these cities are located reach in Table XII the smallest average number of inhabitants to the aggregate circulation, excepting only Maine, in which case the small average is accounted for by the publication of a number of family story papers, which circulate all over the Union. On the other hand, the states showing the largest average are those situated most remotely from these and the minor centers of periodical publication, such as Alabama, Mississippi, North and South Carolina, and the territories. (*a*) While the ten or eleven states named do not wholly deserve the high rank, in respect to the newspaper reading propensities of their inhabitants, assigned them in these tables, it is worthy of attention that the other states which take the lowest rank in the same tables are the same states in which the educational statistics of the Tenth Census indicate the same relative rank of popular intelligence in the population. The limitations suggested upon the natural conclusions to be drawn from these tables do not in any sense destroy this relative rank in the matter of newspaper and periodical diffusion among their inhabitants, but simply guard against a too violent contrast, by indicating that the disparities, while undoubtedly existing, may be somewhat softened by a due consideration of the collateral circumstances. It is undoubtedly true of the United States, in a larger degree than of any other country, that the comparative degree of newspaper circulation among the people is regulated and limited by the facilities which attend the extension of that circulation.

## CAPITAL, GROSS PRODUCTS, AND RAW MATERIALS.

Table IV.

Table IV shows the total amount paid in wages and the total gross products of newspapers and periodicals published in the United States during the census year, with the percentage of wages paid by daily, weekly, and other periodicals, the percentage of receipts from advertisements and from subscriptions, the number of hands employed in printing and publishing periodicals, and the number of persons employed in editorial work. This table contains, therefore, the chief statistics gathered respecting the financial or material condition of the American press.

Capital invested.

No effort was made to gather statistics as to the amount of capital invested in the newspaper or periodical business, all queries of this character being omitted from the press schedules, in accordance with the opinion expressed by the Superintendent in the Ninth Census that the inquiry is one which ought never to be embraced in the schedules of the census, and that "the census returns of capital invested in manufactures are entirely untrustworthy and delusive". It was felt that this conclusion would apply to the printing business, as connected with the publication of newspapers and periodicals, with greater force than to almost any other industry, for the reason that the product of the newspaper printing press is altogether out of proportion to the usual calculations by which relations between wages paid and materials used to that product are reached. The value of a newspaper or a periodical is largely determined by the character of the brain labor

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*a* It is noteworthy that this difference between northern and southern states has existed from the very beginning of newspaper publication in this country. Noah Webster in 1785 ascertained that the circulation of newspapers in the single New England state of Connecticut was equal to that of the whole American territory south of Pennsylvania.—*Webster's Essays*, pp. 338–360.

placed therein. More than 50 per cent. of the gross product, on the other hand, is found to be derived from a source of revenue the intrinsic value of which depends upon other conditions altogether than the capital invested, the labor employed, or the material used. This is the advertisement, the rates received by the several newspaper establishments being governed by considerations which throw these elements of cost entirely out of the calculation. The cost of putting into type an advertisement of a certain length and character does not vary largely in any of the newspaper establishments where payment for composition is made by the piece; but certain newspapers will receive in payment for the same advertisement double, treble, or quadruple the price received by other newspapers which have been to the same outlay in preparing it for publication. The cost of the white paper upon which an advertisement is printed will not vary largely in a multitude of cases, and never varies in anything like the ratio of the money received for its publication. Neither is there any corresponding ratio of variation in the cost of the original plant, the value of the gross products of the newspaper press clearly bearing no definite and determinable relation to the amount of capital invested in the establishment. The Superintendent declared in the Ninth Census that "no man in business knows what he is worth; far less can he say what portion of his estate is to be treated as capital".

Peculiar relation of capital to product.

## CAPITAL INVESTED IN NEWSPAPERS.

I believe this statement applies more accurately to the newspaper press than to any other branch of industry in the United States, and for the reasons given. There are a number of establishments in the United States to-day the annual income of which is many thousands of dollars in excess of all the capital which has been actually invested in the shape of plant and its repair since the establishments were first founded, often without any capital at all beyond the bare cost of that plant. The plant itself of a newspaper, it will be understood from what has been said on the subject elsewhere, is the smallest part of the value of a successful journal, the real value being dependent upon what is somewhat indefinitely described as the "good-will", the value of which, in turn, depends largely upon location. Good-will is something which may properly be considered as an element of capital, and always is the chief element in newspaper transfers; but it is an element which cannot be estimated in dollars and cents, either by the Census Office or by the parties making return to the Census Office on its schedules. The gross receipts of a newspaper depend altogether on this good-will, and not at all upon the size or character of the plant or the paper itself; not at all, in other words, upon the amount of capital actually invested or employed in the carrying on of the establishment. The impossibility of framing a definition of manufacturing capital which shall fit a business governed entirely by such circumstances does not need argument.

"Good-will" as an element of capital.

I will not undertake to say, therefore, that the $89,009,074 of gross product returned for the newspaper and periodical press bears any tangible relation to the amount of capital which is invested in this business in the United States. On the other hand, it can be said that there is no business which shows such large gross receipts, with so small an actual investment of capital behind them. This interesting fact may be better understood by a reference to the discussion of the conditions determining the value of newspaper property in the subsequent pages of this report.

Large product from small capital invested.

Another fact of importance is that, taking the gross product of newspapers as given for 1880 and comparing it with figures of previous censuses, the increase has been enormous; and it may well be doubted if any other branch of census inquiry will reveal either so large a ratio of increase in the number of establishments or so large and corresponding an increase in the gross earnings.

Great increase in gross product.

On pages 51 and 52 of this report the statistics of the previous federal censuses, relating to the capital invested, amount of materials used, wages paid, and the value of the gross product of the newspaper and periodical press of the United States, have been summarized. The difficulties in the way of using those figures for comparison with the statistics now supplied are there broadly hinted at. If we accept them as a basis, we find that between 1870 and 1880 the number of hands employed in the newspaper offices of the whole country has increased from 13,130 to 65,015; the amount of wages paid has increased from $8,168,515 to $28,559,336 38; the value of materials used in manufacture has increased from $8,709,632 to $15,385,303 84, excluding from the latter figures all account of tools, machinery, and everything, in short, but the bare cost of ink and paper; and that the value of the gross product has increased from $25,393,029 to $89,009,074. Every deduction to be drawn from these figures sustains the conclusions of this report. They show that while the value of materials used has not doubled, the value of the gross product has increased nearly 3.60 times.

The amount paid in wages has increased in nearly the same ratio as the increase in the value of the gross product; and if an attempt were to be made to estimate the amount of capital now invested in newspaper enterprises, it would bring us inevitably to the conclusion that it would show an increase corresponding with the increase in wages paid and in gross product. The Ninth Census reported the capital employed in newspaper enterprise at $14,917,887. On the basis of calculation indicated the capital now so employed would approximate $53,000,000. On the basis of the intrinsic valuation, as determined by the net earnings, these figures would be indefinitely increased. Mr. Hudson states that the amount of capital represented in the New York daily press of 1872, on the basis of valuation, has been estimated at

Comparison with Ninth Census.

$8,000,000; and he adds, what is obvious, that they do not represent more than one-sixteenth of that sum in original investment. The money value of the great majority of the newspaper establishments of to-day is a self-created value, and therein it differs from the capitalization represented in the general statistics of the Tenth Census.

## THE COST OF INK AND PAPER.

Ink, value of.

The only raw materials which can properly be said to enter into the composition of the newspaper or periodical are the ink and the paper used in printing it. Of these two materials the former is an insignificant element of the cost. Ink is purchased by the publisher at rates which vary from 6 to 10 cents per pound, according to the quantity, quality, and location where used. Experience shows that a pound of ink, as it is ordinarily used, is sufficient to work from 600 to 700 impressions of an ordinary sized newspaper. So that, knowing the total number of the newspaper impressions of the census year to be 2,067,848,209, it is easy to calculate that the total value of the ink used in newspaper printing was in the neighborhood of $253,700, or only about three one-thousandths of the total gross product reported.

Quantity and value of paper used.

The remaining raw material (paper) is a much more important element of cost, and pains were taken to secure full returns of the amount used in the census year. To make the results as accurate as possible publishers were asked to return the figures not only in reams, but in pounds, and by comparing the figures thus given with the circulation reported the Census Office had a check upon both classes of statistics. Wherever the returns under the heads of paper used and copies printed failed to correspond pains were taken to discover which figure was right, and in this way the aggregate circulation reported by the several publishers was considerably reduced in the end, and is given with confidence that it is very close to the actual fact. The total number of copies of newspapers and periodicals printed in the census year is given as 2,067,848,209 and the total number of reams of paper used as 4,308,012, which is 2,067,845,760 sheets.

Weight of paper used.

The weight of the paper used in printing newspapers and periodicals in the United States varies according to the size and the character of the periodical. De Vinne gives the following table of the regular sizes of American papers prevalent in New York:

| | Inches. | | Inches. |
|---|---|---|---|
| Medium | 10 by 24 | Double medium | 24 by 38 |
| Royal, 20 by 24, or | 20 by 25 | Double royal | 26 by 40 |
| Super-royal | 22 by 28 | Double super-royal | 28 by 42 |
| Imperial | 22 by 32 | Double super-royal | 29 by 43 |
| Medium and half medium | 24 by 30 | Broad twelves | 23 by 41 |
| Small double medium | 24 by 36 | Double imperial | 32 by 46 |

Of these sizes the most prevalent in use were found to be the 24 by 36, which is estimated to weigh 30 pounds to one ream of 480 sheets; 28 by 42, which was estimated to weigh 40 pounds to the ream; and 30 by 46, which was estimated to weigh 45 pounds to the ream.

Table VI.

These estimates were reached by careful comparison of the figures returned by the several publishers and by inquiries among the paper-makers. The other sized papers in use were estimated in like manner, pains being taken in all cases to conform the figures finally accepted as nearly as possible to the returns made by the publishers themselves. The result is shown in Table VI. The average number of pounds of paper used by the daily newspapers of the country was 338.47, and by weekly newspapers and all other periodicals 281.86. The latter average is brought to its high figure by the fact that it includes the paper used by the monthly magazines of large circulation, as well as by the story papers and miscellaneous weekly publications of large circulation. The aggregate pounds of paper used per issue by the daily press was 291,764.95, being 7,430.18 reams, the equivalent to an issue of 3,566,486 issues per day from this press. The average weight per ream of the paper used in the daily press was therefore 39.27 pounds per ream. The newspapers and periodicals of every other character and description than diurnal used an aggregate of 2,624,354.92 pounds of paper, representing 58,797 reams, the average weight of which was 44.63 pounds per ream. The average weight of the paper ordinarily used in local weekly papers will not exceed 30 pounds to the ream.

Price of paper.

By these averages it is possible to approximate very closely to the actual cost of the paper used in newspaper and periodical printing during the census year. The price of paper is very fluctuating, and the great difference in its quality makes it impossible to apply a certain average price to the value of the paper used by any particular class of newspapers; but I am told by paper-makers that if the general average cost of all the paper used for these purposes in the census year is placed at 8 cents per pound I shall be within the reasonable trade limits. The total pounds of paper used were 189,145,048, and their value on this basis was $15,131,603 84.

Percentage of cost of materials to gross product.

We have thus reached an approximation of the cost of all the raw material used in the manufacture of the American newspaper and periodical. The value of the paper used is 17 per cent. of the total gross product of the the newspaper offices. Adding thereto the cost of printing ink, the percentage of the raw material to the gross product is increased to 17.29 per cent., the total being $15,385,303 84. Perhaps this percentage is larger than it ought to be, to be properly classed in the first group above mentioned, but it is not large enough to warrant its classification in either of the other groups enumerated. By the Ninth Census the value of materials represented in $100 of product in class one was $10 07; in the manufacture of newspapers, by the Tenth Census, it is $17 29. In the second class, by the Ninth Census, the value of materials represented in $100 of gross product was $43 86; in the third class, $34 28; in the fourth class, $56 62; and in the fifth class, $84 10. It follows that the cost of the raw materials used in newspaper manufacturing is less than that in any other class of manufacturing, and only $6 41 more than the cost of these materials in the mining and fishing industries. It is obvious, under these circumstances, that a certain class of newspapers make enormous profits upon the capital invested and the expenses incurred. To succeed in newspaper publication is to earn large dividends on small outlay. On the other hand, the failures are as costly in capital, care, and labor squandered as the successes are lucrative.

The paper trade and the press.

Before advancing to the discussion of other phases of this inquiry, it should be added that the relations between the manufacture of paper and the publication of newspapers are extremely intimate, the two industries being mutually dependent to a degree which is perhaps not sufficiently brought out by the figures above presented. Upon the price of paper depends the multiplication of newspapers in this country as in no other country of the world, for here, as nowhere else, it is not so much a question as to whether readers can be found as whether they can be supplied at a cost for raw material which permits of profitable publication. The years that have been marked by high prices of printing paper are those which witness the least advance in the number of newspapers. It was not until within the census decade ending with 1880 that the capacity of the paper-mills of the United States began to bear its proper economic relations to the demand, and in consequence there were frequent marked fluctuations in price, which bore most heavily upon the publishers, discouraged new newspaper enterprises, and were accompanied by a long death-roll of suspensions. The period of the civil war was that during which the press suffered most severely from the short production and the high price of printing paper, but there was constant recurrence of such suffering at earlier periods.

In 1810 the number of paper-mills in the United States was estimated at 185, and they produced annually 50,000 reams of news paper, valued at $3 per ream; 70,000 reams of book paper, valued at $3 50; 111,000 reams of writing paper, at $3; and 100,000 reams of wrapping paper, at 85 cents. In 1828 the newspapers consumed 104,400 reams, costing $500,000, and the total value of all the paper made was nearly $7,000,000. In 1850 the annual product of paper was valued at $17,000,000. In Munsell's *Chronology of Paper and Paper Making* is the following entry for the year 1854:

> There were 750 paper-mills in the United States in active operation, having 3,000 engines, and producing annually about 250,000,000 pounds of paper, averaging about 10 cents a pound. This required 405,000,000 pounds of rags, costing 4 cents a pound, for which our seamen had to scour every quarter of the globe. The cost of labor was estimated at 1¾ cents a pound; the cost of labor and stock united would be nearly $20,000,000. The total cost of manufacturing $27,000,000 worth of paper was supposed to be $23,625,000. The demand, however, still exceeded the supply, so that the price was advanced 2½ cents a pound.

Paper-mills of the world.

Since the date of this entry the increase in production has come about not so much by reason of a multiplication of the mills as by the improvement of their processes and the use of new and cheaper raw materials. The census of 1870 reported 669 paper-making establishments, with products valued at $48,676,985. The following table of the number of paper-mills in operation in the census year shows that the United States stands at the head of the paper-making countries:

| | | | |
|---|---|---|---|
| Germany | 545 | Portugal | 16 |
| Austria-Hungary | 160 | Holland | 16 |
| Belgium | 29 | Roumania | 1 |
| United States | 960 | Greece | 1 |
| Denmark | 18 | Switzerland | 15 |
| France | 539 | Russia | 160 |
| Great Britain | 650 | Sweden and Norway | 25 |
| Australia | 4 | Spain | 63 |
| Canada | 20 | Japan | 6 |
| Italy | 206 | Cuba | 1 |

The United States of America is not only the greatest paper-producing country in the world, but in bulk and per capita it is the greatest paper-consuming country. A report upon the capacity of the paper-mills of this country, prepared for and submitted to the fourth annual meeting of the American Paper Makers' Association, in Saratoga, in July, 1881, by Howard Lockwood, the editor of the *Paper Trade Journal*, of New York, shows an aggregate daily capacity of upward of 5,000,000 pounds of paper of all kinds and descriptions, more than six times the capacity reported by Munsell in 1854. During the past two years there has been an increase in the capacity of American paper-mills of about 1,000,000 pounds. In this period the increase in writing paper was about 33⅓ per cent., and the increase in book and news paper 25 per cent., these figures representing the capacities and not the actual output of the mills. Two years ago 10 per cent. of the mills were reported idle, and many of them were running on short time. In the year past only 4 per cent. of the mills were idle, and it is fair to presume that the actual production of all the mills during the census year was largely in excess of the increase reported in capacity. It is worthy of attention that a still larger increase in the producing capacity of the paper-mills of the United States is observable as this report goes to press. New mills are being built and projected, old mills remodeled and enlarged and new materials introduced, while all materials are becoming cheaper, machinery is being simplified and perfected, and everything points to a continuous increase in product.

Comparative quantity of paper consumed by the periodical press.

Mr. Lockwood's estimate of the capacity of the American mills in the manufacture of book and news paper combined, allowing 300 working days to the year, would result, under full pressure, in a product of 417,015,000 pounds per annum. Deducting from this aggregate the 189,145,048 pounds of paper found by the census to be consumed by the newspaper and periodical press, there were left 227,869,952 pounds to be consumed in the manufacture of books and pamphlets and in the innumerable varieties of miscellaneous printing which is constantly emanating from thousands of job-printing offices all over the country. The newspapers and periodicals actually consumed, therefore, 45.36 per cent. of all the book and news paper manufactured, which comprised more than one-quarter of the total paper manufacture of the country, including writing, blotting, wrapping, board, card, hanging, and all the varieties of paper.

The future supply and cost of printing paper.

The remarkable reduction in the cost of printing paper has been spoken of elsewhere as one of the chief causes of the rapid growth of the newspaper and periodical press of the United States during the census year and the census decade. An annual circulation like that reported in 1880 would have been impossible ten years ago, because there were not in the country mills enough to produce the paper now annually consumed. Neither is there any likelihood that the price of paper will ever be higher to any repressive degree than that which now prevails. There are manufacturers who maintain that the country will yet be astonished at the still lower price that paper will touch when certain new inventions now in process of introduction shall have come fully into operation, but there seems to be no probability that the demand will again outstrip the supply. Mr. Lockwood argues that the recent multiplication of newspaper circulations is exceptional, and says:

> The newspapers are increasing in number and circulation, but the same percentage of increase that has obtained during the past two or three years in connection with the press will not in all probability continue. The marked increase of late years has been very largely owing to the law which allows publishers to send through the mails at pound rates all of the specimen copies that they choose to mail. This has in a measure regulated itself, and for this and other reasons I draw the conclusion as stated.

The practice to which Mr. Lockwood refers as a cause for the great recent increase in the number of newspapers printed is a practice which is as certain to continue, with the continuance of the post-office regulation in question, as the publication and competition of newspapers continue. It is a practice more likely to increase than to diminish. At the same time it is not to be questioned that the present capacity of the paper-mills of the United States is equal to the home demand. That the manufacturers themselves realize the fact is indicated by a concerted movement among them to increase the export of American paper. It is already demonstrated that news paper of a medium grade can be laid down with a profit in London, and there are to-day several Scotch and English journals regularly printed on American-made paper. (*a*)

Wood-pulp paper.

The chief cause of the reduction in the price of news paper is the successful use, first, of straw, and more recently of wood pulp, as ingredients of manufacture. There are not rags enough obtainable to manufacture the paper now annually consumed in the United States. Wood pulp is now mixed with rag pulp in proportions which vary from 15 to 50 per cent., according to the quality of the paper desired. In the great bulk of the paper now used by the American press there is from 40 to 50 per cent. of wood pulp. The paper thus manufactured is not as durable as the all-rag paper, and does not retain its color as long, but it answers the transient purpose for which it is employed as well as the higher-priced paper which the press was compelled to use for lack of a cheaper quality before American skill and enterprise brought the manufacture of wood pulp to its present state of perfection. (*b*)

## WAGES.

Wages.

The relation of wages to the gross product remains to be considered. The statistics of wages paid in the making of newspapers and periodicals are given in detail in the same table with the gross product (Table IV). The amount paid annually in wages by all the newspaper establishments in the census year was $28,559,336 38, of which $17,813,053 38 was paid by the daily establishments and $10,746,283 by all others, the percentage for the United States being 62.37 for dailies and 37.63 for all other

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*a* As the trade of the world increases, so does the newspaper press. It is estimated that there are from 32,000 to 35,000 newspapers printed and published in all countries. This country is credited with about 11,000 to 12,000. The remainder are mostly European, and the chances of supplying them with American paper may be small; but the press of South America and the colonies is by no means insignificant. This is especially the case with many journals published in the Australian colonies. As possibly of some interest to the manufacturers of news paper who may be present, I have with me some copies of foreign papers. I do not think that any paper-maker present would object to receive a contract for such papers as the Melbourne *Argus*, Sydney *Herald*, etc.—Howard Lockwood, before American Paper Makers' Association.

*b* In regard to the average price of printing paper given in the text, it may be stated that in the latter part of the year 1880 the average price paid for paper by twenty of the leading dailies of New York city was $7\frac{9}{20}$ cents per pound, the highest price—9 cents—being paid by the *Daily Graphic*, which requires for its illustrations an extra fine paper, and the lowest price paid, 6¼ cents. The paper used on the New York dailies is a better average paper than that generally used by American newspapers, but the large quantities in which it is purchased allow of better contracts as to price than can generally be made.

classes. The average wages paid by each establishment was $20,105 03 for the dailies and $1,476 75 by the publications of every other description, the gross amount being paid to 71,615 persons, of whom 51,140 were males and 3,875 were females, 16,600 of whom were employed in editorial work. The average wages paid to each individual were $398 79 per annum, the value of wages for each $100 of gross product was $32 09, and the product per capita, gross, was $1,242 88.

Persons employed.

In comparing these results with the relations of wages to product in industries of the first group (as determined by the Ninth Census) I find the dollars in wages paid for each $100 of gross product to be considerably lower than it then was in industries of this group ($51 30), while the product per capita, gross, in the same comparison is much higher, the figures given in the Ninth Census for this latter proportion being $843 51. This difference is the more striking from the fact that the labor employed in the printing business is skilled labor, capable of earning in large establishments, under favorable conditions frequently arising, large wages by piece-work, while the salaries paid to editors naturally average much higher than the earnings of mechanics or laboring men in any field of industry. Some criticism, indeed, may rightly lie against these statistics, because they include among the employés the persons engaged in editorial work upon the newspaper press and include their earnings in the amount of wages paid. The difficulty, however, is one which was found to be unavoidable in the compilation of the statistics. It is the rule in nearly all the newspaper establishments of the United States to include the compensation for editorial work upon the regular pay-roll, and any separation, had it been asked for, could not have been secured with approximate accuracy. Another difficulty also appeared in the fact that in a large number of the local newspaper establishments of the United States the editorial work and portions of the mechanical work are performed by the same persons. Bearing this fact in mind, it will be seen that the total of 16,600, which is given as the number of persons engaged in editorial writing in the United States, includes many who are printers as well as editors.

Editorial employés.

## EDITORIAL EMPLOYÉS.

Any attempt to average the number of editors employed to the number of newspapers published would be misleading. Upon the local weekly press above spoken of the entire editorial work is usually performed by one individual, and the fact that so large a proportion of these journals were founded and are owned by practical printers, whose entire education has been at the case, is sufficient explanation of the low order of literary work which characterizes a large number of these papers. They are the work of practical printers, and not of educated and trained editors, the more prosperous weekly journals, which are well located for business, employing one or more men or women for the conduct of their editorial work.

The editorial force employed upon the daily newspaper press varies in size according to circumstances. Upon many of the smaller dailies of provincial towns two or three persons are sufficient to accomplish all the work that is done, one of whom generally devotes his entire attention to the local columns. As the towns and the journals increase in size and character, the editorial force increases correspondingly, and its number generally bears some ratio to the circulation. Thus daily journals which circulate from five to ten thousand find it necessary to employ editorial assistants varying from six to twelve in number. In the metropolitan newspaper offices the forces are divided more distinctly into editorial and reportorial, and the men in each division are engaged exclusively upon their distinctive kind of work. The reportorial force of a metropolitan newspaper frequently numbers fifty men, many of whom are educated and skillful writers. The work of the editorial force proper is divided between editorial writing, exchange reading, the condensation and preparation of news, the editing of telegraphic news and correspondence, etc. Much of the work upon our best newspapers is done outside of their offices by trained experts in special topics of comment or discussion, who are paid for their contributions by the piece. It has long been the habit, however, to secure for editorial work men who have education and experience, and are capable of doing the best literary work that money will pay for; and journalists of established reputation receive salaries as generous as are paid in any profession in the United States. Much of the editorial work of the modern newspaper is paid for by the piece, even when done by editors regularly employed, and this is more frequently the case with those engaged in the purely reportorial duties of the newspaper.

Editorial force of daily newspapers.

This wage table reveals the fact that only in the states of California, Colorado, Connecticut, Delaware, Georgia, Kentucky, Louisiana, Maryland, Missouri, Nevada, Ohio, Pennsylvania, Rhode Island, Tennessee, and Texas did the daily press equal or exceed in gross receipts the earnings of the periodicals of other periods of issue. In the District of Columbia and the territories of Arizona, New Mexico, Utah, and Wyoming the same fact appears. In most of these states the population is largely congregated in cities, particularly in Delaware, Connecticut, and Rhode Island; in others the population is so widely scattered and so sparse that it is only in the cities and large villages that there is any great opportunity for newspaper publication, as is the case with Louisiana, Colorado, Missouri, and Tennessee. Nevertheless the aggregate earnings of the dailies (which necessarily includes the earnings of all the weeklies, etc., connected with the dailies) are less than two million dollars behind those of all other classes of publications. In connection with this comparison, it should be observed that the daily establishments pay out in wages the sum of $17,813,053 38 annually, against $10,746,283 paid out for wages annually by newspaper and periodical establishments of every other class. This apparent discrepancy is easily explained by the fact that in a very large proportion of the local weekly newspaper establishments the proprietor is himself a practical printer and makes no account of his own labor in his return of the amount of wages paid annually. From a large number of these establishments it was reported to the Census Office that no wages were paid, as was verily the case, the proprietor himself setting all the type and doing all the press-work needed to publish a newspaper, with the aid of the co-operative sheets or patent outsides. In other cases members of the proprietor's family, sons, and frequently daughters, set the type and did the work without pay; and in still other cases, and of these the proportion was still larger, the wages reported would average as low as $75 to $150 per annum, the only assistant required to make the paper being an apprentice, whose board and lodging may have been added to the above cash remuneration. In this way it has turned out that in a total wages of $28,559,336 38 paid annually the daily establishments paid 62.37 per cent. and the weekly and other periodicals 37.63 per cent., while the latter earned 50.90 per cent. of the total gross receipts. It will be observed that the states in which the amount paid out annually in wages by the weeklies exceeded in amount the wages paid by the dailies were Alabama, Florida, Iowa, Kansas, Kentucky, Maine, Mississippi, North and South Carolina, Vermont, and West Virginia. There are therefore left thirteen states, viz, Arkansas, Illinois, Indiana, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New York, Ohio, Oregon, Virginia, and Wisconsin, in which the weekly press, while earning larger aggregate gross receipts than the daily press, nevertheless paid out less money annually in wages.

## AMOUNT OF TYPE SET.

Amount of type set. Table V.

American type computation.

Table V shows the average and aggregate ems of type set per issue in the publication of newspapers and periodicals in the United States during the census year. These figures require some discussion in connection with the subject of wages. In all piece-work book and newspaper composition is counted by ems in the United States, the American system differing in this respect from the English and French systems, which aim, although by somewhat imperfect methods, to base composition on the exact number of letters set up. (*a*) The em, it will be understood, is the square of the body of a type, and as a basis of computation arrives at substantially the end sought for in the other systems, while it guards against inequalities by extra charges for composing unusually lean letter or letter of inconvenient sizes, or matter set in unusually narrow measures.

Rates for composition.

It is an almost uniform rule that the composition upon the daily press in this country is paid for by the piece, while upon the weekly and periodical press the prevailing custom is to pay weekly wages where the work is done by journeymen printers, whose time is also occupied with making up, imposing, and with the job-work, which forms so large an item in the business of country newspaper offices. The rates paid for composition for piece-work vary largely in different parts of the United States, and are in accordance with fixed standards for work on morning and evening newspapers—the latter, which is day work, being uniformly lower than the former, the price paid for type-setting running all the way from 20 and 25 to 60 cents per thousand ems. The lower rates are paid in some localities to female compositors, the employment of whom has been gradually increasing of late years. No data were obtained by which the true average can be indicated, and it is suggested as a feature of the investigation which may properly be added in the preparation of the press schedules for the next federal census.

Amount of reading matter supplied by the press.

The chief purpose of these statistics of the number of ems of type set is to convey an accurate idea of the actual amount of reading matter newly prepared and submitted with each issue of the American press. The average amount of type set per issue of the daily press was 74,147 ems, and the aggregate set each day by the entire daily press of the country was 66,140,266 ems. The significance of these statistics can be indicated to those not familiar with the details of newspaper publication by some comparisons.

Sizes of type used.

The average number of ems set per issue by the daily press (74,147) is equal to twenty-nine pages of an ordinary octavo book set in brevier type, or to a volume of 48½ pages set in long primer type. I have used these two styles of type in illustration because they are commonly employed in book composition. It may be added that, while much brevier and considerable long primer are still used on the daily newspaper press of the United States, the tendency for many years has been toward the smaller fonts, and minion is the style now most generally used in the large newspaper offices for ordinary reading matter, advertisements, and frequently other matter, being set in nonpareil or agate. The average number of ems set per issue on weekly, monthly, and other publications (57,197) is equal to twenty-two octavo pages of brevier and thirty-seven of long primer. It should be added that this average is slightly higher than it would have been for the weekly press alone, by reason of its including the type set in the publication of the several monthly magazines, which print a large quantity of reading matter.

The aggregate number of ems set per issue by the daily newspaper press of the United States (66,140,266), that is to say, the amount of type set daily by all the daily newspapers in the country, is equal to 25,907 octavo pages in brevier type, or 43,179 pages in long primer type. The aggregate set per issue by all the other periodicals of the country (490,753,756 ems) is equal to 193,897 pages of brevier type and 320,754 octavo pages of long primer type.

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*a American Cyclopedia of Printing.*

In other words, the total amount of reading matter contained in one issue of all the newspapers and periodicals published in the United States is equal to the contents of a library of from 1,000 to 1,200 volumes.

Pounds of type used.

To set this amount of reading matter there were in use in the several newspaper establishments 6,689,878 pounds of type (Table V) of all varieties. This aggregate does not include the type used in the composition of a considerable number of periodicals which did not do their own printing, but let it by contract to job-offices.

The quantity of type in use in the newspaper offices has never before been calculated. When in constant use, type will last, under the process of replenishing known as "sorting up", for a longer or shorter period, according to the use that is made of it, but in the average local weekly newspaper office a font of type is made to do service for an indefinite number of years. Much of the type whose impression is seen in the census newspaper file for 1880 is as worn and dirty as any that appeared in the colonial press of the United States, when the cost of new supplies was much greater than now, and was still further increased by the risks of importation. The average daily newspaper, printing from 2,000 to 5,000 copies per issue, will exhaust a font of type ordinarily in from six to ten years, and the larger the edition regularly printed the greater the wear and tear and the sooner the replenishing must come. This remains true until we come to newspapers and periodicals whose forms are stereotyped. The process of stereotyping saves the type from the jam and friction of the press, keeps it uniform, and permits a newspaper to maintain its cleanly and handsome appearance for many years without restocking, beyond the occasional "sorting up".

## ADVERTISEMENTS AND SALES.

The two sources of newspaper revenue.

Strictly speaking, there are but two sources of newspaper revenue: subscriptions, or sales, and advertisements One of the most interesting and valuable of the inquiries in this department was to determine the true proportion of the receipts of newspaper publishing from these two sources. Estimates have frequently been made, which, however, have been based upon the experience of individual concerns, and have differed from the present results.

Comparative receipts from subscriptions and advertisements.

It is believed that the figures now supplied are accurate. They show that of the total gross proceeds of $89,009,074, 56.03 per cent. were from sales of papers. The following figures, which are compiled from the data presented in Table IV, indicate in detail the comparative receipts from the two sources for daily journals, for publications of all other classes, and for the aggregate:

DAILIES.

| | |
|---|---|
| Receipts from advertising (49.17 per cent.) | $21,487,676 |
| Receipts from subscription (50.83 per cent.) | 22,214,437 |

WEEKLIES AND ALL OTHERS.

| | |
|---|---|
| Receipts from advertising (38.95 per cent.) | 17,648,630 |
| Receipts from subscription (61.05 per cent.) | 27,658,331 |

AGGREGATE.

| | |
|---|---|
| Receipts from advertising (43.97 per cent.) | 39,136,306 |
| Receipts from subscription (56.03 per cent.) | 49,872,768 |

Receipts from subscriptions.

By multiplying the total aggregate circulation of the daily newspapers (3,566,395) by the average subscription price of all the dailies ($7 27) we reach a total of $25,927,691 65, which would be the actual receipts of the daily press from sales if the total editions printed were uniformly disposed of for cash. The difference between this sum and that arrived at by the other method of calculation ($22,214,437), based upon the division of the reported gross product between advertisements and sales, may be taken as representing, first, the actual loss to publishers on circulation growing out of the free lists, including exchanges, the tear and waste, and the papers remaining unsold; and in the second place, the margin of profit to the middle men, the news agents and companies and newsboys, for the handling of the papers, the compensation of the latter being the difference between the wholesale and the retail price of the papers they vend. It is to be borne in mind that a considerable percentage of the total daily circulation is disposed of at retail by the single copy through street and stand sales. While the average cost to the annual subscriber to the daily newspaper was 2⅓ cents per copy, the average retail price, not indicated in the tables, was found to be nearly 4½ cents for the whole country. The actual sum paid out annually for daily newspapers by the people of the United States is therefore more nearly the larger than the smaller of the totals given above. The receipts of publishers for sales of papers and periodicals of all other periods of issue than daily were $27,658,331, representing the income derived from the yearly issue of 28,213,291 papers and periodicals printed. The total receipts were therefore $49,872,768, a sum considerably less than that actually paid out by the people of the United States in the census year for their periodical reading matter. The American public contributes nearly as large a sum to the support of the newspaper and periodical press in the way of advertisements as for the papers themselves.

Comparative receipts from advertisements and subscriptions.

By referring to Table IV it will be seen that the proportion paid for subscriptions and for advertisements varies in the several states, and as between the daily newspapers and all other classes of periodicals; but in the main the figures hover closely to the even proportions. It is noticeable that the percentage of receipts from advertising averages somewhat higher for daily papers in the western than in the eastern states, and particularly in the territories, where the sparseness of population reduces the volume of circulation in a slightly larger ratio than it does the price charged for advertising.

Averaging of advertising receipts misleading.

Nature of advertising.

Attention is directed to the fact that the averaging of advertising receipts is misleading, because of the great disparity in the advertising patronage of different publications in the same localities. Thus, in the making of the average for publications other than daily, many periodicals appear which print no advertisements at all. Business of this kind runs in certain channels, which accord with the public judgment of the value to be received from the expenditure involved. The value of an advertisement to an advertiser depends not more upon the number of persons who are likely to read it than upon the supposed character, occupation, or wants of those readers. It long since became an accepted rule that advertising rates may vary in proportion as the circulation of the journal is large or small, and that journals which circulate chiefly among a particular class of people, or among people engaged in a particular line of business, may secure higher rates from that line of advertisers accordingly.

## THE DEVELOPMENT OF NEWSPAPER ADVERTISING.

The income-tax on advertisements.

There are no statistics in previous censuses which afford a basis for comparison with those now given as to the receipts of the newspaper press from either of its two sources of revenue. Some indication of the great increase in the value of newspaper advertising may be gained from a comparison of the figures now given with those obtained from the income tax on advertisements in the years 1863, 1864, 1865, 1866, and 1867. The tax was imposed at the rate of 3 per cent., and the income derived by the government from this source in the several years was as follows:

| | |
|---|---|
| 1863 | $40,628 59 |
| 1864 | 133,315 11 |
| 1865 | 227,530 21 |
| 1866 | $290,605 31 |
| 1867 | 288,009 80 |

In 1867 the tax paid on advertisements was on receipts which amounted to $9,600,323, as against receipts aggregating $39,136,306 in 1880. By way of indicating the growth in advertising patronage in the several states the following table has been prepared from the returns of the internal-revenue office for 1867 and the returns to the Tenth Census:

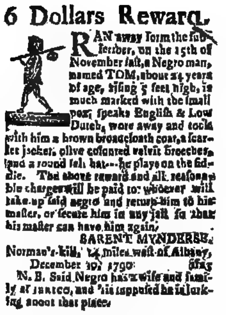
| States and Territories. | 1867. | 1880. |
|---|---|---|
| Alabama | $52, 819 33⅓ | $220, 665 |
| Arizona | | 58, 000 |
| Arkansas | | 182, 201 |
| California | 340, 336 00 | 2, 150, 917 |
| Colorado | | 567, 442 |
| Connecticut | 80, 717 00 | 460, 070 |
| Dakota | | 128, 026 |
| Delaware | 1, 448 00 | 91, 983 |
| District of Columbia | 164, 170 33⅓ | 225, 928 |
| Florida | | 66, 659 |
| Georgia | 35, 017 00 | 468, 511 |
| Idaho | | 19, 190 |
| Illinois | 526, 871 33⅓ | 3, 179, 954 |
| Indiana | 48, 244 00 | 1, 057, 688 |
| Indian territory | | 2, 990 |
| Iowa | 22, 716 33⅓ | 1, 150, 806 |
| Kansas | | 591, 723 |
| Kentucky | 199, 990 33⅓ | 671, 884 |
| Louisiana | 458, 061 66⅔ | 617, 262 |
| Maine | 45, 454 33⅓ | 214, 394 |
| Maryland | 229, 964 33⅓ | 859, 847 |
| Massachusetts | 839, 990 66⅔ | 2, 512, 522 |
| Michigan | 105, 836 66⅔ | 1, 002, 092 |
| Minnesota | 37, 228 00 | 524, 540 |
| Mississippi | | 211, 934 |
| Missouri | $449, 015 00 | $1, 710, 241 |
| Montana | | 84, 130 |
| Nebraska | | 391, 825 |
| Nevada | | 215, 139 |
| New Hampshire | 23, 546 00 | 179, 015 |
| New Jersey | 46, 187 33⅓ | 694, 157 |
| New Mexico | | 35, 883 |
| New York | 3, 318, 415 66⅔ | 8, 674, 173 |
| North Carolina | | 178, 324 |
| Ohio | 687, 153 66⅔ | 2, 460, 642 |
| Oregon | 28, 494 33⅓ | 177, 095 |
| Pennsylvania | 1, 311, 456 33⅓ | 4, 218, 770 |
| Rhode Island | 64 525 00 | 244, 155 |
| South Carolina | 100, 767 66⅔ | 145, 907 |
| Tennessee | 175, 657 00 | 373, 450 |
| Texas | | 570, 089 |
| Utah | 3, 069 00 | 81, 270 |
| Vermont | 5, 451 00 | 102, 619 |
| Virginia | 77, 754 00 | 356, 204 |
| Washington | | 48, 840 |
| West Virginia | 22, 344 00 | 169, 280 |
| Wisconsin | 97, 622 00 | 754, 920 |
| Wyoming | | 32, 950 |
| Total | 9, 600, 323 33⅓ | 39, 136, 306 |

Growth of newspaper advertising.

The defective character of the internal-revenue returns is sufficiently evident from an inspection of the above figures; and the comparison, while it is the best that can be made, does not give accurate indication of the growth of this source of newspaper revenue. The increase has, however, been sufficiently large to excite attention, and it speaks for the increasing confidence of the American business public in the utility of printers' ink. Another great aggregate of money, not, however, as large as this, is expended every year in the printing of advertising circulars and hand-bills for gratuitous distribution and posting. Various attempts have been made at different times to estimate the actual number of newspaper advertisements published within a given period, but the inutility of such an inquiry has deterred from any attempt in that direction, and no accurate calculation can be based upon the aggregate of cost. The advertisements inserted vary in price all the way from five cents for one-line advertisements in country newspapers to enormous contracts, for a longer or shorter period, at prices varying from $100 to many thousands of dollars. The New York *Herald* has stated that the charge for a column advertisement on its fifth page for one year is $109,500, and single advertisers have been known in certain instances to make contracts involving the expenditure of half a million dollars in advertising in a year. The following statement of the number of advertisements inserted in the Sunday issues of five New York papers on a single day during the census year will give an indication of the variety and extent of the individual patrons of this department of the newspapers:

The cost of newspaper advertising.

| Papers. | Number of columns of advertisements. | Number of advertisements. | Average per column. |
|---|---|---|---|
| Times | 22 | 570 | 26 |
| Sun | 10½ | 352 | 33½ |
| World | 14½ | 443 | 30½ |
| Tribune | 13 | 356 | 27 |
| Herald | 92 | 4,229 | 46 |



6 Dollars Reward.

RAN away from the ſubſcriber, on the 15th of November laſt, a Negro man, named TOM, about 24 years of age, riſing 5 feet high, is much marked with the ſmall pox; ſpeaks Engliſh & Low Dutch, wore away and took with him a brown broadcloath coat, a ſcarlet jacket, olive coloured velvet breeches, and a round felt hat---he plays on the fiddle. The above reward and all reaſonable charges will be paid to whoever will take up ſaid negro and return him to his maſter, or ſecure him in any jail ſo that his maſter can have him again.

BARENT MYNDERSE.

Norman's-kill, 14 miles weſt of Albany, December 10, 1790. 6ſtf

N. B. Said Negro has a wife and family at Janeco, and 'tis ſuppoſed he is lurking about that place.

FIG. 1.

The business of newspaper advertising has been in a process of evolution from the founding of the American press—a process still in continuance. Its simplest form was that which first appeared: the few short advertisements of the colonial press, of wants, of runaway slaves, of ships to sail, and the like. Competition between advertisers was to come with the competition between newspapers. It had begun before the revolution in the modest recital by merchants of the character of their goods. As this advertising increased it gradually sought out unique methods of attracting attention, such as rude illustrations with wood-cuts of ships, houses, horses, stage-coaches, animals, and frequent allegorical pictures, such as cuts of the Muses. The cut shown in the illustration (Fig. 1), was very frequently seen in northern newspapers about the beginning of the century. With these illustrations came type display, the use of large and unusual letters to rivet attention, and finally the resort to every variety of linguistic ingenuity in the wording of the announcement to be made. The American press has not yet outlived either of these advertising characteristics, which have reached in the United States a fecundity of form and manifestation undreamed of in the press of other countries. The free use of stereotype plates, and the cheapness with which they can be indefinitely duplicated, has been powerful to spread the pictorial advertising and to develop the use of monstrosities in the shape of enormous and suggestive cuts, which defy the requirements of the typographic art and of journalistic taste. But there are many American journals, both daily and weekly, which have long refused to laden their columns with these devices of the advertiser to get undue advantage over fellow advertisers. They have refused on the two grounds that they are in defiance of the requirements of typography and a detriment to the interests of other advertisers. As a rule, these same journals refuse any extravagant or grotesque display of advertisements. They are the only class of American newspapers which can be compared in typographic character to the average newspaper, daily or weekly, published in England, and it is to be regretted that their number is not larger. They are steadily increasing, however, and this rule in regard to advertisements already applies to practically all the better class of newspapers which have become independent in their financial condition.

Evolution of newspaper advertising.

Objectionable advertising methods.

Arbitrary circumstances frequently determine the direction of special advertising. Thus, in New York city, at one time the auctioneers, who were appointed for partisan considerations, were in the habit of sending all their advertisements to a particular paper of their political faith, where the public quickly learned to find them. In the course of time the journal in question ceased to be of that particular party, and the auctioneers ceased to be appointed by law; but the same journal continued nevertheless to have a practical monopoly of the auction advertisements, because to that paper all those who bought or sold at auctions were looking for this class of information. In 1843 the New York *Courier and Enquirer* was benefited by an official order requiring all notices of proceedings in bankruptcy under the bankrupt act of 1842 to be printed in its columns, nominally on the ground that it had the largest circulation, although in reality there were at that time at least two New York dailies each with a circulation of more than double that of the *Courier and Enquirer*. The struggle for the official advertising is constant and intense in many cities and counties, and the partisan considerations which frequently determine its award are one of the chief reasons of the close connection that has always existed between parties and the press in this country, as well as an obstacle to the development of an independent and self-reliant journalism.

Arbitrary determination of advertising values.

At one time the London daily press was distinguished for its different lines of advertisements, of which Stuart wrote: "In 1802 and afterward particular newspapers were known to possess particular classes of advertisements: the *Morning Post*, horses and carriages; the *Public Ledger*, shipping and sales of wholesale foreign merchandise; the *Morning Herald* and *Times*, auctioneers; the *Morning Chronicle*, books." (*a*) There is in London to-day a paper of immense dimensions, and believed to be unique, which is wholly and exclusively devoted to the publication of cheap advertisements about individual wants, sale and barter, etc., and this paper, with a trifling circulation, secures the greater part of that class of cheap advertising in London, chiefly because it has come to be known as the natural place to look for it.

## THE COST OF ADVERTISING.

Cost of advertising.

Colonial advertising rates.

The cost of advertising varies with all these varying conditions. In the colonial press it was rarely that a newspaper made any publication of advertising rates, it being customary to announce, instead, that advertisements would be "taken in" at "reasonable rates" or a "moderate price". The inference is fair that the early printers were glad to get what they could for this kind of business, and it is certain that no such thing as a fixed standard of advertising rates was ever arrived at among them. Some illustrations may be given: The *Virginia Gazette* announced that "advertisements of moderate length would be inserted for 3 shillings the first week and 2 shillings each week after". The *Maryland Gazette* promised to publish "advertisements of moderate length for 5 shillings the first week and 1 shilling each time after, and long ones in proportion". The *New Jersey Gazette*, as late as 1777, inserted "advertisements of moderate length for 7 shillings 6 pence for the first week, 2 shillings 6 pence for every continuance, and long ones in proportion". Only in Philadelphia before the revolution was advertising a source of considerable profit to publishers. In both Bradford's and Franklin's papers it became such. It was a long struggle in later years to bring it to a point of large remuneration. Space for advertisements in the "blanket sheets" of the earlier daily journalism of New York city was not only sold at very low rates, but was often given away. Thirty-two to forty dollars per year, with a copy of the paper thrown in, would secure for the advertiser as much space as he demanded, (*b*) and advertisements would often appear many days after they were out of date. As the volume of advertisements increased prices increased with them, and the existing system of classification in publication gradually grew up.

Advertising agencies.

The business of newspaper advertising has grown to be so enormous that its negotiation has become a separate and profitable business. There are more than fifty firms in the United States engaged in the advertising-agency business, and these agencies secure a basis of discount from the regular rates of many newspapers all over the country. With this advantage they are able to negotiate the business of large and systematic advertisers to the profit of the latter as well as of themselves, and frequently carry out contracts involving an expenditure of a million dollars in printers' ink. I have elsewhere described the manner and extent to which the business of co-operative newspaper printing is connected with this system of extended advertising. (*c*)

Considerations governing value of newspaper advertising.

The value of an advertisement to the party interested depends upon the number and character of the persons whose eyes it is likely to reach through the chosen medium, and rates of charges are determined in accordance with the reputed circulation of the several journals. A certain class of trade journals may charge an increased rate, not proportionate to their actual circulation, because they reach a particular class of readers, interested in the trade to which the journal is devoted. Rates are also adjusted so that the advertiser for a long period of time gets the benefit of a regular discount on each separate insertion. Different prices are charged for insertion in different portions of the paper, the rate varying according to the conspicuousness of the position assigned. The willingness of advertisers to accept all the advantages which may accrue in this manner has led to a very general habit among journals of a certain class of selling any portion of the paper, including the regular news columns, and not infrequently the editorial

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*a* Hunt's *Fourth Estate*, vol. ii, p. 118.

*b* Hudson's *History of Journalism*, p. 408.

*c* It was under the auspices of these advertising agencies that the publication of newspaper directories began in the United States. The first known publication of this kind in the United States was *The Newspaper Record*, containing a complete list of newspapers and periodicals in the United States, Canadas, and Great Britain, by Lay & Brother, Philadelphia, 1856. In 1846 C. Mitchell began in London the publication of his *Newspaper Directory of Great Britain*, which has continued annually ever since. In 1869 George P. Rowell & Co., of New York, began the publication of the *American Newspaper Directory*, the first regular publication of the kind in the United States, and they have since continued it annually. S. M. Pettengill & Co., New York, have published several annual editions of a *Newspaper Directory and Advertisers' Hand-Book*. H. P. Hubbard, of New Haven, Connecticut, began in 1879 the publication of Hubbard's *Right-Hand Record and Ready Reference*, being a directory of United States and Canadian newspapers, with their circulation, the population of the towns in which published, etc. In 1881 Mr. Hubbard greatly enlarged and improved his directory, including in it carefully collected statistics of all the newspapers published in the world. N. W. Ayer & Son, Philadelphia, began in 1880 *The American Newspaper Annual*, and C. A. Cook & Co., Chicago, *The United States Newspaper Directory*. There are a number of minor publications of like character in the United States. The special agent of the Census Office in charge of the statistics of the press is under obligation for much information and many courtesies to Mr. H. P. Hubbard, of New Haven, and George P. Rowell & Co., New York.

indorsement, for a price. This habit is recognized as one of the distinct evils which detract from the otherwise high character of the American newspapers, and it is not tolerated in the offices of prosperous and wealthy journals, which occupy a position that enables them to dictate terms to their patrons, or in the offices of many smaller establishments, whose proprietors prefer the slightly smaller gain to the imputation of willingness to sell their columns and their opinions for money.

## THE PRICES OF NEWSPAPERS.

Variable prices of newspapers.

The six-penny blanket sheets.

The prices at which newspapers are published in the United States vary in accordance with certain conditions which are coming to be well defined, there having been marked variations since they first became a common institution. When they reached the point where they could be considered profitable establishments they were, as a rule, sold for 6 cents per copy, or $10 per year. This was the case with the old blanket sheets that preceded the newspapers of the present sizes and shapes in the metropolis, such as the *Morning Courier*, afterward the well-known *Courier and Enquirer* (which passed into the *World* by absorption in 1861), and the *Journal of Commerce*, still in existence. Both of these papers were established in 1827, and after a while came to be regarded as the leading dailies of the metropolis, their circulation, which was regarded as large for that time, varying between 4,000 and 5,000 daily. They were folio sheets, 24 by 35 inches at first, and afterward 35 by 59 inches. In 1850 the *Courier and Enquirer* published a sheet which contained 1,881 square inches, and in 1853 the *Journal of Commerce* reached a size of 2,057 square inches. Both journals boasted that they published the largest papers then printed in the world, and a calculation has been made which shows that either one of them at that time printed nearly half as much more reading and advertising matter, measured by ems, as the London *Times*. The daily composition on one of these "blanket" sheets, as they were appropriately called, often exceeded 700,000 ems—a large composition for one of the most enterprising newspapers of the present day. These journals were known as the "six-penny" papers, and the evening papers printed in New York at the time were sold at the same price. There is no question that, in consideration of the amount of reading matter they contained, they were cheap papers for the money; but they were not cheap in the other sense, and their contents were not of a kind to attract the general public to their reading. Being largely given over to advertisements, mainly contracted for by the year, the reading matter was adapted to the mercantile taste of the metropolis, as their circulations were confined very closely to the counting-rooms, and the great average public did not read them.

## THE PENNY PRESS.

The penny press.

English penny papers

The New York *Sun* established.

It was the realization of this fact, and the belief that it was possible to print a paper which should be cheap enough to find purchasers among the laboring classes and contain reading matter enough to make it worth their while to buy, without at the same time costing more than its income, which led to the conception of the penny newspaper. The first of these in New York was the *Morning Post*, which was established January 1, 1833, by Horatio David Shepard, with Horace Greeley and Francis V. Story as partners, printers, and publishers. The penny newspaper had been previously undertaken in England, where the *Orange Postman*, which sold for one cent, was founded as early as 1706. At the time of its first establishment in New York city the penny newspaper was beginning to make decided headway against the larger and expensive London dailies. The London *Illustrated Penny Magazine*, which had been started in 1830, was meeting with a phenomenal success, although it had none of the characteristics of a newspaper, and it was even imported and sold in large quantities in New York city. One or two spasmodic efforts to start penny dailies had also been made in Boston and Philadelphia previous to the appearance of the *Morning Post* in New York, but both efforts speedily failed. (*a*) Such, indeed, was the fate which overtook the *Morning Post*, whose projectors and partners combined could only gather together capital enough to keep it afloat for about a month. In September of the same year the *Sun* was established by Benjamin H. Day, (*b*) a practical printer, who promised in his prospectus to

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*a* As late as 1845, when the *Traveller*, a two-cent daily, first appeared, all the Boston dailies were six-cent papers, and none were sold by newsboys on the streets.

*b* At a banquet in New York, in 1851, Mr. Day said, in response to a toast:

"It is true I originated the *Sun*, the first penny newspaper in America, and, as far as I have known, the first in the world; but I have always considered the circumstance as more the result of accident than of any superior sagacity of mine. It was in 1832 that I projected the enterprise, during the first cholera, when my business as a job printer scarcely afforded a living. I must say I had very little faith in its success at that time, and from various causes it was put off. In August, 1833, I finally made up my mind to venture the experiment, and I issued the first number of the *Sun* September 3. It is not necessary to speak of the wonderful success of the paper. At the end of three years the difficulty of striking off the large edition on a double-cylinder press in the time usually allowed to daily newspapers was very great. In 1835 I introduced steam-power, now so necessary an appendage to almost every newspaper office. At that time all the Napier presses in the city were turned by crank-men, and as the *Sun* was the only daily newspaper of large circulation, so it seemed to be the only establishment where steam was really indispensable. But even this great aid to the speed of the Napier machines did not keep up with the increasing circulation of the *Sun*. Constant and vexatious complaints of the late delivery could not be avoided up to the time that I left the establishment and until the invention of the press which permitted the locking of the type upon the cylinder."

publish all the news of the day at the price of one penny per copy, or $3 a year, and he kept his promise. The first number was a folio of twelve columns, with about 10 inches to the column, its contents being largely confined to brief accounts of local happenings. It was not at the beginning edited with special ability, tact, or expenditure, and its success, which dated from the first issue, may therefore be said to be due to the fact that it had discovered a positive want on the part of the people, which it did much to meet. The success of the *Sun* led to the founding of numerous other penny papers, so that in 1835 the dailies of that city consisted of seven six-penny morning papers, four six-penny evening papers, and five penny papers—fifteen in all. (*a*) The *Herald* was established on May 6 in that year by James Gordon Bennett, (*b*) and thereafter the *Sun* and *Herald* ran a race for the support of the masses. The *Sun* continued to be published at the rate of one cent a copy until the outbreak of the war, when the sudden increase in prices compelled the proprietors to increase the price to two cents a copy, where it has since remained.

New York daily press in 1835. The New York *Herald* established.

Since that time there have been a number of penny newspapers started in New York, one of which, the *Daily News*, now boasts of an enormous circulation, but the most of them have died. Beside the *Herald*, the *Tribune*, *Times*, and *World* began at one cent, but as these expanded in circulation and increased in resources they advanced their price to accord with their advancing value. Penny papers have been and are published in other large American cities; (*c*) but the tendency of the public, for an obvious reason, has been somewhat away from so cheap a journal. (*d*) The penny papers continue to be inferior to their higher-priced competitors in a degree which is hardly in proportion to the difference in price. They are small and poorly printed, and their news is meager; and such must, of necessity, continue to be the case, except where the circulation can be run up to a figure which none of them have yet been able to reach in this country.

Penny papers no longer most popular.

The two, three, and four cent papers, on the other hand, with their added revenue from sales, are able to publish journals which are not only typographically excellent, but contain a wide range of well-digested reading matter, and thus become marvels of cheapness, offering so much more for the money that the public generally comes to look upon the difference in price as of less importance. Four cents is now the ruling price for a daily newspaper in most of the larger cities of the United States, and it is rare in any eastern city that more than five cents per single copy is charged. Frequently in cities where one or more five-cent papers are published there may be found a three-cent paper existing in prosperity by their side. The annual subscription price of these papers varies from $6 to $10, and the average annual price of daily papers in the country has been found by this inquiry to be $7 27. (*e*)

The higher priced dailies.

The penny press had its origin in the energy and enterprise of practical printers, who were generally men without capital and without political connection. Their career has, as a rule, been a short one; for even in the earlier days of journalism it was the exception and not the rule when a metropolitan daily, started without capital, was able

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[a] The names of the New York dailies at this time were as follows:

Six-penny morning papers: New York *Gazette and General Advertiser*, *Mercantile Advertiser and New York Advocate*, New York *Daily Advertiser*, *Morning Courier and New York Enquirer*, New York *Journal of Commerce*, New York *Times*, *Business Reporter and Merchants' and Mechanics' Advertiser*. Six-penny evening papers: New York *Commercial Advertiser*, *Evening Post*, New York *American*, *Evening Star*. Penny papers: *Sun*, *Transcript*, *Man*, *Jeffersonian*.

[b] The first issue of the *Morning Herald*, "James Gordon Bennett & Co.," publishers, appeared in New York May 6, 1835, price one cent. It was a four-page paper, 30 by 24, and therefore not much larger than the ante-revolutionary papers. It contained four columns to the page, closely set in minion, and four of its sixteen columns were given over to advertisements, which the publishers announced their purpose of printing at the rate of $30 a year per square of 16 lines, or 50 cents for one insertion per square. In the modest editorial salutatory the editor declared his intention to print an independent newspaper for the masses with a prophetic quotation from *Ophelia*: "We know what we are, but know not what we may be." He added that "there are in this city at least 150,000 persons who glance over one or more newspapers every day. Only 42,000 daily sheets are issued to supply them. We have plenty of room, therefore, without jostling neighbors, rivals, or friends, to pick up at least 30,000 or 40,000 for the *Herald*, and leave something for others who come after us. By furnishing a daily paper for the low price of $3 per year, which may be taken for any shorter period at the same rate, and making it at the same time equal to any of the high-priced papers for intelligence, good taste, sagacity, and industry, we expect to reach this end".

In a notice of a directory just published the first *Herald* alludes to the fact that in New York "we have 35 daily papers, 16 of which in the city issue 17,000 large sheets daily and 25,000 small, the best large morning daily being the *Courier and Enquirer*, and the best small one the *Herald*, to say nothing of the good old wine of the *Star*" This first diminutive and unpretentious *Herald* contained, besides this directory notice, a column of European news from the steamer St. Andrew, from Cork, which arrived on the evening previous, and "brought dates to the 8th of April", nearly a month previous to the date of its publication. There were two or more columns of city intelligence, and the first and last pages were embellished with sketches, a poem or two, and other miscellaneous reading matter. The contrast between it and the earlier dailies was marked enough, but nothing like the comparison with a *Herald* of to-day.

[c] The first penny newspaper issued in Philadelphia was the *Daily Transcript*, commenced in 1835 by W. L. Drane & Co.—Colton.

[d] A conspicuous exception to this tendency is seen in the success which has attended the journalistic enterprises of the Scripps Publishing Company, of Detroit, Michigan. This company now publishes five penny newspapers, one in Detroit, established in 1873; one in Cleveland, Ohio, established in 1868; and one in each of the cities of Saint Louis, Missouri, Buffalo, New York, and Cincinnati, Ohio, which were established in the census year. By duplicating a large share of the special news supply of each to the other papers the publishers are able to largely reduce expenses. Several of the penny papers of the Scripps Company have attained large circulations.

[e] The prevailing price for a single copy of a daily paper in the territories and also in the Pacific states is 10 cents. The Eureka (Nevada) *Daily Leader* sells for 25 cents a copy; the Bodie (California) *Daily Free Press* for 12½ cents a copy. The weekly edition of the Bodie *Daily Standard-News* costs 25 cents a copy. The *Daily Courrier de San Francisco* (French) has a subscription price of $24 a year; the weekly edition, $10; the semi-monthly edition, $6. The weekly edition is sold at 50 cents a copy. The subscription price of the Helena (Montana) *Daily Independent* is $24 a year.

to create for itself a foothold. When they succeeded, success brought with it the ambition to enlarge the scope and the usefulness of the paper, and an increase in the price was the natural consequence. The tendency in American daily journalism is not toward the penny press, for the self-evident reason that all journals are so cheap that the poorer one, at a less price than the one very much better, cannot expect the patronage accorded them at the time when they entered a field occupied exclusively by high-priced journals, which were also ill adapted to popular reading.

Present tendencies as to price.

## THE INFLUENCE OF THE PENNY PRESS.

The service of the penny press to journalism.

Independent journalism in the United States.

But the American penny press has served other good purposes beside bringing down the average cost of the newspaper; and it was a natural consequence of the character of the men who generally founded them, and of the surrounding circumstances, that these papers were not identified with political organizations. Growing in strength, they maintained and fortified their independence. Up to the time of their appearance the daily press of the United States had been entirely a partisan press, all of the successful journals being warmly enlisted in the cause of one or the other of the existing parties, as they had been since the adoption of the federal Constitution. The penny newspaper subordinated politics from the start, because, in the first place, its founders were not politicians and had no political connections, and, in the second place, they expected to find their readers among the poorer classes of all political parties—the men and women who wanted to know what the news of the day was, and wanted to get it in as cheap a form as possible. It is an undoubted fact, as asserted by Frederick Hudson in his *History of American Journalism*, that when these new and dangerous engines of public opinion first made their appearance and began to be hawked through all the streets and by-ways of the great cities they met with the determined opposition of the professional politicians, who saw in them the leverage by which in time their firm grip upon the press of the country was to be unloosed. There was an interval of ten years, during which time, by the sheer force of its superior circulation, the penny press exerted the most powerful newspaper influence that was felt in the United States, and during this interval its beneficial influence was the most apparent. It taught the higher-priced papers that political connection was properly subordinated to the other and higher function of the public journal—the function of gathering and presenting the news as it is, without reference to its political or other effect upon friend or foe. The emancipation of the American press from the thralldom to party, under which it struggled for so many years—years in which its growth and usefulness seemed to stagnate—has not yet been accomplished to the degree that is desirable, but it has been fairly inaugurated, and even the avowedly partisan journals of the day which exert any considerable influence upon the public mind now regulate their loyalty to party by subordinating it to this higher function. For this great advance we are more indebted to the penny press than to any other cause.

Three results of penny papers.

Increased cost of publishing daily papers.

The advent of the penny press concluded the transition period in American journalism, and had three effects that are easily traceable: It increased the circulation, decreased the price of daily newspapers, and changed the character of the reading matter published. The most important of these effects was the cheapening of newspapers. The maximum price per copy of the daily papers in the smaller cities is now five cents, a figure which was settled upon during the civil war, when the cost of paper and the wages of labor went up enormously, followed by a universal increase in the subscription price of daily newspapers. With the exception thus occasioned the price of the larger dailies has been tending slightly downward, under the influence of the penny press, notwithstanding the fact that the character and cost of these journals have been constantly improving and increasing. Papers like the metropolitan dailies of to-day might undoubtedly be printed and sold at a profit for less money than is now received for them, but they are not likely to be, because of this constant irresistible tendency to an increase in the cost of producing them. Every year the ramifications of the news agencies become more extended, and the sums expended for editorial and reportorial service grow more generous. No metropolitan journal can long hold its own which permits its rivals to constantly and perceptibly excel it in the expenditure of money for the collection and presentation of news. The single item of telegraphic bills, which has been added to the cost of publishing a newspaper since the days of the blanket sheets and the founding of the first penny papers, has made a difference of quite one-sixth in the cost of publication of a representative paper, and in the meanwhile, and notably since the war, there has been a decrease in the cost of mechanical production.(*a*)

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*a* The penny press in England has developed to a degree and in directions unknown in the United States. Leaving newspapers out of the question, the weekly and monthly publications issued for a penny in London present one of the phenomena of the age, a great number of them attaining circulations almost fabulous. It is no exaggeration to say that between five and six millions of this class of publications are circulated in London alone every week. Many of these journals are of a semi-religious character, like the *Christian World*, published twice a week, with a very large circulation, and consequently in great favor with advertisers; *The Christian*, *The Christian Age*, *Christian Globe*, and *Christian Union*. Francis Hitchman states (*MacMillan's Magazine*, March, 1881) that eight of these semi-religious penny periodicals published in London enjoy between them an average circulation of between a million and a quarter and a million and a half copies a week. One of the evidences of their great circulation is the large number of costly advertisements they contain. Of the purely secular penny press of London, the most successful specimens are *The Family Herald*, founded in 1844; *The London Journal*, founded in 1846; *The London Reader*, founded in 1864, and *Bow Bells*; all of which closely resemble Robert Bonner's New York *Ledger* in contents and character, and are remarkably successful. Literature for boys is an important and not commendable feature of the London penny press, fifteen papers of this class being published in London every week, with a total circulation of a million and a half copies.

## THE TENDENCY TO INCREASED EXPENSE IN DAILY NEWSPAPERS.

Whitelaw Reid on the increasing cost of publishing a daily newspaper.

On this point of the comparative cost of printing and publishing a newspaper in accordance with the modern expectations some valuable data are given in an address delivered by Whitelaw Reid, of the New York *Tribune*, in 1879. Mr. Reid directs attention, first, to the greater cheapness with which printing paper is supplied, to the reduced telegraphic rates, to the more perfect machinery, dispensing with the services of many men, and to the larger profits from increased circulation and the corresponding increase in the value and cost of advertising, as causes which naturally tend, under the constant pressure of strong competition, to force down the price of newspapers to a point still cheaper than at present, the present price not being so cheap, on the average, as that which prevailed before the war, when paper cost more than now and machinery was far less perfect. On the other hand, there is to be considered, first of all, the constant tendency to increase in the amount of reading matter of all kinds daily expected and furnished, which drives journals into the constant publication of supplements, extras, double sheets, quadruple sheets, and for the sum of three or four pennies supplies the reader with an amount of reading matter equivalent to the contents of a thick book, costing one dollar or more, and collected and printed at a cost tenfold what the book's contents cost. In the second place, it is to be noted that the profits of newspapers do not increase in the same ratio as the circulation, especially in the case of those which devote large portions of their space to advertisements, which bring so much profit, and no more, whether the number of copies printed on a certain day is 10,000 more or 10,000 less than on a certain other day. In the third place, and it is the real consideration in the case, the actual increase in the cost of preparing the contents of a great newspaper of this day renders a reduction in the price at which they are furnished to subscribers out of the question. In illustration of this fact, Mr. Reid supplies in juxtaposition the comparative cost of publishing the New York *Tribune* in 1859 and in 1879. In 1859 the total outlay for news, editing, type-setting, printing, and publishing, including the accounts of the editorial department, composing-room, press-room, publishers' department, correspondence, and telegraph, was $130,198. In 1879 the outlay of the year in the same departments was $377,510, or nearly three times greater. Comparing the years 1859 and 1874, Mr. Reid indicated the division of this increase between the several departments of the paper as follows: Telegraphic expenses of 1859, $11,679; of 1874, $51,728 88; composing-room bills of 1859, $42,256; of 1874, $125,883 28. The total expenses of the editorial department in 1859 were $43,125, including correspondence; in 1874 these same expenses had increased to $188,829 45. In reply to an anticipated criticism that this exhibit is deceptive, because receipts have increased proportionately with expenses, Mr. Reid continues:

Comparative cost of daily newspaper publication in 1859 and 1879.

> To this criticism the balance-sheet affords the answer. On a business of half a million in 1859, as a two-cent paper, the *Tribune* made a net profit of $86,000. At the beginning of 1879 we found that on a business of nearly three-quarters of a million, as a four-cent paper, it had made $85,588. The fluctuations in the interval had been at least sufficient to show that in a matter of such magnitude it was not wise to hunt for any more risks than we already had. In times of great excitement, presidential years and the like, the volume of business of course runs up. I have myself been able to report a net profit of $155,000 on a business of $974,000, and on the smaller business of $941,000 a profit of $171,049; and I have also had to report on a business of $925,465 a net loss of $96,690. Or, to rid the statement of figures, we have made $85,000 as a two-cent paper; have spent a half more, and made only the same sum as a four-cent paper. In the interval we have sometimes spent twice as much to make only twice as much, while at other times on a like expenditure we lost as much.

The cost of publishing the New York *Sun*.

The New York *Sun* in 1876 published a detailed statement of the current expenses of its publication, which confirms and illustrates the conclusions reached by Mr. Reid. The number of persons then employed in that office as 249. The expenses of the establishment for the week ending March 11, 1876, were $15,817 17, the items of which were as follows: Editorial expenses, including salaries, telegrams, etc., $3,826 83; publication salaries, $429 51; mail-room, $197; composition, $1,486 91; stereotyping, $296; press-room salaries, $940 47; press-room expenses and supplies, $100; ink, $138 72; paper, $7,074 55; coal and gas, $176 50; steam-power, $70; postage, $330 68; general expenses, $750. Dividing this amount by seven, it gives a daily average of $2,259 59 as the outlay incurred for the direct benefit of every person purchasing the paper, who secures the results of it all for two cents.

## PRICES AND CHARACTERISTICS OF WEEKLY PAPERS.

Low prices of weekly newspapers.

The price at which weekly papers are furnished in the United States has varied very little since the days of the colonial press. The early rates established were low enough to prevent their proprietors from growing rich, and they have been kept low enough since to accomplish the same purpose. The standard price for an average weekly newspaper may be said to be $2, although the average for this class of journals will be found to be slightly lower. (*a*) The country weeklies suffer severely from the competition of the weekly editions of the daily papers. The latter, made up from the type which is set from day

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*a* There is no such uniformity in the price of the weekly provincial press of England as in that of the United States. Like the English dailies, they are generally sold at a certain price per copy, instead of at an annual subscription price, this price varying from 4*d.* (and at rare intervals 5*d.*) to 3½*d.*, 3*d.*, 2*d.*, and 1*d.*, with an occasional half-penny sheet. Taking 2*d.* as a fair average price, their annual cost would be $2 08 per annum, or slightly above the average for the United States ($1 75). Of late years the steady tendency of the weekly English press has been toward a lower price per copy.

to day for the daily edition and selected and condensed throughout the week, involve an additional expense upon the publishers of but little more than the cost of the white paper used and the press-work and ink. They are therefore able to furnish them at a comparatively greater profit than that which can be obtained by the country newspaper proprietor, who must set and pay for all the matter he prints in his one weekly edition. The publisher of the weekly edition of the daily paper can also furnish his readers with a much larger and more varied supply of reading matter at a figure that enables him to make money, while his rural competitor, if he furnished the same amount, would find it necessary to speedily suspend. These weekly editions of the daily papers are frequently supplied at the rate of $1 50 per annum, and in some cases as low as $1 a year, and they naturally attain to large and widely diffused circulations. There are several of these editions which circulate thousands of copies in excess of the daily editions and penetrate into nearly all the states of the Union. These papers can be sold at a price but little in excess of the actual cost of the white paper used upon them, the proprietors relying for ample profit upon the money obtained for advertisements inserted therein. Under the increasing competition thus engendered the price of the country weeklies has a tendency to decline, while their character does not, as a rule, improve in the same degree that has been noted in the daily newspapers of the United States.

Weekly editions of daily newspapers.

Closer competition in weekly journalism.

## CAUSES OF THE OVERDEVELOPMENT OF THE WEEKLY PRESS.

The local newspaper as it is frequently seen in the United States presents the most primitive aspect of journalism. Following fast on the heels of the railroad into the heart of the wilderness, with a sublime faith in the conquering power of printers' ink which challenges admiration, it welcomes fields of industry not more promising or less painful than those which found the fathers of American journalism ready to bear and to suffer all things. Hundreds of newspapers report to the census a circulation of 500 or under, at from $1 50 to $2 each, and an advertising patronage in proportion. They are hardly to be reckoned among the tangible evidences of wealth, springing up in a night-time, and being liable to disappear as quickly. During the brief period of this investigation some newspapers which existed when it began had ceased to exist before its conclusion. They are frequently established by men of a migratory disposition, who sound a town, and, after a few months of unsuccessful endeavor, pack their types and press and appear with a new name and a cheerful flourish in some other locality equally unpromising. (*a*) They are the *ignis fatuus* of the press, and elude the most careful attempt to give them a local habitation and a name in census reports. This migratory tendency is especially noticeable in the frontier towns of the West, and the territories naturally present more instances of this tendency than any single state. Yet it is a fact worthy of record that the oldest settled communities, which in other respects offer few signs of variation from one census to another, are subject to this spasmodic journalism. New papers are constantly appearing in the little towns of New England and the middle states, and as constantly disappearing. Sometimes they live, and after a hard struggle, and by virtue of the most pinching economy, become an element of value in the community and a source of meager livelihood to a proprietor who is willing to be man of all work. Three causes tempt to such ventures. First among the causes is to be reckoned politics, every new political movement hatching its brood of papers. The most recent illustration is afforded by the greenback party, upward of a thousand papers being established throughout the country to advocate the principles of that party, more than half of which died before they could establish a foothold in this report, being born of a temporary flurry and dying with its subsidence. The extent to which journalism is dependent upon politics in this country may be judged from the fact that the decadence of the greenback movement carried down a large proportion of its press organs. If it had flourished longer, their lives would have been longer; if it had become one of the great and permanent controlling forces in this country, a large proportion of its press would have likewise become a permanent force. From the revolution down newspapers have flourished or languished according to the same rule.

Causes of overdevelopment.

The political cause.

A second cause of this overdevelopment is the prevalent belief that newspaper publishing is an easy method of making a livelihood, and the resultant disposition of men unfitted by training and qualification to enter it. A large portion of the class of newspapers we are now considering is owned and managed by men whose sole education has been picked up at the case as apprentices or journeymen printers, and who bring to their calling only this mechanical training. Some of the schedules returned from newspaper offices in response to the inquiries of the special agent reveal a degree of ignorance over the publisher's own signature which must largely affect the character and influence of the paper whose columns are thus presided over. The comparative cheapness of the materials necessary to start a newspaper, and the fact that in this class of journals the mechanical training is indispensable, has led to the establishment of many papers which cultivate barren fields with dull instruments. An ambition altogether laudable is behind these enterprises, and the early history of the press in all parts of the country is filled with instances of beginnings equally humble

Lack of educational requirement.

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*a* Samuel Pike, who established the Peru *Forester* at Peru, Indiana, is said to have established more newspapers than any other man in the United States.

Contrasts presented in American journalism.

and unpropitious. The contrast between the great metropolitan journals of to-day, with their large and trained staffs, their wonderful mechanical facilities, their immense resources, and these struggling, starving, ragged-edged sheets offers the most inspiring point of view from which to estimate the achievements and the possibilities of the American newspaper press. The United States shows the primitive and the fully-developed journalism in closest juxtaposition, and in the humbler and the narrower field the work done and the influence exercised are often worthy to be ranked with those of other more fortunate exponents of a powerful and potent press.

A third cause of the prolific appearance of the local newspaper is the influence of the device known as co-operative publication.

### THE CO-OPERATIVE PAPERS.

Contrivances for cheapening newspaper publication.

The constant tendency in daily newspapers, especially in the large cities, to an increase in regular expenditures is a conspicuous feature of American journalism, which is offset, on the other hand, by the many contrivances for cheapening the publication of weekly newspapers, and thus rapidly multiplying their number, that of the co-operative printing companies being the most noticeable. This has grown to be so striking a feature of our newspaper press that it has seemed wise to gather a special line of statistics relating to it.

The co-operative printing companies, statistics of.

In the return made to the Census Office on the special schedule sent them twenty-one of these establishments reported that 3,238 periodicals were supplied with half-printed sheets (3,089 weeklies and 149 of other periods of issue, including 32 daily papers), employing in their manufacture 533 males and 29 females, and paying out annually in wages $286,147, an average of $13,626 to each establishment. These establishments reported the value of their annual product at $1,037,929, an average of $49,425 to each, and an aggregate of 2,976,000 ems of type set to each half sheet printed, an average of 141,714 ems. In their work they used 175,127 pounds of type, an average of 8,339 pounds to each establishment, and 64 presses, all of which were driven by steam. Eight of these establishments printed their half sheets from stereotyped plates, and thirteen printed directly from the type.

The plan of co-operative printing.

The business of printing co-operative sheets is simply the supplying to a variety of papers in different localities of a half-printed sheet to the number of their respective circulations, leaving to the home office the labor and expense of setting the type and doing the press-work of the other half. It has been estimated that the sum of $2,000,000 annually is saved to the publishers by this contrivance.

These co-operative papers are known among the printers as "patent insides" or "outsides", as the case may be. The establishments furnishing them buy their paper in large quantities, at prices which enable them to sell it again to the local offices, half printed, at a figure but little above what the cost of the white paper would be to the latter. The reading matter furnished on the half sheets being the same to all the offices supplied, the cost of type-setting is comparatively small. The size of these sheets varies, some of the larger houses printing half a dozen different sizes of folio and quarto sheets, to fit as many different presses. The chief profit to the co-operative printing-houses arises from the privilege of inserting a certain quantity of advertisements in the reading matter, for which they make contracts at advantageous rates, on the ground that the large number of copies printed for all the papers supplied makes it the cheapest kind of advertising.

Disadvantages of the system.

Circulation of co-operative papers.

The publisher who adopts the co-operative form surrenders all control over one-half of his paper. It being obvious that no one would do this who can make an advantageous use of that half by controlling it for his own business, it follows that the co-operative papers are invariably located in the small towns, or are the weaker competitors in the larger ones, and that their average circulation is limited. The figures given in the text are supplied by the co-operative establishments themselves, are printed just as supplied, and show an average circulation for these papers of 608 copies, which is considerably smaller than the average for the country. It does not speak well for the general prosperity of weekly journalism in the United States to find that no less than 3,238 of these papers use either the patent inside or the patent outside, their aggregate circulation being given at 2,066,922, which is over a million and a half copies per week less than that of the weekly papers—804 in number—connected with the daily press of the United States.

Increase in the number of co-operative papers.

Another fact brought out by this special inquiry is that the twenty-one co-operative printing firms, with a single exception, reported that there had been an increase in the number of newspapers supplied with half sheets in the census year over any previous year, the highest increase being 90 per cent., by an establishment which supplied 75 papers in the census year, and the lowest 5 per cent., by an establishment which supplied 425 papers weekly with 304,920 half-printed sheets.

Co-operative sheets in the western states.

A noticeable fact regarding these co-operative sheets is that no less than 70 per cent. of them are supplied to papers published in the western states, and all the percentage of increase in the census year was in the West, the states in which the largest number was supplied being Illinois, Iowa, Ohio, and New York. An examination of the papers themselves reveals the further fact that they are nearly all of comparatively recent date of establishment.

Origin of the system.

It is fair to infer, therefore, that this device for facilitating and cheapening the publication of newspapers has been an extremely important factor in the abnormal development of this class of journals. The first establishment of this kind of which I have been able to get any clew appeared in Milwaukee in 1864, and it was followed the next year by one in Chicago. The remaining establishments were all organized between 1870 and 1880, and the impetus they have contributed must be held in large part responsible for the remarkable increase in the number of newspapers between the two censuses of those years.

Combination newspapers.

Another somewhat similar device for cheapening the cost of printing the local newspaper was found to have come into much more general use than is supposed—that of printing one paper for two or more contiguous towns with a change of name and a substitution of several columns of local news of one town for that of the other in the different editions; and in this way one establishment frequently ekes out an income sufficient to maintain itself by drawing tribute from several small towns. There are some cases where as many as half a dozen of these local papers are furnished from one printing press, all of them alike except in the feature indicated. This method of publishing local sheets is quite as prevalent in the East as in the West, one instance being discovered where an office in Providence, Rhode Island, supplied the papers for towns located in three different states. Of the 279 local weeklies published in Massachusetts, 25 were not printed in the towns where they were published. Medway had two weekly newspapers, both of them printed elsewhere.

English origin of these devices.

The London co-operative houses.

Both of these methods of cheapening the cost of printing newspapers may be said to be of English origin, although the co-operative system has never developed there quite in the manner or to anything like the extent that it has in the United States. In London there are a number of establishments which carry on a large business of a kind practically unknown here. These establishments are known as "The Central Press", "The Central News," "The Provincial News Supply Association," "The London Associated Reporters," and so on. The first of them in date of origin is the Central Press, founded in 1863. This establishment early took advantage of the art of stereotyping by means of *papier maché* molds, and by this method produces as many stereotype copies of the matter prepared in its office as it can find customers for among the provincial newspapers. It employs a literary staff for the preparation of its news and miscellaneous reading matter, and possesses all the mechanical resources for preparing it directly for the press. By the middle of each day from ten to twelve columns of newspaper reading matter are written, selected, or condensed from the London morning papers, set in type, corrected, and stereotyped, and sent by the evening trains to customers in the provinces. The matter thus produced is made up to suit the requirements of the purchasers, and consists of one or more leading articles, a summary of the morning news, a column giving "the spirit of the press", a monetary article, a London letter, and occasionally book reviews, etc., and appears the next morning in half a dozen or more provincial papers, located in Newcastle, Plymouth, Hull, Manchester, etc.

This system of co-operation in the publishing of daily newspapers is thus far without any considerable imitation on this side of the water, and is not likely to have any, in this generation at least, owing to the greater distances which separate the daily newspaper towns. These London agencies also prepare in the same manner columns of news in stereotype for the weekly country journals, and this practice has developed into the supply of printed half sheets as it exists in this country. Mr. William Eglington, of Bartholomew Close, is credited with having originated this plan of partially printed sheets.

There are several similar establishments in the provincial cities of England, which do a large and profitable business, the principal of these being that of Tillotson & Sons, of Bolton, in Lancashire. This firm started the Bolton *Evening News* thirteen years ago at a half-penny, the first newspaper of the kind published in the United Kingdom; and to it must also be assigned the credit of originating the system of publishing several newspapers from the same types and press, of which mention has been made above regarding its success in the United States. Their combination newspaper is known as the Bolton *Weekly Journal* series, and is a set of half a dozen reprints of the same paper adapted to different localities within a small radius. (*a*)

Character of the co-operative papers.

While very few of the co-operative papers are in any sense a credit to the press of the country, it may be said of them that they are better for their localities than none at all, and that the co-operative features are the swaddling-clothes which healthy newspapers will in time outgrow, none of them preserving the patent outsides after they reach a point where they are able to do their own printing. It is notorious that among the weekly newspaper publishers which do not use the co-operative sheet there is a bitter feeling against it and a constant effort to dissuade from its use. They find them to be not only discreditable to the craft, but as having a tendency to create competition by cheapening publication in towns and villages where there is not legitimate room for such an increase. From this point of view the system has undoubtedly been vicious, enabling printers to run a newspaper as a mere adjunct for a small printing office, all the stock in which can be supplied for $500 or less. And they make a showing which is quite as discreditable from a literary

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[a] Mr. W. E. Baxter, of Lewes, proprietor of the *Sussex Agricultural Press*, was in 1872 the proprietor of no less than twenty-four of these papers, published in several counties, but all printed, wholly or in part, in Lewes.—Grant.

as from a mechanical point of view. While the co-operative papers number 3,238 in a total for the entire country of nearly 12,000, they do not represent one twenty-fifth of the earnings, and even less of the circulation; and it is therefore proper to set them altogether aside in any estimate of the real worth and character of the American press. They are a fashion of the day, and are due quite as much to the excessive advertising of the country as to anything else.

The American weekly press compared with the English.

To these causes may be attributed the continued failure of the weekly press of the United States to equal in character the same press of Great Britain. That it does not equal it will hardly be questioned by any one familiar with the average of these papers in the two countries. There is now in progress in England a perceptible decadence of the old-fashioned, high-priced, and ponderous weekly provincial newspaper which attained such power and prestige in the last half-century. It was published on the market day in the shire-town, and served its readers for a week, supplying them with a *résumé* of all the news of the previous seven days, and discussing the politics and diplomacy of the continent with considerable force and influence. The field of this peculiar type of journal has been largely circumscribed in England by the increasing facilities for bringing the daily papers of the provincial towns within easy reach of all parts of Great Britain. One of the most prosperous of these typical journals is the *Hereford Times and General Advertiser*, now in its forty-ninth year, the proprietors of which boast, not without reason, that "it is the largest newspaper published in the world". It is printed on two full sheets, covers sixteen pages of seven columns each, and is not unfrequently extended by gratuitous supplements from 112 to 126 columns per week. The paper has a large circulation, and, being published at the comparatively high price of 3½*d.*, is one of those papers which pass from hand to hand and from family to family throughout the whole of the extensive agricultural region of which Hereford is the center. Its advertisements are also a source of great profit. The circulation of papers of this type is fast becoming more limited, and their proprietors are often recognizing the fact by supplementing them with daily issues. Precisely such a paper as the *Hereford Times and General Advertiser* has never appeared in the United States, nor does it seem likely that it ever will, if indeed it continues in England.

Value of the weekly press.

Notwithstanding the disadvantages under which the weekly local newspaper labors in the United States, it has a firm hold upon the public esteem—a hold which certainly increases from year to year. The weekly edition of the metropolitan daily contains none of the local intelligence, so widely sought for everywhere, and the rurally-printed papers therefore make it a rule to devote the larger portion of their energies to the gathering of vicinity news, thus frequently attaining large circulations, even in localities that are promptly reached by the daily papers from neighboring cities. Their price is invariably lower than that which the same class of paper is able to command in the rural towns of Great Britain. As a rule, they are not as well printed as the English weekly journals, although there are some conspicuous exceptions.

The cost of the semi-weekly and tri-weekly papers of the United States varies more widely than that of the weeklies, the semi-weekly ranging in price from $2 50 to $4 per annum, and the tri-weekly from $3 to $5. For reasons indicated elsewhere in this report, neither class of papers is increasing in number or reaches a large average circulation.

## CONDITIONS GOVERNING THE VALUE OF NEWSPAPER PROPERTY.

The investment of capital in newspapers.

The conditions determining the value of newspaper property in the United States have already been hinted at in the discussion of the circumstances under which they are born, to live or to die. They have undergone a complete transformation since the colonial and post-revolutionary eras, and now widely differ in different localities and differing circumstances. It cannot be said that the newspaper field presents the same inducements for the investment of capital and brains as are offered by the generality of businesses in this country, immense sums of money having been frequently sunk in the attempt to establish journals which never paid expenses. Whether such investments are to ultimately prove profitable or not depends in a larger degree than ordinary upon the intelligence and tact displayed in the management of the establishment. The field for a new newspaper enterprise can often be created where no room for it seemed to exist by the superior enterprise and capacity of those engaged in it; but it is a fact, which long and frequent experience has demonstrated, that even under the most favorable circumstances, in communities where existing journals have the field, the establishment of a new daily newspaper is an undertaking requiring an outlay of money which will continue to be larger than the receipts for a period more or less indefinite. There are several cases among the daily journals reported in this census where large sums of money have been regularly sunk for many years in the unsuccessful effort to secure a remunerative hold upon public favor. In the large cities the inauguration of new newspaper enterprises is of such hazardous and doubtful success that these unsuccessful attempts are frequently carried along from year to year at annual loss, because suspension involves the loss of all the money already expended, while the existing nucleus, with its franchises and good-will, under more favorable circumstances, may some time be made a valuable property. It follows that what is known as the "good-will" of a newspaper establishment is a real and substantial capitalization, and that the value of successful newspaper property is immensely greater than the actual cost of supplying and maintaining the plant, and cannot even be accurately measured by the amount of dividends paid on the investment. Where newspaper property is capitalized for the formation of stock companies, as is now a common practice, due regard is paid to this value of an established good-will. The newspaper which is once successful in reaching a paying basis is not easily disturbed, and it may be said of it, as it may be said of any other undertaking, that ordinary business discretion and editorial intelligence will render it permanently valuable, just as the continued lack of these things will inevitably in the end work its ruin.

## THE PERSONAL AND POLITICAL ELEMENTS.

Personal and political elements of newspaper stability.

I am led to dwell on this point in view of the prevalent belief that there are personal and political elements which enter largely into the conditions of newspaper stability and must be considered in a reckoning of values. The case of Horace Greeley, whose individual personality had so much to do with the building up of the New York *Tribune*, is often cited as an illustration to this end. There have been numerous other instances of a similar character in the journalistic history of the United States, and among them may be enumerated Frank P. Blair, of the Washington *Globe;* Gales & Seaton, of the *National Intelligencer;* Henry J. Raymond, of the New York *Times;* James Gordon Bennett, of the New York *Herald;* and Samuel Bowles, of the Springfield *Republican.* The list might almost be extended to include the whole category of the early successful editors of the country, but the further we carry the illustrations the more convincing becomes the evidence that the personality of no one man is essential to the permanent success of newspaper enterprise. It is not to be denied that the personal element frequently adds to the popularity of such enterprises, as it is sometimes the chief explanation of their successful establishment in the beginning; but there is positively no case of a well managed newspaper declining in business success solely or chiefly because of the death or withdrawal of the man to whose personality or political writings it owed its original success. In testimony of this fact, the tendency in American journalism is more and more toward the impersonal editorial work. The great bulk of the editorial writing on all successful journals has long been done by clever and educated men, whose names are unknown to the readers, but whose services are none the less valuable on that account. So long as it is possible to hire the best brains for the conduct of a newspaper its cash value as a business enterprise can be maintained, because its intrinsic value as a public newspaper can also be maintained.

The tendency toward impersonal journalism.

Neither is the political connection essential to the value of the newspaper. In the smaller cities it is an important element, on account of the official patronage it naturally brings with it. We have seen that the early history of the American press is mainly the record of the establishment of newspaper organs for the several political parties, and this fact has led to the belief that success is dependent upon such a connection. The Washington newspapers, which were universally recognized as the personal organs of successive administrations, were cases of this kind, but their ultimate failure and disappearance were not so much due to the loss of executive patronage and favor as to the gradual loss of prestige through the springing up of journals as good or better in other parts of the country. It is not to be denied that many readers subscribe for a particular newspaper on account of its opinions; and it may be set down for a fundamental condition of newspaper success that its editorial management must be able to keep it in line with public opinion in some one of its marked developments if its income is to be maintained unimpaired. The journal whose management is able to do that is able to survive the fall of political parties and to outlive successive organizations whose interests it champions as they pass. The neutral paper will rarely, if ever, succeed in this country on any extended basis, but the independent journal is the one which, on the whole, presents in nearly every large city of the United States to-day the most conspicuous illustration of journalistic success. The explanation is simple: it is patronized not so much for its opinions as for its news, and in almost every instance its success may be ascribed directly to its superior enterprise in the collection and presentation of the news. Frequently it has been claimed otherwise, and the success of the independent journal in the United States has been instanced to prove that the larger portion of the average newspaper-reading community prefers a journal which is professedly not in alliance with any political party. But such a constituency is necessarily a meager one in every locality, however superior it may be in average intelligence. On the other hand, the constituency which will subscribe for the best and most enterprising journal, without reference to its political expressions, is limited only by the reading capacity of a community, as has been shown wherever the experiment has been fairly tried; and it is this fact which promises for American journalism its most important and valuable development in the future.

Value of the political connection.

The independent newspaper of to-day.

If these conclusions regarding the unimportance of the personal and political elements in the success of newspaper enterprises are correct, they eliminate from the conditions of newspaper success the two main causes which are supposed to make these conditions different from those governing in any and all other business enterprises. The man who manufactures the best goods, and who maintains from year to year the same standard, or a better one, suffers from competition only when his rivals equal or surpass the quality of his goods; and it is precisely so in journalism. The chief difference between this business and any other, in considering the conditions of success, resides in the circumstances which surround the original establishment of a newspaper. To these it is necessary to briefly recur. Few of the valuable newspaper properties in the United States are yet half a century old; still fewer newspapers have lived to be a century old, and more of them die than live. These are striking and conspicuous facts, but they

Conditions governing the successful establishment of daily newspapers.

are facts not more patent in the history of newspapers than of any other kind of business, and in reference to journalism have simply been more a matter of record and public notoriety. Notwithstanding the element of precariousness which, it must be admitted, enters very largely into newspaper establishments, the business is becoming more and more permanent in its character, and it may safely be assumed of most of our existing great daily journals that they have come to stay. Each year that passes renders them more invincible to the competition of new rivals, for it fortifies their hold upon an established and increasing constituency, renders more tangible what is known as their good-will, and continually crowds to the wall the weaker rivals. In striking testimony are such facts as these: In Boston, in 1846, there were fourteen daily papers published; now there are but eleven, and these eleven have a circulation five times greater than that of the fourteen papers of 1846. In 1840 eighteen daily papers were published in New York city, with an aggregate circulation of 60,000, and in the interval 110 new papers have been established; to-day there are but twenty-nine in existence there, but they enjoy an aggregate circulation of 765,743. In 1847, when the population of New Orleans was about 116,000, there were nine daily papers printed in that city; in 1870, when the population was 191,418, there were but five daily papers printed there; and in 1880, when the population had reached 216,090, there were ten daily papers, or one more than in 1847, and the aggregate of daily circulation had more than doubled. The history of daily journalism in nearly every large American city is a repetition of this record.

Increasing cost of publishing daily newspapers.

The cost of publishing a modern newspaper is constantly on the increase, and involves an outlay which can only be returned by large business. Thus the advantage of those which occupy the field continually becomes more secure. The temptation to invest the requisite amount of capital in a newspaper enterprise, which must crowd its way with slow and difficult steps against well-fortified opposition, is not the same as that which leads continually to like investments in ordinary business ventures, because the advance toward success cannot be made by gradual steps on a scale of expenditure proportionate to the ratio of income. To succeed, such an enterprise must at once present itself as the equal, if not the superior, of those it finds occupying the field, and must continue to hold its own in this respect until it has thoroughly convinced the constituency that slowly gathers around it of its permanent excellence, all the time submitting to a daily outgo largely in excess of the income. Capital is further deterred by the fact that even under these circumstances, where the ability to wait for pecuniary return is abundant, the experiment may in the end prove a failure and the capital sunk in the foundations be irretrievably lost.

## THE ORIGIN AND VALUE OF GREAT NEWSPAPERS.

Humble origin of great newspapers.

It is to be observed of most of the existing large newspaper establishments that they were not the outcome of the investment of capital, but sprang from small and obscure beginnings, after long reverses, attaining their present strength, influence, and value as the result of brains and energy rather than of money, and are legacies to this generation of the transitional era in American journalism, coming into successful being under the operation of circumstances which have disappeared in the modified conditions of a journalistic era no longer transitional. The New York *Herald*, *Sun*, and *Tribune*, and the Boston *Herald* are striking illustrations of this fact, while the New York *Times* and the Philadelphia *Times* are perhaps the most conspicuous instances to be found of the success of newspaper ventures which began with ample pecuniary support. The New York *Times* was conceived at a most fortunate moment, just as the transitional journalistic era had closed. It started under auspices which gave it immediate prestige, and none of the daily journals established in the metropolis since have been able to achieve a similar feat. The most noticeable later instance of the successful investment of large capital for the establishment of a daily newspaper is the case of the New York *Graphic*, whose projectors discovered a unique and attractive field for daily journalism, and may attribute the success of their enterprise to that fact. Since the year 1833 there have been no less than 146 (*a*) different daily

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*a* As a matter of record, the names of these journals, in the chronological order of their establishment, are appended:

| | |
|---|---|
| Morning Post | 1833 |
| Sun | 1833 |
| Jeffersonian | 1834 |
| Man | 1834 |
| Democratic Chronicle | 1834 |
| Transcript | 1834 |
| Morning Star | 1834 |
| Daily Bee | 1834 |
| Herald | 1835 |
| True Sun | 1835 |
| Serpent | 1835 |
| The Light | 1835 |
| Morning Star | 1836 |
| Express | 1836 |
| Union | 1836 |
| Democrat | 1836 |
| New Era | 1836 |
| Rough Hewer | 1836 |
| Daily Whig | 1837 |
| Evening Chronicle | 1837 |
| New Times | 1837 |
| Examiner | 1837 |
| Morning Chronicle | 1838 |
| Daily Conservative | 1838 |
| Censor | 1838 |
| Daily News | 1838 |
| New York Chronicle | 1838 |
| Times and Commercial Intelligencer | 1838 |
| Corsair | 1839 |
| Planet | 1839 |
| Evening Signal | 1839 |
| Reformer | 1839 |

newspapers started in New York city, of which the existing 29 are all that are left. It is not a fact that many of these ventures were backed by any considerable amount of capital. The possession of it might perhaps have made

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|---|---|
| Evening Tattler | 1839 |
| Morning Dispatch | 1839 |
| New Era | 1839 |
| Hudson's Express | 1839 |
| New York Whig | 1839 |
| Evening Times | 1840 |
| Democratic Press | 1840 |
| True Sun | 1841 |
| Tribune | 1841 |
| Aurora | 1842 |
| Morning Chronicle and Penny-a-Line Advertiser | 1842 |
| Plebeian | 1842 |
| Morning Post | 1842 |
| Washingtonian Daily News | 1842 |
| Morning Star | 1842 |
| Union | 1842 |
| Evening Herald | 1842 |
| Native American Democrat | 1842 |
| Daily Gazette | 1843 |
| True Sun | 1843 |
| Arena | 1843 |
| Cynosure and Chronicle | 1843 |
| American Republican | 1843 |
| Union | 1843 |
| Republic | 1844 |
| Evening Mirror | 1844 |
| National Reform | 1844 |
| Morning News | 1844 |
| Democrat | 1844 |
| American Ensign | 1844 |
| Citizen and American Republican | 1844 |
| People's Rights | 1844 |
| Ladies' Morning Star | 1844 |
| Penny Daily Gazette | 1844 |
| Evening Gazette | 1845 |
| Major Downie's Advocate | 1845 |
| The Mechanic | 1845 |
| Sachem | 1845 |
| Morning Telegraph | 1845 |
| New Yorker Zeitung | 1845 |
| Staats Zeitung | 1845 |
| Advertiser | 1845 |
| American Flag | 1845 |
| Independent Press | 1845 |
| The Irishman | 1845 |
| Daily Globe | 1845 |
| Human Rights | 1845 |
| The Woman | 1845 |
| Constitution | 1845 |
| The Crisis | 1845 |
| Humorist | 1845 |
| Splinificator | 1845 |
| Citizen and True Sun | 1845 |
| Subterranean | 1845 |
| The Olio | 1845 |
| Irishman's Advocate | 1845 |
| Workingmen's Advocate | 1845 |
| American Advocate | 1845 |
| New Yorker Demokrat | 1846 |
| Evening Ledger | 1846 |
| New Yorker Allgemeine Zeitung | 1846 |
| Merchants' Ledger | 1846 |
| The Globe | 1847 |
| Daily Statesman | 1848 |
| Day Book | 1849 |
| Abend Zeitung | 1850 |
| National Democrat | 1850 |
| Courrier des États Unis | 1851 |
| Daily Times | 1851 |
| Skandenavisk Post | 1851 |
| True National Democrat | 1852 |
| Le Progres | 1853 |
| The Citizen | 1855 |
| Daily News | 1855 |
| The Age | 1856 |
| State Register | 1857 |
| Le Messager Franco-Américain | 1859 |
| The World | 1859 |
| Commercial Bulletin | 1865 |
| New Yorker Journal | 1866 |
| Evening Gazette | 1866 |
| Evening News | 1867 |
| Evening Telegram | 1867 |
| Democrat | 1867 |
| Evening Mail | 1867 |
| Star | 1868 |
| The City | 1868 |
| Evening Republic | 1869 |
| Evening Free Press | 1869 |
| Standard | 1870 |
| Evening Commonwealth | 1870 |
| New Yorker Tages Nachrichten | 1870 |
| Evening Globe | 1870 |
| Evening Leader | 1871 |
| Morning Ray | 1871 |
| Daily Witness | 1871 |
| Daily Register | 1871 |
| New York Financial Record and Investors' Manual | 1871 |
| Graphic | 1873 |
| New Yorker Presse | 1873 |
| City Record | 1874 |
| Las Novedades | 1876 |
| Delnicke Listy | 1877 |
| Hotel Reporter | 1877 |
| Indicator | 1877 |
| New Yorker Volks Zeitung | 1878 |
| American Exchange | 1878 |
| Truth | 1879 |
| Wall Street News | 1879 |
| Mining News | 1880 |
| Handels Zeitung (date unknown). | |
| L'Eco d'Italia (date unknown). | |
| New York Family Courier (date unknown). | |
| City and National Intelligencer (date unknown). | |

The New York *Gazetteer* for 1860 contains the names of 771 newspapers and journals, of all classes and periods of issue, which have been established and disappeared in the city of New York subsequent to the revolution and up to the year 1860. In that year 250 newspapers and periodicals were published in New York city. There were 582 in 1880. It is altogether probable that since 1860 the number of newspapers and periodicals established and suspended in New York city has doubled upon the number reported in 1860. The *Journal of Commerce*, established by Arthur Tappan in 1827, is the only survivor of the morning newspapers in existence in New York at that time. The New York *Evening Post* and New York *Commercial Advertiser* are the only surviving evening newspapers which have a date of establishment equally remote.

either one of them a successful competitor for the places now occupied by existing journals, only four of which were started previous to 1833; but the chance of occupying one of those places grows less with the increasing wealth of existing dailies and the increasing cost of publication, and capital is less and less inclined to seek it.

The pecuniary value of existing newspaper properties.

Noted sales of newspaper property.

The newspaper properties which were thus built up out of nothing, as it were, are variously estimated in value according to their surroundings, and these values are liable to fluctuate at times to a marked degree. Immense fortunes have been made as well as lost in newspaper enterprises in this country, and there are a number of well-authenticated instances of the private or public sale of newspaper property which indicate the estimates publicly put upon their value where all the conditions are healthy. The *Morning Call*, of San Francisco, at a private sale some years ago, brought $100,000, and the Cincinnati *Times* was sold at auction in 1870, on the death of its proprietor, for $138,550, for the purpose of consolidating it with a new competitor, the *Chronicle*, established in 1868, with a capital of $150,000. The *Times* had been established in 1841 by Calvin W. Starbuck and two other practical printers on a borrowed capital of $200. His associates were soon discouraged, but Mr. Starbuck continued the undertaking, gradually making the *Times* one of the greatest journalistic successes of the West. Shortly before his death Mr. Starbuck refused an offer of $225,000 from the parties who subsequently purchased the property at auction for $138,550. The history of this particular paper still further illustrates the peculiar conditions surrounding the value of newspaper property. In 1871 it met with damaging competition from the *Star*, and after nine years these two journals were consolidated. Here, then, is the evidence that the value of newspaper property is not always what it is thought to be, or rather, perhaps, that it can be depreciated by determined opposition.

In a statement of its financial history, published on the thirtieth anniversary of its establishment, April 10, 1871, the New York *Tribune* said that the total cost of its production during the first week of its existence was $525, and that it had then reached an average cost of $20,000 per week, with a constant tendency to increase. When this journal was turned into a stock concern its shares were placed at $1,000 each, and sales were made at $3,500 per share. At present the shares of this journal, like those of the New York *Times*, organized on a like basis, are not in the market at any price. The New York *Sun* was sold in 1849 for $250,000, while yet a penny paper, and "very cheap". (*a*) Either on the basis of the dividends regularly paid or the intrinsic value of several newspaper properties in New York their market price, if they were now, through any cause, to reach the market, would be among the millions.

The sale at public auction of the Saint Louis *Democrat* in 1872 gave another indication of the market value of newspaper property, it being disposed of to one of the former proprietors for the sum of $456,000. Commenting upon this sale, one of the Saint Louis journals remarked at the time:

> This is the first direct public sale of a large and well-established newspaper that has taken place in this country for many years, and the price paid affords some indication of the cash value of such a journal. It has been held a difficult matter to accurately estimate the worth of such an institution, on account of the varied properties that make it up. The actual material in the *Democrat* establishment would be valued at a comparatively small proportion of the price paid for the journal, but this material comprises only a small proportion of the real value of the establishment. The attributes of age, of established character, political views, advertising patronage, public influence, and subscription list, all grouped usually under the head of "good-will", constitute the substantial elements of value in an established journal. They are of a moral nature, and to a certain extent indestructible.

That these large values assigned to certain newspaper properties are not fictitious is well determined by the incomes they are known to yield to their proprietors.

## THE DEVELOPMENT OF PRINTING PRESSES AND APPARATUS.

Fast printing necessary to cheap newspapers.

The advent of the third era in the history of American journalism was due, as has been seen, to certain changed conditions in the publication of newspapers, which were of somewhat gradual development, and had reached what seemed to be full fruition at the time when this census of the press was taken. The commencement of this era may be dated from the establishment of the first penny paper, in 1833, and with it the cheapening of newspapers to a point that brought them within the reach of all classes of society, and correspondingly increased their circulation. But the cheapening of newspapers was only made possible by the invention of machinery which permitted of rapid multiplication, which was the condition-precedent to large sales at a low price. (*b*)

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*a* Horace Greeley before the English parliamentary committee.

*b* In considering the development of journalism during the past thirty years there is one cause of its prosperity and increase which is often overlooked. The cultivation of the peculiar kind of talent required for the best newspaper work, the general recognition of the calling of an editor as a liberal and responsible profession, the increase in popular culture, and the consequent demand for a better order of periodical literature—these influences upon the character of the press are fairly estimated. Everybody understands also what enormous changes have been made in the newspaper business by the invention of the telegraph and the improvements in the railway and postal service. But these things would have been of slight avail had not the ingenuity of inventors of printing machines kept pace with the increasing wants of the public and the publishers. With such mechanical facilities as even the best offices could command thirty years ago a great newspaper of the present style would have been impossible, we might almost say inconceivable. The fast printing press has done as much for journalism as the telegraph and the railroad.—John R. G. Hazzard, *The Wonders of the Press*. New York, 1878.

Up to the revolution the newspaper printing presses had all been built on one general plan—a flat platen, impressing against type arranged on a flat bed. (*a*) In the earlier forms of this press the necessary pressure was obtained with a screw, and fifty impressions an hour was about its maximum capacity. The substitution of a lever motion for the screw increased the capacity to about 250 per hour. This modification obtained its greatest perfection in the Washington press, which was patented in 1829 by Samuel Rust. The first great advance upon the primitive lever was made in 1810, when Frederick Koenig, of London, succeeded in substituting the revolving impression cylinder for the platen, and a thousand impressions per hour thereafter became easily obtainable. (*b*) This press was first set up in the London *Times* office. In the issue of that paper for November 29, 1814, Mr. Walter thus described it:

The first printing presses.

Koenig's revolving-cylinder press.

> Our journal this day presents to the public the practical results of the greatest improvement connected with printing since the discovery of the art itself. A system of machinery, almost organic, has been devised and arranged, which, while it relieves the human frame of its most laborious efforts in printing, far exceeds all human powers in rapidity and dispatch. That the magnitude of the invention may be justly appreciated by its effects, we may inform the public that after the letters are placed by the compositors and inclosed in the "form", little more remains for man to do than to attend upon and watch this unconscious agent in its operations. The machine is then merely supplied with paper. Itself places the form, inks it, adjusts the paper to the newly-inked type, stamps the sheet, and gives it forth to the hands of the attendant, at the same time withdrawing the form for a fresh coat of ink, which itself again distributes, to meet the ensuing sheet now advancing for impression, and the whole of these complicated acts are performed with such velocity and simultaneousness of movement that 1,100 sheets are impressed in one hour.

In 1827 Cowper & Applegarth, of London, built a double-cylinder press for the London *Times*, which superseded Koenig's complicated and cumbrous machinery and printed 2,000 impressions per hour, and in 1833 they followed it with a four-cylinder, which could, under pressure, print 5,000 sheets per hour.

Up to 1835 all the papers in the United States were printed by hand-power, the double-cylinder presses then used by the daily journals being turned by crank-men, and their circulation was still so moderate that it was possible in this way to supply the demand without serious inconvenience. The New York *Sun*, which was founded in 1833, discovered, two years later, that it was impossible to work off the edition, for which there was then a ready demand, without the aid of steam. This paper, and in fact most of the daily journals of that day, was then using a Napier press, the product of an English inventor, who had proved especially successful in adapting his machine to newspaper work. He obtained English patents dated 1827 and 1830, and up to 1835–'36 they were used with success in American offices. In 1828 R. Hoe & Co., of New York, made two of the Napier presses, the first for the New York *Commercial Advertiser* and the second for the Philadelphia *Daily Chronicle*. These presses were not of sufficient speed to supply the demands of daily journalism, then rapidly developing, and inventors everywhere applied themselves to the task of devising a press which should accomplish three objects at once, namely: First, print with extraordinary rapidity; second, print both sides of a sheet at once, or a perfecting press; third, dispense with feeders, or supply the sheets to the press by machine instead of hand labor. The achievement of these three results has been in the nature of an evolution, one step growing naturally out of the other, by the extension of the principle of rotary action for the reciprocating movement of the primitive presses.

First use of steam in American newspaper printing.

Hoe's presses.

Three steps in the development of modern printing presses.

Long before these achievements had been secured rapid printing had been accomplished by Richard M. Hoe in his "lightning press", patented July 14, 1847. The essential feature of this press was a simple one, being the principle that columns of type can be securely held on the surface of a rapidly revolving cylinder by means of wedge-shaped column rules, with their thin edges toward the axis of rotation, themselves kept in place by projecting tongues sliding in rebated grooves cut in the cylinder, and the whole form firmly locked or screwed together in the usual way. With this revolving type cylinder, and from two to ten impression cylinders arranged around it, from ten to twenty thousand impressions can be struck off in an hour. One person is required at each impression cylinder to supply the sheets of paper, which are taken at the proper moment by gripers, and after being printed are conveyed out by tapes and piled in heaps by self-acting flyers. For each impression cylinder there are two inking-rollers, receiving their supply of ink from the distributing surface of the main cylinder, which rise and ink the form as it passes under them, then again fall to the distributing

The Hoe cylinder press.

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[a] A few attempts were made in the United States during the last century to improve the common press. Benjamin Dearborn, publisher of the *New Hampshire Gazette*, about the time of the revolution invented what was called the wheel press, which possessed the new and desirable quality of impressing the whole side of a sheet at one pull of the lever, and this press was used for a time at Newburyport. A citizen of Connecticut also took out a patent for a power-press. But these efforts led to no general improvement.—*American Cyclopedia of Printing.*

[b] My own first acquaintance with a printing office was in Rochester, New York, in the year 1823. There was no iron press known there at that time. That used was composed chiefly of two upright wooden posts, a cross-beam, and platen, the latter suspended from a screw, which was operated by a long iron bar inserted into a wooden handle. The types were inked by deer-skin balls, the skins being filled with sheep's wool and nailed to wooden handles. Iron presses began to get into general use in this country in 1825, 1826, and 1827, especially in the larger cities. As late as 1829 I saw the then large edition of the New York *Courier and Enquirer* in the process of printing on a single iron hand-press, with a roller-boy behind it for inking the types.—J. F. Babcock, before Connecticut Editorial Association, 1855.

surface. The speed of these machines is limited only by the ability of the feeders to supply the sheets. The four-cylinder press can be run at the rate of 10,000 impressions an hour, the six-cylinder at 15,000 an hour, the eight-cylinder at 20,000, and the ten-cylinder at 25,000 per hour. The largest cylinder press is a gigantic machine, standing 18 feet in height and 31 feet in length, and is the largest size to which the printing press has attained, for the perfecting presses, which came after, are much more compact in build and movement.

The first Hoe rotary press was erected in the Philadelphia *Ledger* office in 1847, and the machine came into general use in the offices of large journals by 1850. The first six-cylinder press was constructed for the New York *Tribune* in 1852, and the ten-cylinder press came into use shortly afterward. The lords of the privy council of England, in granting an extension to the patent of this press, characterized it as "one of the greatest steps ever made in the printing art".

## NEWSPAPER STEREOTYPING.

Even at that time, however, the Hoe press was not sufficient for the growing demands of journalism without a duplication of type, which not only largely increased the cost, but involved a loss of valuable time. The limitation of press capacity compelling the newspapers of the largest circulation to go to press before their neighbors, they could not print the latest news or make early sales, nor could they extend their out-of-town circulation. It was the effort to overcome this difficulty which led to the discovery of the process of newspaper stereotyping, which is now in vogue in many of the offices with great circulations. The recent introduction of the *papier maché* process in book stereotyping led to a series of experiments, which reached a successful result about the same time in this country and in England, the London *Times* using a stereotype process which was the invention of two Swiss mechanics, and the New York *Tribune*, in 1861, utilizing an invention of Mr. Charles Craske, of that city. His process was successful from the first, and it came into use in American newspaper offices at the time when the outbreak of the war increased suddenly and enormously the demand for newspapers. By this process a newspaper was enabled to multiply its forms indefinitely and with great rapidity, and might therefore put in use as many rotary presses as its sales would warrant. The application of stereotyping to newspapers was important in another respect, as it overcame the main obstacle in the way of the successful manufacture of the perfecting press.

Newspaper stereotyping.

The census inquiry revealed the fact that in 1880 there were 45 daily journals in the United States printed from plates made by the process of rapid stereotyping. These were located in the following states: California, 2; Illinois, 6; Indiana, 1; Kentucky, 1; Maryland, 2; Massachusetts, 2; Michigan, 1; Missouri, 2; Minnesota, 1; New Jersey, 1; New York, 9; Ohio, 6; Pennsylvania, 10; Wisconsin, 1. The Louisville (Kentucky) *Courier-Journal* is printed from stereotype plates 30 by 48 inches, which are claimed to be the largest stereotype plates made in the world. The Boston *Herald* is printed upon four Bullock web-perfecting presses, each with a capacity of 15,000 an hour, which can be forced to 18,000, and it is claimed that in this office the quickest time in the world is made in the manufacture of stereotype plates, two perfect plates having been made in seven minutes from the time the forms were received by the stereotypers. (*a*)

Newspaper stereotyping in the census year.

Beside the daily journals which are stereotyped, a large proportion of the weekly and other periodicals having large circulations are printed from stereotype plates. This is true of most of the monthly magazines and of the literary weekly papers. The process of stereotyping is found to be profitable, both in respect to saving the wear and tear of type and in the saving of time in reaching the public with the paper, when the circulation attains 15,000 and upward. Thus in 1880 there were 52 daily journals the circulation of which was over 15,000, and 45 were then printing from stereotype plates, several of the latter reporting their circulation under 15,000 and over 10,000.

## THE PERFECTING PRESS.

By the invention of Hoe's "lightning press" it became possible to supply the demand for papers of the largest circulation of that day within an hour or two after going to press; but still there were deficiencies even in this, which came in time to be especially annoying to the evening papers in large cities. It often happens that a demand for one, two, or ten thousand extras comes upon a newspaper in the afternoon without warning, in

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*a* The forms for the morning edition of the London *Standard* come down to the foundery at intervals, commencing at 12 o'clock, midnight, the last form, with the latest parliamentary and other important intelligence, being received in the foundery at 2.30 to 3 o'clock. The eight plates are all produced and handed to the press-room in thirty-three minutes. The *Evening Standard* is published in four separate editions, the number of plates that are required varying according to the news that is received. The whole *Morning Standard* is printed in one hour and fifty minutes, and the *Evening Standard*, second edition, in fifteen minutes, the third edition in thirty minutes, fourth edition in twenty minutes, and the special edition in forty-five minutes. To accomplish this the *Standard* uses eight machines, seven of which run at the rate of 14,000 an hour. There are also six machines in reserve in another building, and also a complete font of type, to guard against accidents by fire or otherwise. The steam-power used is a pair of 45 horse-power engines in each building, and likewise two 60 horse-power boilers of the multitubular type, for auxiliary machinery, in the bill-room, foundery, and for working the lifts and machinery in the engineer's shop, where all repairs are carried out. The amount of paper used during the year 1880 for the *Morning Standard* was 3,412 tons, equal to a length of 36,609 miles, and for the *Evening Standard* 865 tons, equal to a length of 13,377 miles, making a total of 4,277 tons of paper, or 49,986 miles—an average of over 13 tons, or 160 miles per day.—Joseph Hatton, in *Harper's Magazine*.

which case, the regular edition of the first side having been already printed, it is necessary to bring the form of that side back from the composing-room to the press, and meanwhile the public is kept waiting for its news. This delay at a time when moments are precious was largely overcome by the invention of the perfecting press. Where this machine is in use the entire paper is upon the press at one time, and, whatever the demand, it can be supplied to the last copy without confusion, loss of time, or the waste of a single sheet, at a varying speed of from 8,000 to 15,000 copies an hour. By the use of stereotype plates the number of forms can be multiplied to supply an indefinite number of perfecting presses, so that practically there is no limit to the number of copies of an issue which may now be supplied by a newspaper thus equipped within an almost incredible space of time after the first impression leaves the press.

The perfecting press.

With the perfecting press came the further rotary mechanism, by which the feeding of the paper was accomplished automatically and the services of a dozen or more pressmen dispensed with. This machine, which is called the web-perfecting press, on account of its printing from a web of paper, has two main cylinders, instead of one, both forms, now rendered comparatively light and manageable by means of stereotyping, being put upon the press at once. Instead of piles of sheets cut to a uniform size, a roll of paper several miles in length hangs in bearings above. The end of this roll being introduced into the press, the paper is drawn through it at the rate of 50,000 feet an hour, a speed which must be seen to be appreciated; is printed on both sides, cut into lengths by knife-bearing cylinders, and finally is laid down, fifteen thousand completed papers in an hour. Finally, by a last and crowning invention, a rotary folding-machine has been added to the press, by which the papers as they come, all cut, upon the tapes, are caught, folded, and delivered ready for the mailing.

Description of the web-perfecting press.

The honor of bringing the printing press into this state of perfection belongs almost wholly to American inventors. The first web-perfecting press ever built was the invention of Sir Rowland Hill, the well-known advocate of cheap postage in England. It was patented in 1835, but never came into practical use, partly owing to the inconvenience of the conical type employed upon it, but mainly because of the difficulty of disposing of the sheets as fast as they were printed. The idea at the bottom of the machine had, however, previously occurred to several American inventors, who were at work upon it, and it grew up out of steady adherence to the principle of press making which Mr. Hoe had first put to practical purpose, and which had been at the bottom of all previous improvements—the substitution of the rotary for the reciprocating action. Mr. Hoe's first perfecting press was built about 1857, but it required a much tougher and stronger paper than American journals could afford to use, and was therefore not a success. William H. Bullock, of Philadelphia, in 1861, succeeded in making a web-perfecting press which worked with better satisfaction than any that had thus far appeared. By subsequent improvements Mr. Bullock overcame one difficulty after another, until, by 1870, he had a press which could deliver from 8,000 to 10,000 completed papers an hour. The Walter press, constructed in the workshops of the London *Times*, is much like the Bullock in general construction and capacity. It is worthy of note in this connection that the first fast printing presses used in either England or France were the work of American inventors. In 1849 Mr. Hoe built a rotary press for the Paris daily journal, *La Patrie*. The first Hoe press in London was built some years later for Lloyd's *Weekly Newspaper*, and its success led the proprietor of the London *Times*, in 1857, after a series of disastrous experiments with a clumsy vertical rotary press, constructed by Augustus Applegarth, to order two ten-cylinder Hoe presses. Previous to this time the London *Times* had been duplicating everything in type, in order to be able to keep two presses running simultaneously. In 1875 six of Hoe's web-perfecting presses were ordered by the London *Standard* and eight by the London *Daily Telegraph*, and in other establishments, both in London and the provincial cities, American-built presses are now largely used and give the most complete satisfaction.

A result of American invention.

The Bullock press.

The Walter press.

The largest of these perfecting presses yet made, and believed to be the most perfect and rapid printing machine in the world, has been recently erected in the press-room of the *Missouri Republican*, of Saint Louis. This press has a capacity of 30,000 perfect papers per hour, printed, cut, folded, and pasted, ready for delivery, is known as the Hoe double web-perfecting press and folding-machine, and prints and folds two perfect papers at a single operation.

The final development of the web-perfecting press, which reached successful operation in the census year, is a machine that prints from the types instead of from stereotype plates, and which promises to be of incalculable service to that increasing class of daily papers which print an edition of from 7,000 to 15,000 papers—hardly large enough to warrant the additional cost of stereotyping, and yet so large that it is difficult to handle it with sufficient rapidity by the aid of the cylinder press. In general construction it is not unlike the type-revolving presses, the forms of type being locked in curved beds or "turtles". If the machine is for printing an eight-page paper, the four outside forms are placed on the large central type cylinder in a group, with their heads toward each other, and the inside forms are placed similarly, diametrically opposite to the outside forms. These forms occupy one-half of the circumference of the type cylinder, and the space between the groups is used as an ink-distributing surface, receiving the ink in the usual manner. The type cylinder

The type web-perfecting press.

is surrounded by and connects with the impression cylinders. The machine is equipped with four or eight impression cylinders, according as one or two rolls of paper are used, double the capacity being obtained by the use of double rolls, and its capacity is from 10,000 to 20,000 perfect impressions per hour. The first of these type-perfecting presses manufactured by the Messrs. Hoe was erected in the office of the New York *Commercial Advertiser* in the census year.

Newspaper folding machines.

Intimately connected with the improvement of the printing press are the inventions for the rapid handling of the printed sheets by machinery. About the time of the introduction of the Hoe cylinder press folding-machines were employed, to which the sheets were transferred as they came from the presses. To the later printing presses are attached improved folding apparatus, over which the sheets pass in continuous motion as they leave the impression cylinders, emerging finally ready for delivery. This machinery has reached such perfection that in the case of eight-page papers the sheets are not only cut in their passage through the press, but are securely pasted at the back. These attachments are now generally made to the web-perfecting presses, and it would seem that the perfection of the printing apparatus cannot go much further.

### TYPE-SETTING AND DISTRIBUTING MACHINES.

Type-setting and distributing machines.

While all these improvements have been following each other in the printing and delivery of newspapers, the ingenuity of man has not yet invented a substitute for the setting of type by hand, the method of composition remaining precisely the same as it was when printing was first invented. As the newspapers grow larger, as they spread out into supplements, extras, double sheets, quadruple sheets, and so on, every individual letter used has to be separately handled by the type-setter, not only in the composition, but again in the distribution of the type. The process of type-setting is the most laborious feature in the manufacture of a newspaper. The average compositor will set from 800 to 1,000 ems of type an hour, rapid printers reaching an average of 1,200 and even 1,500, but the latter figure can rarely be maintained continuously. Table V shows the average ems of type set per issue on the daily press to be 74,147, but on several of our largest daily journals the average runs as high as from 400,000 to 500,000 ems, and sometimes exceeds these figures.

The only method of increasing the speed of getting large volumes of reading matter into type is to increase the force of compositors. The aggregate ems of type set per issue on all the newspapers and periodicals of the United States reaches 556,894,022; and, bearing in mind that each of these figures represents two or more separate and distinct handlings of as many type, the immense importance of the successful invention of a type-setting machine to the periodical press may be imagined. In full appreciation of this importance, a number of the wealthiest newspaper establishments have devoted largely of their surplus earnings to experimenting with the various devices for the mechanical setting and distribution of type that have been brought to public attention from time to time. The London *Times*, in addition to its great services in the development of the printing press, has expended large sums of money in the encouragement of inventors who have sought for a successful type-setting apparatus, and the Chicago *Times* began a series of experiments with one of the latest of these machines during the census year. The first machine of the kind patented in Great Britain was the invention of William Church, the date of the patent being 1822. Frederick Rosenburg secured the first American patent in 1840, and since then there have been more than forty additional patents granted by the United States government, while the objects sought for seem as far beyond reach as ever. There is no difficulty in devising machines which will work automatically in the assortment of the types; but the difficulty arises in the necessity of devising a machine which will facilitate the composition of every conceivable variety of type and combination of letters, thickly interspersed with capitals, italics, arbitrary signs, etc. A great increase in the rapidity of composition is necessary to warrant the substitution of type-setting machinery for manual labor. Human supervision is of course necessary at every point in the operation of such a machine, and no machine can be invented that will compose type faster than an intelligent operator can read the copy. The character of the manuscript which appears in newspaper offices is so variable, often so nearly illegible, that the average compositor can set it by hand as rapidly as his eye is able to decipher its contents. The exact justification of every line of type as it is set is an operation which requires the exercise of a human intelligence, and no machine can be made to perform an operation which in no two lines is governed by precisely the same conditions in respect to spacing, the division of words, etc. It is claimed in behalf of a number of machines that they have conquered the problem of justification by providing for exactly the same distance between all the words in every line; but in practical operation the justification remains a source of apparently insurmountable difficulty. Any machine which shall be capable of automatically discharging with great rapidity an infinite number of slightly-differing operations, none of which recur with uniformity in the infinite variations which distinguish orthography, to say nothing of the variations of type—any such machine must necessarily be one of expensive and complicated arrangement and liable to frequent derangement.

Type-setting machines for book composition have long been in successful operation in several establishments in this country. The conditions governing their use in this kind of work are, however, widely different from those prevailing in newspaper offices, and nothing has as yet been devised which promises in the manufacture of a daily newspaper to reduce the cost or shorten the time required for composition.

Number of presses used in newspaper and periodical work.

Table V contains the statistics of the number of presses used in the printing of newspapers and periodicals. From these statistics all presses, whether hand or power, used for job printing only, or for other purposes than the printing of newspapers and periodicals, were excluded, and no account was taken of the presses used to print the large number of periodicals whose publishers did not do their own printing, but contracted with job printers. These latter instances were chiefly in the large cities, where it is the rule, except in large establishments, like those of Harper & Brothers and D. Appleton & Co., for the publishers of periodicals not of a news character to contract for their printing. In the offices of the newspapers and periodicals 8,048 presses were found, of which 4,873 were hand presses, 148 were run by water-power, and 3,027 by steam-power. There were only 122 instances of daily newspapers whose presses were worked by hand, and New York, Illinois, Indiana, Massachusetts, Maine, Rhode Island, and Connecticut were the only states in which more steam than hand presses were found. In Mississippi, where 123 journals are published, only five steam presses were found, and North Carolina, with 142 journals, returned but five.

The development of the mechanism of printing has created a revolution in journalism, and has robbed the great newspapers of the third era of many of the peculiarities which distinguished them in the days when they printed but few in number and sold them at a high price. To no cause quite as much as to this one can we justly attribute the wonderful development which has attended the American press within the last quarter of a century. But it is observable that the perfecting of the fast printing press has been going on at the same time that the extension of railroads and the multiplication of telegraph lines have enabled the great newspapers to keep pace, in the character of their publication, with the increasing facilities for making them, the railroads, with the improved mail service conducted by the government in connection with them, having made it possible for the morning journals of a great city to be delivered at the breakfast-tables of people living hundreds of miles away, while the use of the telegraph, which began to become general among newspapers by 1850, put the news of the continent within the reach of enterprising publishers for immediate publication, and was a stimulus to activity and enterprise on their part such as had been seen in the management of none of the earlier newspapers. The resources of great journals grew rapidly after the problem of furnishing them cheaply, by furnishing them in large numbers, had been successfully solved, and the increase in circulation brought with it, of course, a corresponding increase in advertising patronage. The improvements in the printing press had largely reduced the cost of producing a newspaper; but what was saved in this manner—and very much more in many instances—was expended thereafter in meeting the requirements of the widening scope of journalism. Telegraphic tolls, an entirely new element of newspaper expense, increased constantly with the increase of the service deemed necessary, and are still increasing. More and better men were employed in editorial and reportorial service, and there came in the public mind a general recognition of the importance and the responsibility of the calling of the editor and publisher of a newspaper; and as this recognition appeared, the cultivation of the peculiar kind of talent required for newspaper work brought into the profession large numbers of educated and talented men, the country demanding that those who were to instruct them as to the daily progress of the world's affairs should be men of at least as high a standard of intelligence and culture as that which was coming to prevail among the people themselves.

## THE TRANSMISSION OF NEWS.

Effect of the telegraph upon daily journalism.

The general use of the magnetic telegraph for the transmission of news to the daily press has eliminated from the business much of the exciting and characteristic enterprise which marked the career of the daily journals in existence just previous to the successful introduction of telegraphy. Many and ingenious were the devices of rival journals to anticipate their neighbors in the publication of important intelligence, and when the event was one expected and prearranged this enterprise at first took shape in the flying of carrier-pigeons, (*a*) the equipment of pony expresses, with relays of spirited horses, and afterward in the chartering of special locomotives and steamboats from distant points. The achievement of Mr. Henry J. Raymond, then a reporter of the New York *Tribune*, in the first publication of a speech of Daniel Webster's, delivered in Boston, is a fair illustration of the methods adopted by one journal to surpass its rivals. He wrote out his notes of the speech while journeying back to New York on the boat, and as fast as he transcribed them the copy was passed over to printers, whose type and cases had been brought on board for that purpose. When the vessel arrived in New York the speech was in type and ready for instant publication. It was in order to anticipate its rivals that the New York *Herald* first became possessed of a swift sailing yacht in New York harbor for the prompt collection of the shipping news.

The associated collection of news.

With the advent of the telegraph all the journals which were able to pay the expenses of transmission were placed on precisely the same footing, with respect to priority, in the receipt and publication of news, and the ingenuity and expense formerly incurred to outstrip each other became a matter of the past. The principle underlying the associated collection of news had been recognized as valuable before the use of the telegraph, and several of the New York journals combined some years previous and jointly paid the cost of running a pony express from Washington with the latest congressional reports for their several

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*a* The flying of carrier-pigeons from Halifax to Boston and New York, with condensations of the news from English newspapers just arrived, was a practice for some time successfully pursued.—Maverick's *Life of Henry J. Raymond*.

use. (*a*) Similar associations existed between journals both in New York and Boston for the collection of marine news. These associations were the owners of several fast-sailing news schooners, built on the pilot-boat plan. The importance of the telegraph as an instrument for the instant transmission of news was at once recognized by the press upon the opening of the first line from Washington to the city of Wilmington, Delaware, in 1844, and they immediately made use of this limited line, and as immediately found themselves in difficulty, owing to its incapacity to meet the large demands upon it with the requisite promptness. (*b*) As the telegraph spread its lines to more distant points this difficulty increased constantly; and it was the annoyance and delay thus arising that led to a meeting of the proprietors of the principal New York daily newspapers of that day (1848–'49)—the *Journal of Commerce*, the *Courier and Inquirer*, the *Tribune*, the *Herald*, the *Sun*, and the *Express*—for the purpose of forming an organization, or combination, to obviate the individual competition which destroyed the usefulness of the new discovery to all alike. (*c*) Here originated the Associated Press, and the

Organization of the Associated Press.

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*a* The first combination was in 1846, during the Oregon excitement, resulting in dispatching a pilot-boat across the Atlantic especially for news, and in two expresses (one from Halifax and one from Boston), costing the combined papers $5,000 for the pilot-boat, $4,000 for the Halifax express, and $1,000 for the Boston express—very large sums to spend for news in those days.—Hudson's *History of Journalism*.

*b* When the first battles were fought on the Rio Grande, the magnetic telegraph extended from Washington to Wilmington, and soon after to Jersey City. Efforts were made to reach the southern telegraph office first. Sometimes the *Herald* would succeed, and sometimes the *Sun*. Frequently the messengers of these journals would enter the office together. The exclusive use of the wire could not be given to either. They were therefore allowed fifteen minutes each. Not many lines of news could be transmitted in that brief space of time over poor lines, with miserable insulation and inexperienced operators. It was in consequence of this difficulty that the New York *Herald*, in connection with the Philadelphia *Public Ledger* and the Baltimore *Sun*, established the successful express between Montgomery and Mobile.—Hudson's *History of Journalism*.

*c* The idea of the associated collection of telegraphic news had an earlier conception and a successful execution in the interior of New York state. The telegraph was completed from Albany to Utica, New York, January 31, 1846; from Baltimore to Philadelphia, June 5; from New York to Boston, June 27, and from New York to Buffalo, September 9. The first state associated press originated in Utica, New York, and was a necessary sequel to the fact that the first telegraphic line was opened to general business at that point. Mr. Alexander Seward, a vice-president of the Oneida Historical Society at Utica, and formerly editor of the Utica *Daily Gazette*, in a paper read before that society December 31, 1878, gives the following interesting account of the organization of this first associated press:

"Those gentlemen who, being then connected with the press, were obliged to invent a system for availing themselves of the advantages offered by the telegraph, cannot claim any special merit for a contrivance which would doubtless have suggested itself to others similarly situated. But Mr. J. D. Reid, in his valuable history of the telegraph in America, has made a statement so inaccurate on this point that it is a duty to truth to correct it. Mr. Reid says:

> "On the 4th of July, 1846, the line having been completed between Albany and Buffalo, the idea of a state associated press was practically born by a call from President Faxton for a meeting of editors, by telegraph, in the various offices at that time open. This started the idea of a federation for the supply of telegraphic news. The first daily reports to the press of the state were sent January 1, 1847. There was deposited with this society, about three months since, a volume containing the correspondence with the proprietors of the Utica *Daily Gazette* relative to the formation of this associated press. This collection had passed the ordeal of two fires and escaped the greater peril of the paper-mill. It contains about a hundred letters from those who represented the daily newspaper press of the state from Albany to Buffalo thirty-three years ago, and it may become of some historic value two generations hence, when the memories of Croswell, Ten Eyck, Lacy, Northway, Smith, Oliphant, Dawson, Butts, Jerome, Foote, Jewett, Clapp, Stringham, &c., have been further mellowed by age.

"The telegraph was completed between Utica and Albany, as before stated, on Saturday, January 31, 1846. The first news dispatch—not 'a few words', but nearly a column—appeared in the Utica *Daily Gazette* of February 3, 1846. The correspondence relative to the associated press begins contemporaneously, and continues till the association is fully organized and in complete operation from Buffalo to Albany. The cause of the organization is also apparent. Necessity was the mother of this invention, as of many others. News dispatches, chiefly brief summaries of congressional proceedings, had been telegraphed from Washington to Baltimore long before. But that government telegraph, like most government operations, was not a paying institution. The New York and Buffalo telegraph was conducted on strictly business principles from the start. It offered great benefits to the local newspapers, but it required a compensation which in their then feeble condition they were unable single-handed to pay. Hence the idea and the subsequent fact of the associated press. The daily newspapers in the state west of Utica mostly agreed to contribute to the expense of collecting and telegraphing the news from Albany to Utica, at which latter place it was printed in slips and forwarded by express in advance of the mails. Beside the proceedings of the legislature, which were telegraphed as they occurred, and the Albany market, the dispatches consisted of a summary of news made up from the New York papers as soon as they arrived in Albany. When the telegraph was completed to Syracuse, June 1, 1846, the receipt and forwarding of telegraph dispatches were transferred to the papers of that city. A meeting of the editors from Utica to Buffalo was held there to arrange matters May 28.

"The meeting of July 4, which Mr. Reid mentions, was in pursuance of the following invitation:

> "T. S. F.'s compliments to the editors of all the daily papers between Albany and Buffalo: Will be happy to meet them and their friends at the different telegraph stations on the 4th, between the hours of 4 and 5 p. m., for the purpose of interchange of sentiments.

"Thus it appears that this meeting was a social gathering, of President Faxton's happy invention, to celebrate the day and the accomplishment of instantaneous communication, by the electric fluid, between lake Erie and the Hudson river. Twenty-one years before the water connection between the two had been magnificently celebrated, and the event telegraphed by cannon from Buffalo to New York. The *Gazette* of July 4, 1846, thus announced the more wonderful fact:

> "THE HUDSON TALKING TO LAKE ERIE!—The lightning flashed through from Albany to Buffalo, 325 miles by railroad, this morning at 8½ o'clock. The telegraph now spans the Empire State! The events transpiring at the capital, at one end, are made known at the other extremity in 'less than no time'—from twenty minutes to half an hour before they happen. This is the longest line of telegraph in the world. The swift messengers, upon whose wings messages are sent along the copper track, are bred in a large galvanic battery in the loft of Dudley's triangle, in this city. The fluid there generated makes a circuit of 650 miles. The only object it has in view is to get from one end of the battery into the other, like a carrier-dove returning to the spot where it was trained. This fiery steed, whose speed surpasses the imaginings of tales of the genii; this mighty agent, whose sports are in the volcano and tornado; this weapon of the ancient king of heaven, forged in the infernal regions; the utilitarian of our day approaches and says: 'I'll trouble you with a line.'

"A two-column account of Mr. Faxton's novel party was given in the next *Gazette*, entitled, 'Electro-Magnetic Drama, or a Lightning Sociable,' consisting of 'single act without change of scene, as these necessities of the drama do not appertain to electro-magnetic performances'. In other words, time and space were annihilated.

"On the 5th of August the editors, from Albany to Buffalo, met in this city and extended and perfected their association, preparatory to the opening of the line to New York city, on September 9, 1846."

organized transmission of telegraphic news for the use of all these journals jointly. Arrangements had previously been made (in 1837) by the *Courier and Inquirer*, the *Journal of Commerce*, and the *Express* for the associated collection of the shipping news of the harbor of New York, and a steam vessel had been purchased and equipped for that purpose. About 1841–'43 the *Tribune* and *Sun* were added. The Associated Press was practically an outcome of this association, and after being reorganized in its present form, in 1851, very rapidly developed into an institution of great resources and wonderful ramifications. Contracts were made with the telegraph company for the transmission of news at rates much below those charged to individual customers, and great advantage was gained in this way, as well as by the division of expense, over journals not members of the association and which were not permitted to purchase its news. The Associated Press appointed its local agents in the principal cities of the Union, and made contracts with similar associations in England. After a period of time, during which its efficiency and importance had been demonstrated in connection with the continued development of the telegraph lines, it began to sell its news to newspapers in other cities and states, receiving therefor an income which went a good distance toward reimbursement for the enormous expenditure incurred in the transmission of elaborate accounts of important events all over the United States. In 1872 the Associated Press of New York city served over 200 daily papers in the United States with its telegraphic news and paid out yearly over $200,000 for cable telegrams alone. In 1880 the Associated Press served 30 per cent. of all the daily newspapers in the United States with the domestic and foreign news of the day, and expended in the main office alone the sum of $500,000 a year for salaries, rents, agents, and incidental expenses, not including the cost of telegraphic transmission from the points of concentration to the numerous distributing points. For this latter service the Western Union Telegraph Company received the sum of $392,800 08 in 1880. The Census Office is under obligation to J. M. Somerville, then the press agent of the Western Union Telegraph Company, for a detailed statement of the amount of business done by that company for the newspapers connected with the Associated Press during the census year ending June 1, 1880. The total number of newspapers to which dispatches were sent was 355, of which number 228 were morning issues and 127 evening publications. These figures are significant of the greater strength and character of the morning newspapers of the United States, of which there are 438, there being 533 evening dailies. The actual number of words transmitted by the company to all newspapers during the census year was 611,199,930, which is equivalent to 1,877,256,934 ems of type. (*a*) It is to be borne in mind, however, that this statement of the number of words transmitted by telegraph includes the special dispatches to a large number of newspapers. The telegraph company supplies the following tabular statement, showing the distribution, by states and territories, of the daily newspapers regularly receiving the Associated Press dispatches over its lines:

Rapid development of the Associated Press.

Statistics of the press service of the Western Union Telegraph Company.

| States and territories. | Morning papers. | Evening papers. | Total. |
|---|---|---|---|
| Alabama | 3 | | 3 |
| Arkansas | 2 | 1 | 3 |
| California | 10 | 9 | 19 |
| Colorado | 10 | 1 | 11 |
| Connecticut | 3 | 6 | 9 |
| Dakota | | 1 | 1 |
| Delaware | 1 | 1 | 2 |
| District of Columbia | 2 | 2 | 4 |
| Florida | 2 | 1 | 3 |
| Georgia | 5 | 1 | 6 |
| Idaho | | | |
| Illinois | 10 | 6 | 16 |
| Indiana | 6 | 7 | 13 |
| Iowa | 9 | 8 | 17 |
| Kansas | 7 | 3 | 10 |
| Kentucky | 3 | 1 | 4 |
| Louisiana | 5 | 1 | 6 |
| Maine | 5 | 3 | 8 |
| Maryland | 3 | 2 | 5 |
| Massachusetts | 7 | 7 | 14 |
| Michigan | 6 | 5 | 11 |
| Minnesota | | | |
| Mississippi | 4 | 1 | 5 |
| Missouri | 12 | 4 | 16 |
| Montana | 2 | | 2 |
| Nebraska | 4 | | 4 |
| Nevada | 2 | 3 | 5 |
| New Hampshire | | 3 | 3 |
| New Jersey | | | |
| New Mexico | 1 | | 1 |
| New York | 30 | 15 | 45 |
| North Carolina | 4 | 1 | 5 |
| Ohio | 14 | 6 | 20 |
| Oregon | 1 | | 1 |
| Pennsylvania | 21 | 11 | 32 |
| Rhode Island | 1 | 1 | 2 |
| South Carolina | 3 | | 3 |
| Tennessee | 5 | 2 | 7 |
| Texas | 8 | 5 | 13 |
| Utah | 3 | 2 | 5 |
| Vermont | 1 | 2 | 3 |
| Virginia | 7 | 4 | 11 |
| Washington | | | |
| West Virginia | 1 | | 1 |
| Wisconsin | 2 | 1 | 3 |
| Wyoming | 3 | | 3 |
| Total | 228 | 127 | 355 |

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*a* The British post-office, in its report for the year ending in March of the United States census year, shows that the number of words delivered to the newspapers of the United Kingdom in the year was 313,500,000—a trifle more than one-half the total number of words sent by one company in the United States during the same period of time.

In an address on the history and the methods of the Associated Press, delivered in 1880, Mr. J. W. Simonton, then the general manager, described the business character of the organization as follows:

Business organization of the Associated Press.

The Associated Press is a simple copartnership, having for articles of agreement a series of written rules to govern its operations. It is not incorporated, derives no prestige or power from any special legislation or privilege, and is dependent for every element of influence, strength, or success upon its own money-capital and the intelligently applied efforts of those who established and have controlled it. The association is composed of several journals, and not of the individuals who own or control them; and so the proprietorship or policy of a journal may change without affecting its position in the partnership.

Sectional branches of the Associated Press.

The New York city association may be called the clearing-house of a dozen different and sectional associations, which it supplies with news by contract, and from which it receives news in return. These several kindred associations exist for those sections of the country which have a community of interest and a geographical relation; thus there is a New York state association, which serves the journals of the state outside of New York city and Brooklyn; a New England association, a Pennsylvania association, a western states association, a southern states association, a Canadian association, and a Pacific coast association, besides minor associations which provide for sections of territory out of the line of those above mentioned. These kindred associations have their agents in New York city, who have access to all the news received by the city association's agent, and cull from it such and in such quantity as in their judgment is desirable for the journals of each section of the country. Thus, the western association holds toward New York relations similar to those of the New England association. It operates the territory from the lakes to the Ohio river, south to Memphis and Louisville, and west to the Missouri. Interchanging local news among its own fifty-six voting members, and eighty or more press customers who are not members, it delivers a copy of said local news to an agent of the New York association placed at Cincinnati, who forwards thence whatever in his judgment—guided by general instructions—New York requires. (*a*) It also reports anything within its territory which may be needed in addition to the collections for western press use; and New York is under similar and reciprocal obligations to the West; but neither association can serve any competitor or encroach upon the territory of the other. The news of the great plains, stretching from the Missouri river to the Rocky mountains, and thence to the Pacific, including California, Oregon, Colorado, Washington, Montana, Idaho, Arizona, Utah, New Mexico, and Wyoming, together with the news of the Sandwich Islands, Japan, China, and Australia, coming by way of the Golden Gate, is collected by agents of the New York association.

In all sections other than those already named the parent association makes its own collection of news; that is to say, in New Jersey, Pennsylvania (except Pittsburgh, Erie, and the oil region), Delaware, Maryland, Washington, and all points south to Texas; in Mexico, the West Indies, Canada, Southern and Central America, and Europe. Though it pays for much of its service the same rate as the general public, it brings the news of the Old World as liberally as the interest will justify from day to day. Confining itself to no arbitrary limit, its daily cable tolls are rarely less than $300, are not infrequently $500, and are sometimes even quadruple that sum. Its London offices are never closed. By means of a double corps of agents the news of Europe, chiefly concentrated at the British capital, is forwarded at all hours, as rapidly as received. By contracts with the great European news agencies, including the well-known Reuter Company, the Associated Press receives their news collections from every part of civilized Europe, Asia, Africa, and South America. In sparsely-settled districts, where news items are too infrequent to warrant appointments of regular agents, the telegraph companies, in order to earn the tolls, as well as for public accommodation, permit operators to act *ex officio* as agents for the press. So, too, the telegrapher's assistance is sought to improvise competent agents or reporters to visit scenes of sudden public calamity, disturbance, or other excitement at points beyond telegraphic lines, to gather the facts, carry them to the nearest station, and forward by wire. Until quite recently the Associated Press has relied entirely upon the Western Union Telegraph Company for transmission of its messages to and from all points in the United States; but now it has leased from that company, for its own special use, a wire between New York, Philadelphia, Baltimore, and Washington, and employs its own operators to work it directly between Associated Press offices in the several cities named. This proves exceedingly convenient, though it would not be economical except for the very large amount of telegraphic service (18,000 to 20,000 words daily) required by the Associated Press over that particular circuit. At Cincinnati, Detroit, Chicago, Saint Louis, Milwaukee, and Memphis condensed abstracts, known as pony reports, are made from the full one and promptly forwarded to smaller towns or outlying places in the respective districts whose journals cannot afford to share the cost of the longer one. The cost of the news, laid down where published, every charge paid, ranges from $15 to $250 per week to each journal, with the exception of those of New York city, who rarely find their bills as low as $300, while sometimes they run up to $1,500.

Thus, by its various ramifications, the Associated Press reaches to every section of the United States where daily papers are published, and, by an arrangement which is mutually beneficial, receives every day all the intelligence afloat in all the states of the Union. This association has been well described by Mr. Simonton as an independent co-operative union of newspaper publishers for their mutual benefit, the immense advantages it confers upon the newspapers which partake of its privileges being too obvious to need exemplification. It gives each one of these newspapers the advantage of all the news possessed by every other one; so that they can present in each day's issue the news of the whole country at a cost that is trifling when compared with the value of the service or the expense that would be entailed in an effort to collect it individually. This news is sent by the telegraph company, on circuits, and is dropped at office after office on the line of transmission to the most distant point in a single sending, thus greatly reducing the cost of telegraphic service to all and bringing the news within the reach of scores of the poorer papers, which, under any other conditions, would find it a burden too great for their income.

Management of the collateral associations.

Each of the collateral associations belonging to the Associated Press makes its own rules and regulations for the admission of new members, as well as its own separate contracts with the New York city press and the telegraph company, and the advantages enjoyed in consequence are so obvious and far-reaching that membership has come to be highly prized, and has a well-defined financial value, which the journals belonging to the association hold to be an intrinsic element of their cash value. The theory of the association has grown to include the idea of protection as well as mutual benefit. To protect the members of the association from constant competition, a fixed price is established by some of the

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*a* The Western Associated Press paid $175,000 in tolls to the Western Union during the census year.

associations as the initiation fee which new journals must pay before they can receive the benefits of the organization, and this price is generally regulated on the basis of the actual sums which the journals in the particular locality where the new publication is started have contributed to the maintenance of the system. In some cities the positive right ot veto upon the admission of any new paper to the privileges of the association is accorded to each journal in that city. In New York city admission to the parent association by any new aspirant has long been regarded as impossible, and the franchise of membership is roughly estimated to be worth one quarter of a million of dollars. This feature of the Associated Press has given rise to much complaint on the part of new newspaper enterprises excluded from its benefits, and undoubtedly has acted as a check upon the establishment of new papers. It led some years ago to the organization of a similar association, served at first by a different telegraph company whose obligations were assumed by the Western Union upon consolidation. In this rival organization the sole condition of membership is the payment of the weekly dues for the collection and transmission of news; and it numbers in its membership most of the daily journals which have been founded in the last ten years, excepting always those which are founded upon the remains of preceding journals and inherit their Associated Press franchise. Many of the journals which receive their news through the new association are in a prosperous condition.

Advantages of telegraphic press association.

The advantages of these associations to the newspaper are obvious; they also convey obvious advantages to those who read the newspaper. Such a central responsible organization is of inestimable benefit as a guarantee of the correctness of the news received through its agency. The membership of the association is composed of journals which advocate the principles of both political parties; and one of the earliest rules formed for its guidance, as well as one that is of necessity most rigorously enforced, is that which requires all news transmitted through the Associated Press to be absolutely free from partisan bias. So well understood is this rule by the public, and so carefully is it observed, that the world has learned to regard the intelligence conveyed through this agency as uniformly trustworthy.

Origin of co-operative news-gathering.

This system of co-operative news-gathering was the invention of Julius Reuter,(*a*) whose European news agency now supplies the New York Associated Press with all its foreign intelligence. This agency was first organized in 1850 to supply the British newspapers with the latest continental intelligence by telegraph. It has established agents in all places of importance on the continent, who forward to the central office in London prompt and succinct reports of all happenings. From comparatively small beginnings the Reuter agency has grown into one of the most gigantic of business enterprises, and there is hardly a spot in the civilized world to which their agents have not penetrated.

The British Press Association.

Connected with Reuter's company, with which it has a contract for the exclusive supply of the news of that company throughout the United Kingdom (London only excepted), is the Press Association, a limited company, whose shareholders are the proprietors of the principal provincial daily journals published in Great Britain, and is nearly counterpart to the Associated Press of the United States. This association was organized in 1868, and its operations are conducted on a scale not so extensive, but quite as thorough, as those of the Associated Press of New York. The cost of telegraphic service in Great Britain is considerably more to the newspapers than in the United States, the fact of government control of the telegraph there preventing the Press Association from making large contracts on a basis as advantageous as that which the competition of telegraph companies has made possible in this country. Large as are the sums which our newspapers pay out annually for telegraphic service, they are exceeded by the cost of this service to newspapers of equal character in Great Britain.

Special press dispatches.

Admirable as is the service rendered by the Associated Press and the American Press Association, the leading newspapers of the day regularly supplement their reports from all important news centers in the United States with special telegraphic reports, which are prepared by their own correspondents, and are their exclusive property. These special dispatches do not, as a rule, traverse the news of the Associated Press, but are primarily sought for, for the purpose of imparting to it that color which the non-partisan character of the associated news compels it to omit. These specials are thus in the nature of a supplement or commentary upon the news which comes by the co-operative channel. Thus, from the national capital, where all the principal daily journals of the country employ regular correspondents, the work of transmitting the proceedings of Congress from day to day is left exclusively to the Associated Press and kindred associations, while the special reports are occupied with comments upon those proceedings, with descriptions of a day's debate, current criticism and comment, and such news and opinion as may be picked up outside of the regular channels through which comes the news of the Associated Press. This feature of special telegraphic service has grown to such great proportions of late years that it surpasses in cost the tolls paid by the Associated Press. The total tolls received

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*a* Mr. Reuter, now called Baron Reuter, was the founder of the Reuter Telegram Company (limited). It was first established as a private agency, about thirty years ago. When the British government purchased the telegraph lines, the Reuter agency was transformed into a limited-liability company. Baron Reuter remained at its head as managing director until 1876, when the control was transferred to his son, Herbert de Reuter, who now fills the position of managing director of the company.

by the Western Union Telegraph Company in 1880 for the transmission of press reports was $1,085,655 35, (*a*) of which amount $690,855 27 was paid for special dispatches and $392,800 08 for Associated Press dispatches. In comparing these figures, it is to be borne in mind that the telegraphic company received one rate for the Associated Press dispatches sent to all the papers in each circuit, while it received a separate rate for specials from each individual newspaper sending them, so that the greater sum paid for specials is not an indication that the Associated Press dispatches were less in amount of words than those specially sent. On the contrary, they many times exceeded the latter in volume. The largest amount paid by any single newspaper for press dispatches during the year was $70,006 31. In recent years a number of the leading newspapers have leased telegraphic lines to the national capital, of which they have the exclusive use, transmitting large volumes of matter for publication through the agency of special operators in their employ.

The growth of this branch of newspaper enterprise, which has assumed its great proportions in comparatively recent years, is one of the chief elements of the increasing cost of daily newspaper publication. The time has long since passed when news of any importance can be intrusted to the slower carriage of the mails, and the cost of telegraphing eats up the profits of many thousands of copies of papers sold, the effect of the telegraph upon journalism having been to revolutionize its method and its character, and to add immeasurably to its capability for aiding and serving the public.

The influence of the telegraph upon the journalism of the United States has been one of equalization. It has placed the provincial newspaper on a par with the metropolitan journal, so far as the prompt transmission of news—the first and always to be chiefest function of journalism—is concerned, and thus it has compelled the assertion of superiority on the part of individual newspapers, by the employment of more and better brains and the making of a better journal in all those features where brains tell. More than any other cause, the use of the telegraph has thus tended to raise the standard of journalism, while it has immeasurably increased the value of the press to the business and other interests of the country.

## JOURNALISTIC DIFFERENTIATION IN THE UNITED STATES.

Journalistic differentiation.

The most striking feature of the history of the newspaper press during the past decade has been its multitudinous differentiation, the press of the United States, to a marvelous degree not witnessed in any other country, accommodating itself to the several conditions and pursuits of the people. In its early development all papers were established on the same plan, and discharged the single function of conveying at regular but infrequent intervals the news of the day. The first variation was one of party, to fit the different lines of popular thought, and this was accompanied by the introduction of editorial opinion. Thus began, long previous to the American revolution, the first grand division of the American secular press upon party lines. (*b*) This division, as has been seen, was rendered more marked and intense subsequent to the revolution by the fierceness of the partisan feeling which characterized the early years of national existence under the Federal Constitution, and partisanship stimulated the growth of the press, and claimed nearly every publication among its votaries. Publications that were purely literary in their character had, it is true, made their appearance long prior to the revolution, and continued to appear and disappear at regular intervals; but the main peculiarity of the American press, as we find it reflected in the files for the first half century after its secure establishment, was its division on party lines and its reliance upon partisan feeling for nutriment. Naturally this characteristic, which was the first to develop, continues to be the most important down to the date of this report. Two-thirds of all the publications in the United States to-day are known as political papers, and are devoted in their editorial columns to the advocacy of the fortunes of one or another of the existing political parties, and the activity and intensity of our political life continues to contribute to the rapid development of the American press, notwithstanding the marked decadence of the old-fashioned party "organ", which has come in company with larger resources and greater independence. By way of illustrating the reflex relationship between politics and the press, it may be stated that several years ago, when the so-called national greenback party first began to effect an organization in the several states, new papers followed everywhere in its wake, incited to existence by the fervor of

Political character of American journalism

The greenback party and the press.

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*a* In 1866 the total receipts of the telegraph companies for press dispatches were $521,509, and the volume of service has very much more than doubled in the interval, however, as the lesser rates now charged indicate. The average cost of press telegrams in 1866 was 3½ cents per word; but under the operation of contracts, it has now been reduced far below that figure, even for special telegrams.

*b* For many years, however, this distinction remained vague and intermittent. William C. Bryant illustrates this fact by the following examples: "In the New York *Evening Post*, during the first twenty years of its existence, there was much less discussion of public questions by the editors than is now common in all classes of newspapers. The editorial articles were mostly brief, with but occasional exceptions; nor does it seem to have been regarded, as it now is, necessary for a daily paper to pronounce a prompt judgment on every question of a public nature the moment it arises. The annual message sent by Mr. Jefferson to Congress in 1801 was published in the *Evening Post* of the 12th of December without a word of remark. On the 17th a writer, who takes the name of Lucius Cassius, begins to examine it. The examination is continued through the whole winter, and finally, after having extended to eighteen numbers, is concluded on the 8th of April. The resolutions of General Smith for the abrogation of all discriminating duties, laid before Congress in the same winter, was published without comment; but a few days afterward they were made the subject of a carefully-written animadversion, continued through several numbers of the paper."—*Reminiscences of the First Half Century of the New York Evening Post:* New York, 1851.

propagandism, and reflecting, in their varying fortunes, the unpropitious fortunes of that organization; and in some of the western states, where the greenback movement was the strongest, it brought into existence papers which found sufficient nutriment to live, and which will continue to live, without reference to the future of that organization. But, as a rule, the journals which were born with that mission only (and their name was legion) have already ceased to exist. In forcible illustration of the instability of newspaper enterprises, it may be mentioned that there were one or two journals established in large cities, as the central "organs" of this political organization, which reached for a time weekly circulations exceeding one hundred thousand copies, but have already passed out of existence; and the whole story of American journalism is a similar evidence that partisanship, which brings so many papers into the world, is not a safe, stable, or sufficient basis for journalistic prosperity.

Hence it happened that with the lapse of time the political principles advocated by existing journals came to be an incident of their being rather than a *raison d'être*. Alliance with one or the other of the political parties is still generally looked upon as essential both to the character and the success of the average newspaper, but it is less and less regarded as a sufficient mission or a guarantee of success. For this reason, as well as for others which naturally suggest themselves in connection with an official government inquiry, no attempt was made, in getting these statistics, to effect a political classification of the American press.

No political classification of the press attempted.

## AS TO FREQUENCY OF ISSUE.

The second natural differentiation in the development of the American press had relation to the time of publication and the convenience of the public in its supply with freshest news. For many years the weekly issue was all that American enterprise dared to attempt. In 1729 the first semi-weekly paper was attempted by Benjamin Franklin in Philadelphia, and semi-weekly issue, were frequently attempted in that city, as well as in Boston (*a*) and New York for a number of years previous to the revolution. The infrequency of mail communication with the old country and the irregularity of news advices from the neighboring colonies made the semi-weekly issue, however, more of an undertaking than the times warranted, and, as a rule, they were not successful.

The second differentiation.

Semi-weekly newspapers founded.

In 1770, when Thomas began the publication of the *Massachusetts Spy*, he undertook to issue it three times a week, on Tuesdays, Thursdays, and Saturdays, twice a week to be printed on a quarter sheet and once on a half sheet. "When published in this way," as Mr. Thomas himself wrote in describing the enterprise, "news was conveyed fresh to subscribers, and the contents of a *Spy* might with convenience be read at a leisure moment." Three months only the *Spy* ran as a tri-weekly, and but three months longer as a semi-weekly; and when it appeared March 7, 1771, as a weekly, it was a concession that all the energy and enthusiasm of the most energetic and enthusiastic printer of colonial times could not succeed with a more frequently published paper.

With the stirring times of the revolution, when news of public concern was hourly expected and received, a natural device was adopted to meet the public demands without incurring too great an expenditure on the part of individual publishers. In the large cities, where several weekly papers were regularly published, they appeared upon successive days of the week, and were thus made supplementary to each other. By this expedient New York was furnished with a daily paper during the greater part of the revolutionary war, an arrangement having been entered into by the publishers of the four existing papers by which Rivington's *Royal Gazette* was to be issued on Wednesday and Saturday, Gaine's *Mercury* on Monday, Robertson, Mills & Hicks' *Royal American Gazette* on Thursday, and Lewis' New York *Mercury and General Advertiser* on Friday. These papers were all issued under the sanction and authority of the British commander-in-chief.

It was the excitement of the war which led to the founding of the first daily newspaper in the United States. This was the *American Daily Advertiser*, published in Philadelphia in 1784, eighty-two years after the first daily had been attempted in London, and seven years later than the first establishment of the *Journal de Paris ou Poste du Soir*, the first daily paper regularly attempted in Paris.

The first dailies founded.

Notwithstanding their difficulties and struggles, these first dailies met a want of the larger cities to which they appealed for support; and they grew stronger with the growth of the cities and were rapidly followed by others, which also lived, relying for support largely upon the patronage of the cities themselves, in the absence of means for rapid communication with the rural districts. It was nearly a quarter of a century thereafter before the smaller cities of the United States began to enjoy the privileges of daily newspapers; for while they were unfolding their resources they were content with the weekly issues that had marked the early history of the metropolitan cities. (*b*)

Spread of daily journalism.

All of the twenty-seven daily newspapers in existence in 1810 were printed in the seven cities of Philadelphia, New York, Baltimore, New Orleans, Alexandria, Virginia, and Charleston and Georgetown,

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[a] At the commencement of the second year of publication of the Boston *Chronicle*, the paper was changed from a weekly to a semi-weekly, and published Mondays and Thursdays, without an increase in price. It was published for a year and a half.

[b] The newspaper of that day (1787–1815) was a very different commodity from that which is now spread before the country every hour of every day in the year. It was small, rusty in appearance, generally in some kind of a fight, and, of course, without the benefit of steamships, telegraphs, lightning expresses, or any of the complicated agencies by which news is now collected and dispatched

South Carolina, Boston, Providence, Albany, Wilmington, Annapolis, Washington, Richmond, Norfolk, Petersburg, and Savannah being still served by weekly and semi-weekly papers, with an occasional tri-weekly in Washington, Savannah, and Norfolk.

The first daily newspaper in Albany, New York, the *Daily Advertiser*, appeared in September, 1815, and Rochester followed with a *Daily Advertiser* in 1826. Semi-weeklies had preceded the first Albany daily in 1788. The first Cincinnati daily, the *Commercial Register*, appeared in 1826. As the western cities, of marvelous suddenness of municipal development, sprang into being, one after another, the daily newspaper always made its prompt and confident appearance in the field. The 27 daily papers of 1810 had increased to 138 by the census of 1840, 254 by 1850, 387 by 1860, 574 by 1870, and 971 by 1880. The first attempt to estimate the number of copies of daily newspapers printed annually was made in the census of 1850, when the aggregate was put at 235,119,966. The census of 1860 placed the circulation of daily newspapers at 1,478,435, but neglected to give the annual aggregate of copies printed, while that of 1870 placed the total circulation at 2,601,547, and the number of copies annually printed at 806,479,570. The census of 1880 shows a daily circulation of 3,566,395, and an annual aggregate issue of 1,100,607,219, the increase in the number of daily newspapers between 1870 and 1880 having been 69 per cent., while the increase in their circulation has been but 37 per cent.

## THE PROVINCIAL DAILY PRESS.

The provincial daily press of the United States.

In no direction has the development of American journalism been so gratifying and significant as in the growth of what may be called the provincial daily press, for the want of a better designation. This growth has been stimulated by both the railroad and the telegraph—perhaps chiefly by the latter. The use of the telegraph enables the newspapers published hundreds of miles away from the commercial and news centers to supply their readers with the latest information of events therein contemporaneously with its publication in the metropolitan dailies, and the effect has been to confine the circulation of the journals of a particular city within clearly defined radii, determined by the nearness to another city in which a daily journal is published. The same tendency has been strikingly illustrated in England through the operation of the same causes, and a recent authority, dwelling on this phase of the subject, has declared that "the English provincial press is now fairly on a level with its London competitors", the Manchester, Leeds, Hull, Liverpool, and Edinburgh journals no longer leaving room in their respective towns for the London *Times* and *Telegraph*. Until the railroad and the telegraph came to the assistance of publishers in interior towns, both in England and the United States, all the latest intelligence, inaccessible to them, centered in the metropolitan towns, and there remained until the great dailies gathered it up and scattered it through the country. The provincial press was impotent to cope with them, because it lacked facilities to supply what the newspaper reader wants first and chiefly—the news; and, behind in that, it naturally remained behind in everything else, and became a servile imitator in tone, temper, and opinion. But different localities have different and often conflicting interests, and growing communities, as they yearly become more closely connected by wire and rail with the commercial centers, sever their reliance and dependence in other particulars. So the provincial newspaper, representing interests which its metropolitan contemporary does not reach, becomes, first, a home necessity; second, an independent, self-reliant necessity; and, third, the rival, if not the peer, of the great sheets that issue from the metropolitan press. Thus the scope of the more prominent individual journals in the United States—journals which have lost none of their prosperity or their ability—is becoming less and less national and more and more merely metropolitan.

This change in journalism is simply one illustration from many of a change which reaches all departments and phases of national life, and it has gone on hand and hand with the growth of great interior cities like Chicago, Saint Louis, and Cincinnati. We find to-day in these cities newspapers which are in no sense inferior to those published in New York, and, in some particulars, in individual cases, their unmistakable superiors. The newspapers of Chicago, regarding them as a whole, are the equals of the New York press in the lavishness of their expenditure for the collection of news of every description, and in the ability and discretion with which they present it.

A given number of newspapers in Chicago print regularly more reading matter, on larger sheets, than the same number of papers in New York. The same statement is probably true of the Cincinnati dailies. In all the larger interior towns of the United States there have grown up newspaper establishments which are capable of supplying all the newspaper wants of their busy and commercial population; and to this kind of development must be attributed the decadence of certain journals which at one time or another have

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instantaneously over the civilized world. The great event of the close of the last century, the death of Washington, was unknown in Boston until eight days after its occurrence. The latest news from Philadelphia on the morning of the 1st of January, 1800, was six days old, and from many of the towns of Massachusetts was hardly better. * * * Many worthy persons thought even this sleepy method was much too rapid. John Pickering, the uncle of Timothy, was made very unhappy when, in 1796, the Salem *Gazette*, which had been printed weekly till that time, began to appear twice a week. "It never had been printed but once a week," he said, "and that was often enough. It was nonsense to disturb the people's minds by sending newspapers among them twice a week, to take their attention from the duties they had to perform."—Delano A. Goddard's *Newspapers and Newspaper Writers in New England:* Boston, 1880.

exercised so marked an influence upon American affairs. The best illustration of this class is the *National Intelligencer*, which existed for so many years at Washington, and, under the able management of Gales & Seaton, exercised an influence upon the politics of the United States which was truly national, as its circulation extended into every state of the Union. Its decadence was due to no fault of its own, but to the development of the provincial press. In like manner it is not to be expected that hereafter any single newspaper, like Horace Greeley's *Log Cabin* of 1840, will ever be able to attain an influence commensurate with that which this lively campaign sheet briefly enjoyed. The power of the press has been infinitesimally subdivided by this development, and the dangers which some of our earlier statesmen foresaw in the growth of a newspaper aristocracy, by the concentration of the influence of the press about a comparatively few journals advantageously located in commercial or political centers, have long since ceased to be even imagined. The press of the United States now voices the varying views of thousands of minds, and represents the often conflicting and competing interests of many sections and of all the states. Its whole history since the close of the second or transitional era has been one of decentralization of influence as to individual journals, while it has witnessed at the same time the strengthening and consolidation of the resources of a comparatively small number of the existing newspapers. Both of these tendencies in growth will be generally recognized as natural, healthy, and in accordance with the genius of our institutions. (*a*)

Decentralization of the influence of the press.

## MORNING AND EVENING NEWSPAPERS.

The secondary differentiation of period of the frequency of publication in connection with the daily press has arisen in connection with morning and evening editions and frequent editions during the course of the business day. The first daily papers were all published in the afternoon. The *Daily Minerva*, which was started in New York by Noah Webster, the lexicographer, in 1793, as an organ of the Federal administration, appeared, according to its own statement, "every day, Sundays excepted, at four o'clock, or earlier, if the arrival of the mails will permit." With the *Minerva* was connected a semi-weekly paper, called the *Herald*, the contents of which were "lifted" from the daily forms and arranged for country circulation. The name of the *Minerva* was changed to *Commercial Advertiser* very shortly, and it still exists, under the management of Hugh J. Hastings, the oldest paper in the metropolis.

Morning and evening daily newspapers.

The afternoon or evening papers, as the present statistics show, continue to exceed in number the morning publications. This is natural, and may be ascribed to the comparative cheapness of the afternoon publication. Night service, whether on a newspaper or elsewhere, is more expensive than day service; and the afternoon journal is able to publish with less expense for the collection of news and with a smaller editorial force for the same amount of work than is required for the morning issue. This is more strikingly the fact to-day than it was in the earlier history of the daily press of the United States. The morning metropolitan journal is expected to publish full accounts of the happenings of the previous day up to the moment of going to press, and this requires in large cities a large force for evening work, including frequently stenographers and special correspondents at different points. All the information gathered by the morning press in this way is accessible to the afternoon journals of the same day from the printed copies, and may be condensed or rearranged by a comparatively small editorial force. The fact that the great majority of these latter journals go to press while the business of the day is yet in progress makes it possible for them to gather the news with comparative ease and with a corresponding curtailment of expenditure, and the same causes operate to give the morning journals, although fewer in number, a considerably larger aggregate circulation than that enjoyed by the afternoon or evening journals. The census of 1880 is the first one in which the daily newspapers have been separated into morning and evening classes, and no data therefore exists for determining the comparative rate of increase in the two classes.

Comparison of morning and evening newspapers.

The demand of thickly-settled communities for frequent information has led to the multiplication of editions, especially on the part of the journals issued in the afternoon. Except for the purpose of catching early trains with mails to outside points, it is not the custom for morning journals to issue more than one edition, which they have ready for the public at the early breakfast hour; but it is frequently the case that one establishment will publish both morning and evening editions, (*b*) and

The multiplication of editions.

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*a* The same influences have worked the same results in Great Britain. Mr. James Grant, in his *History of the Newspaper Press*, speaking of the present status of the provincial press of that country, says: "Neither mechanically nor intellectually will the provincial press suffer in the slightest degree from a comparison with the London metropolitan press. They exercise a mighty power over the public mind in the various localities where they are published. In this way the provincial press is rapidly trenching on the power and the prerogatives of the London journals; and, as the former continue to multiply in number, and weekly journals are rapidly becoming twice-a-week papers, and these, in turn, are becoming daily papers, it is my firm persuasion that before ten years have elapsed we shall see our provincial journalism exercising an influence on the public mind even mightier than that which is exercised by the metropolitan press."

*b* In 1796 a small paper, half a sheet medium, quarto, entitled the *New World*, was published at Philadelphia every morning and evening, Sunday excepted, by the ingenious Samuel H. Smith, afterward the editor of the *National Intelligencer*, published at Washington. The novelty of two papers a day from the same press soon ceased; it continued but a few months. This paper was printed from two forms on the same sheet, each form having a title, one for the morning and the other for the evening; the sheet was then divided, and one-half of it given to the customers in the forenoon and the other in the afternoon.

from three to four separate editions of the latter. This inquiry discovers twenty such establishments in the United States: one located in each of the states of Alabama, Georgia, Illinois, Maryland, New Hampshire, and Vermont; two in Louisiana and in Rhode Island; three in Ohio and in Pennsylvania; and four in Massachusetts. The morning and the evening newspaper from the same establishment being in every essential respect distinct newspapers, they have been so enumerated and counted in this report.

The evening papers and the evening editions of the morning papers are accustomed to put out a first publication early in the afternoon, and to follow it at intervals of an hour or oftener, according to the importance of the current news, until six o'clock—the later editions being identical with the earlier, except in the addition of the later telegraphic and other news. (*a*) These later editions are generally sold on the streets by newsboys and at stands, and are rarely distributed to regular subscribers.

Noon newspapers.

The experiment of noon papers has been frequently tried in the United States, and five such journals were published in the census year. One noon paper was published in Pennsylvania, two in New York, and in California noon editions of two evening newspapers were published; but as a rule this is not an hour when the news of the morning journals can be sufficiently supplemented to create a demand for such issues, or when the public is in a mood for newspaper reading. The daily journals which are published at that hour are chiefly of a commercial character.

Weekly and other editions of daily newspapers.

This inquiry has developed the fact that 725 of the 971 daily papers publish weekly editions in connection with the daily issue, 41 publish semi-weekly editions as well as weekly, and 41 publish tri-weekly editions, generally in connection with weekly and semi-weekly editions, although it is commonly the case that the tri-weekly is substituted for the semi-weekly. The custom of publishing a weekly edition in connection with the daily began with the earliest daily journals in this country. They were for the benefit of subscribers beyond the limits of the city of publication and only reached at that time by infrequent mails, and have grown to be one of the most lucrative features of the business. As a rule, the matter which appears in the several daily issues is selected and rearranged for the weekly sheet, so that the cost of publishing the latter is very largely reduced. These weeklies are formidable competitors of the weekly press proper, because, while furnished at the same price, or frequently at a less price, they contain a larger and better amount of reading matter than the latter can afford to supply. The aggregate circulation of the 804 weeklies connected with dailies is nearly one-quarter that of the remaining 7,829 weekly newspapers and periodicals of all classes and descriptions. Some of these weekly reprints of the daily journals reach a circulation almost phenomenal, extending from the cities of New York and Chicago into most of the states of the Union. Where these large editions are published, it is found profitable to add largely of reading matter, which is prepared especially for the weekly issue, and appears nowhere else.

## SEMI-WEEKLY AND TRI-WEEKLY PAPERS.

Semi-weekly and tri-weekly newspapers.

The semi-weekly and tri-weekly papers are not common in this country, the census revealing only 133 of the former class and 73 of the latter in the United States, including those which are published in connection with the daily press. It is worthy of particular notice, as an evidence of the conclusion arrived at regarding papers of these periods of issue, that 41 of the 133 semi-weeklies were connected with dailies and 41 of the 73 tri-weeklies—more than half—were likewise connected. Except as an adjunct to the publication of dailies, experience has not proved either class to be profitable; and as a rule the circulation of these semi-weekly and tri-weekly papers is uniformly smaller than that of the weeklies of the same grade.

The difficulty appears to be that, while the frequency of issue is not sufficient to enable these journals to serve as a substitute for the daily paper, it does not give sufficient advantage over the weekly issue to compensate the average reader of the latter for the added cost. This is especially true of the tri-weekly press, in the establishment of which there have been more failures in proportion to the number of successes than with any other class of periodic issues. Both the semi-weekly and the tri-weekly journals necessarily publish news which is more or less stale in localities that are accessible to the daily press, and in that respect they have but little advantage over the weekly. In all other localities they are found, as a rule, to be the basis of daily establishments, or after a brief experiment they are likely to revert again to the weekly period of publication.

As evidence of the accuracy of this conclusion, it will be noticed that the number of semi-weeklies published in 1870 (115) had only increased to 133 in 1880, while the number of tri-weeklies actually decreased from 107 to 73. The circulation of semi-weeklies was 247,197 in 1870, and had only increased to 258,652 in 1880, while the circulation of tri-weeklies decreased from 155,105 in 1870 to 72,910 in 1880. An examination of the schedules returned has convinced me that the great majority of the papers returned as tri-weeklies in 1870 are reported as dailies in 1880, where they continued to exist.

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*a* The Boston *Evening Traveller* regularly publishes five editions every afternoon, except Sunday, and there are several other papers which do the same. The usual number of editions, however, is three or four.

## CLASS AND SPECIAL JOURNALISM.

Origin of periodical and class journalism.

The next process of differentiation that has been conspicuous in the development of American journalism concerns wholly the periodical press, and has been in the direction of class and special publications. Here the range has been wide, indeed, and is continually growing wider. This special or class journalism, as it may properly be called, originated in England, and has reached a development there which is only exceeded by that observable in the United States. It had its origin in this country with periodicals devoted to literature and literary topics, of which there were a number founded in Massachusetts previous to the revolution, none of which met with any marked degree of financial success, or were able to perpetuate themselves beyond the first few years of experiment.

Colonial periodicals.

One of the first of these, if not the first, was the Boston *Weekly Magazine*, founded in 1743, but existing only for four weeks, in which were reproduced extracts from the London magazines, original poems, and miscellaneous reading matter. The *American Magazine and Historical Chronicle*, founded at the same place in the same year, lived for three years and four months, and was a very creditable imitation of the *London Magazine*. It published "dissertations, letters, essays, moral, civil, political, humorous, and polemical", together with a variety of miscellaneous reading matter, including summaries of the current news of the previous month. The *New England Magazine of Knowledge and Pleasure*, containing sixty pages, 12mo, did not survive, in 1758, its fourth monthly number.

Isaiah Thomas also made a venture in this class of periodical in 1774, which he named the *Royal American Magazine, or Universal Repository of Instruction and Amusement*. Each number contained three sheets of letter-press and two copperplate illustrations, and it is believed to have been the first illustrated journal published in this country. There were only six numbers of this magazine issued, the revolutionary war compelling the suspension of such an ambitious venture.

Early New York periodicals.

A similar experiment was made in New York in 1752, entitled *The Independent Reflector*, printed weekly, and containing moral and political essays, but no news. It was sustained for two years by a society of the cultured gentlemen of that city, who contributed to its contents, but were not able to make it a profitable venture. A *New American Magazine*, monthly, with forty pages, octavo, by James Parker, was begun at Woodbridge, New Jersey, in 1758. It was a publication of marked merit, but although there was then but one similar periodical in the whole of the colonies, it was discontinued at the end of twenty-seven months for lack of support. The one similar contemporaneous magazine was *The American Magazine, or Monthly Chronicle*, published in Philadelphia, which was established the year previous to the New Jersey journal, and died the same year. There were several similar ventures in Philadelphia previous to the revolution which met with the same fate, with which the names of Benjamin Franklin and William and Andrew Bradford were connected, either as publishers and printers, or both. The most celebrated of these, the *Pennsylvania Magazine*, owed its repute chiefly to the frequent contributions of Thomas Paine. The field may therefore be said to have been well tested, and proved unprofitable.

Early Pennsylvania periodicals.

The North American Review.

The present century opened somewhat more auspiciously for periodicals of this class, the first number of the famous *Portfolio* making its appearance in January, 1801, and this was followed in 1803 by the *Monthly Anthology*. This latter periodical, which drew its contributions from a volunteer corps of cultured Boston gentlemen, inspired in New England a literary taste and a love for letters which have been estimated very highly among the educating influences of the period; but it had been discontinued for several years before the influences which had become associated through it led to the establishment of the *North American Review*, founded in 1815 by William Tudor. This magazine was originally published every two months, in numbers of 150 pages each, and included in its contents, beside reviews, the variety of miscellaneous and poetical articles usually found in this class of periodicals; and in the course of a few years it passed into the control of an association of literary gentlemen, who met regularly in their editorial capacity. The *North American Review* passed through other changes in its earlier years, and many men directed its pages, but with a singularly uniform regard for the best standards of literary taste. The *Review* has contained many articles which entitled it to even rank with the higher class of the English reviews, and its files afford the best collocation of the American critical, literary, political, and scientific thought for the last seventy years. The zeal of a few individuals has kept this periodical alive through several crises, which gave evidence that the tastes of the American people were not responsive to their efforts.

## THE MONTHLY MAGAZINES.

Publications of the severely critical class, never very popular in the United States, have been rendered even less so by the marked success of the popular monthly magazines.

The magazine literature of the United States.

The magazine literature of the United States, taken all in all, is perhaps the most distinctive and creditable feature of our entire publishing interests. This interest has grown in a comparatively brief period to equal, both in volume and variety, the magazine literature of Great Britain, and includes several types of what may be properly styled the purely American magazine—types which are not even imitated elsewhere, and are not rivaled by the best products of the English periodical press.

Their peculiarity consists of the somewhat heterogeneous character of their contents, and the commingling in their pages of prose and verse, fiction, description, historical papers, moral or amusing essays, summaries of current events, literary criticism—all supplemented of late years by the best class of illustrations, which have come, in the end, to be their most attractive feature, and the one which chiefly marks them in comparison with similar periodicals now published in England on the same model.

*Harper's Magazine.*

The best types of the distinctively American magazine are *Harper's Monthly* and *Scribner's Monthly*—the latter now known as *The Century*. The former was established by the Messrs. Harper in 1850. It was at first, and for a considerable period, chiefly an eclectic magazine, containing the choicest articles from the English periodical press, with occasional original contributions. There had previously been popular periodicals without number projected in the United States, most of which lived but a brief life, and did not appear to meet a public want. The most notable exception to this rule was the *Knickerbocker Magazine*, established in New York in 1832, and crowded out of existence in 1860 by younger rivals, which succeeded better in meeting the requirements of the popular taste. *Putnam's Magazine* (1853–'57) was another early venture of this character which enlisted many of the best writers of the country, and was an admirable type of the higher periodical magazine.

*Harper's Magazine* very soon abandoned its purely eclectic character, enriching its columns with the productions of the best American authors, including more especially sketches of travel, fiction, science, history, and poetry, and it added immensely to its prestige and popularity by the profuse and elegant illustrations which adorned its pages. At one time or another nearly every well-known author in the United States has contributed to the columns of *Harper's Magazine*, and the foremost English novelists have regularly supplied it with stories contemporaneously with their publication at home, receiving therefor the same remuneration given by the home publishers. The success of *Harper's Monthly* has been commensurate with the enterprise, good taste, and ability uniformly displayed in its management. Its sixty volumes, extending uninterruptedly over the thirty years that have marked the development of American literature and the stalwart growth of the American periodical press, are to-day an unsurpassed monument of the publishing interest in the United States.

*Scribner's Monthly Magazine.*

*Scribner's Monthly*, projected by James G. Holland and Roswell B. Smith in 1870, is a younger but no less distinctive example of the best American periodical literature. Its success, like that of *Harper's Magazine*, may be attributed largely to the cosmopolitan character of its contents, and it has succeeded marvelously in striking the average taste of the American reading public, while refusing to pander in the least degree to the vicious or the sensational. In its typographical and artistic features *Scribner's Monthly* presents a model of excellence which is believed to be unrivaled by any European magazine of like character.

The features of these two magazines which may be said to have determined their success are of American conception, and do not find their parallel on the other side of the water, and it is not surprising that they should both command large sales in England as well as in the United States. It may be said of them generally that they are light without being frothy, and that by the variety of their contents they supply healthy nutriment for the varied tastes of the entire family circle. In this respect, as well as by their illustrations, they present their chief contrast to the leading periodicals of Great Britain, and more especially to the quarterly and latterly to the monthly reviews, which hold the first place in English periodical literature.

Other American magazines.

Much the same degree and quality of praise is due to *Lippincott's Magazine*, *Appleton's Journal*, and several younger but sturdy monthlies which have been born during the census decade in both eastern and western cities. The *Atlantic Monthly*, founded in Boston in 1857, has enriched our literature with a class of criticism, fiction, and poetry higher and more enduring than that which has marked the contents of any other American magazine, and the influence of this periodical in popularizing the best reading matter cannot be easily overestimated. It has become the recognized function of the American magazine to occupy a clearly-defined middle ground between the newspaper press and book literature. The newspaper press aspires to absorb all the functions of the magazine by dealing in criticism, in fiction, in historical study, in sketches of travel, and in the presentation and discussion of social and moral questions; but from its very nature it can never crowd the latter out of its acknowledged field. Journalistic work in these fields is necessarily cursory, and is too often slipshod. On the other hand, the magazine is coming to be more and more accepted by every class of writers in the United States, as well as in England, as the proper and desirable medium for the first introduction of their writings to the public. Nearly if not quite a majority of American books of the popular or untechnical character now appear first in the magazines, either serially or by piecemeal, as in the case of fugitive poetry, essays, and critiques. This custom has given a dignity and importance to the periodical press of the nation which it struggled in vain to reach in the earlier half of the present century. The circulation of the purely literary magazines of the class we have been describing is shown by the census inquiry to have reached 548,552 copies per issue in the census year.(*a*)

The magazine and the newspaper.

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*a* The best summary of the successive literary periodicals of the United States is that in *Appleton's American Cyclopædia*, which, by the courtesy of the publishers, is here reproduced:

"Reversing the rule which had prevailed in the Old World, the United States, as was natural in a new country where scholars and

## THE WEEKLY LITERARY PRESS.

The attempt to establish weekly papers of a literary and critical character has been constantly made for a half century past, and the outlay of capital, brains, and enterprise has generally been attended with disaster. Experiments of this character have become more rare of recent years, chiefly because of the omnivorous methods of the daily press in covering all the varieties of reading matter which in the old days were regarded as the peculiar province of the journals of which I am now speaking.

Weekly periodical press.

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institutions of learning were as yet few, had its journals of entertainment long before its journals of erudition appeared. The date of the first literary periodical is 1741. In that year Franklin issued the *General Magazine and Historical Chronicle*, at Philadelphia, on the plan of the *Gentleman's Magazine;* but it existed only half a year, while of the *American Magazine*, begun in the same year and city by Webbe, two numbers only were published. The other issues of the kind prior to the revolution were mostly short-lived. They were the *American Magazine and Historical Chronicle* (Boston, October, 1743, to December, 1746); the *Boston Weekly Museum* (4 numbers, 1743); the *Independent Reflector* (New York, 1752-'54), which numbered among its contributors Governor Livingston and the Rev. A. Burr; the *New England Magazine* (Boston, 1758), which ceased after the appearance of a few parts; the *American Magazine* (Philadelphia, October, 1757, to October, 1758), published by Bradford; the *North American Magazine* (Woodbridge, New Jersey, 1758-1766), by S. Nevil; the *American Magazine* (Philadelphia, 1769), by Nicols; the *Royal American Magazine* (Boston, 1774-'75); and the *Pennsylvania Magazine* (Philadelphia, 1775), commenced with articles by Thomas Paine and others, but interrupted by the war. After the conclusion of peace, and before the end of the century, came the *Columbian Magazine* (Philadelphia, 1786-'89), edited at first by Carey, who abandoned it to undertake the *American Museum* (1787-1797), a compilation from the newspapers and other journals of the time of much historical value; the *Massachusetts Magazine* (Boston, 1789-1796); the *New York Magazine* (1790-1797); the *Farmers' Museum* (Walpole, New Hampshire, 1793), edited from 1796 until near the close of the century by Dennie; the *United States Magazine* (Philadelphia, 1796), by Brackenridge; the *American Universal Magazine* (Philadelphia, 1797); and the *Monthly Magazine and American Review* (New York, 1799-1800), founded by the novelist C. B. Brown, but carried on afterward as the *American Review and Literary Journal* (1801-1802).

"It would hardly be possible to give a complete list of the numerous literary miscellanies which have been undertaken since 1800 in the principal cities of the Union. A large majority of them never succeeded in obtaining anything like success or permanence. Among them were the *Portfolio* (Philadelphia, 1801-1825), by Dennie, the first American periodical which reached an age of over ten years; the *Literary Magazine* (Philadelphia, 1803-1808), by C. B. Brown; the *Monthly Anthology* (Boston, 1803-1811), containing articles by Tudor, Buckminster, Thacher, Kirkland, J. S. J. Gardiner, J. Q. Adams, and G. Ticknor; the *Literary Miscellany* (Cambridge, 1804-1805); the *General Repository* (1812-1813), at the same place; the *Mirror of Taste* (Philadelphia, 1810-1811), by Carpenter, who paid much attention to dramatic matters; the *Monthly Register* (Charleston, 1805), the first southern periodical; *Literary Miscellany* (New York, 1811), by Baldwin; the *Analectic Magazine* (Philadelphia, 1813-1820), designed especially for officers in the navy, and edited in 1813-1814 by Irving; the New York *Weekly Museum* (1814-1817); the *Portico* (Baltimore, 1815-1819); Buckingham's *New England Magazine* (Boston, 1831-1835); the *American Monthly Magazine* (New York, 1817-1818); the *Literary and Scientific Repository* (New York, 1820-1821); *Atkinson's Casket* (Philadelphia, 1821-1839), displaced at last by *Graham's Magazine*, which from 1840 to 1850 was the best of its class in America; the *Atlantic Magazine* (New York, 1824-1825), by Sands, continued until 1827 as the *New York Review;* the *Southern Literary Gazette* (1825); the *New York Mirror* (1823), begun by Morris and Woodworth, the latter being succeeded by Fay, who gave place to Willis, from which time till 1842 Morris and Willis successfully conducted it; the *Illinois Monthly Magazine* (Vandalia, 1830-1832), the earliest literary publication in the West, edited by J. Hall, who superseded it by the *Western Monthly Magazine* (Cincinnati, 1833-1836); the *American Monthly Magazine* (New York, 1833-1838), established by Herbert and Patterson, and subsequently edited by Park Benjamin; the *Gentleman's Magazine* (Philadelphia, 1837-1840), by W. E. Burton; the *Dial* (Boston, 1840-1844), edited during its first two years by Margaret Fuller, and afterward by R. W. Emerson, the organ of the school of New England transcendentalists; *Arcturus* (New York, 1840-1842), by C. Mathews and E. A. Duyckinck; the *Magnolia* (Charleston, 1842-1843); the *International Magazine* (New York, 1850-1852), under the editorial charge of R. W. Griswold. Much more prominent and successful than any of these were the *Knickerbocker* (founded by C. F. Hoffman at New York in 1832, and continued chiefly under the editorship of Louis Gaylord Clark till 1860) and *Putnam's Monthly* (New York, 1853-1857, and again 1867-1869). These two were the best of the lighter American magazines of the past.

"The present periodical literature of the United States includes several monthlies of a high class. The *Atlantic Monthly*, founded in Boston in 1857, successively edited by J. R. Lowell, J. T. Fields, and W. D. Howells, and sustained by the frequent contributions of Longfellow, Holmes, Whittier, and other leading writers of America, is prominent among these. *Harper's New Monthly Magazine* (New York, 1850) is the most widely circulated of the American monthlies; and others of a similar class more recently established in New York are *Scribner's Monthly*, edited by J. G. Holland, and the *Galaxy*. *Lippincott's Magazine* (Philadelphia) and the *Old and New* (Boston) are monthly publications of like character. The *Overland Monthly* is published in San Francisco, and the *Lakeside Monthly* at Chicago. All the early magazines drew largely from English sources, but in 1811-1812 appeared at Philadelphia the *Select Views of Literature*, solely devoted to reprints from the foreign periodical press; it has been followed by the *Saturday Magazine* (Philadelphia, 1821); the *Museum of Foreign Literature* (Philadelphia, 1822-1839), the *Select Journal of Foreign Periodical Literature*, edited by A. Norton and C. Folsom, (Boston, 1833-1834), and by two existing publications, *Littell's Living Age* (Boston, 1844), and the *Eclectic Magazine* (New York, 1844). A multitude of magazines filled with light reading, and designed more particularly for circulation among the women of America, has been published, the earliest of which were the *Ladies' Magazine* (Philadelphia, 1799) and the *Ladies' Weekly Miscellany* (New York, 1807-1808); later ones were the *Lowell Offering* (1841), chiefly written by female operatives in the New England factories; the *Ladies' Companion* (New York, 1820-1844); the *Columbian Magazine* (New York, 1844-1848); the *Union Magazine* (New York, 1847), by Mrs. Kirkland, afterward published at Philadelphia as *Sartain's Magazine*; *Arthur's Magazine* (Philadelphia); *Miss Leslie's Magazine* (Philadelphia); and the still issued *Godey's Lady's Book* and *Peterson's Magazine*, of Philadelphia. Magazines for children appear to have originated with the *Young Misses' Magazine* (Brooklyn, 1806), and have been published since in great numbers. Rather historical than literary have been the *American Register* (Philadelphia, 1806-1810), and periodicals of the same name by Walsh (Philadelphia, 1817), and by Stryker (Philadelphia and New York, 1848-1851), as well as the *American Quarterly Register* (Andover, 1829-1843), by Edwards. The *New England Historical and Genealogical Register* (Boston, 1852), by Drake, and since by John Ward Dean and others, the *Historical Magazine* (New York, 1857), by Folsom, and the *New York Genealogical Record* (1869) are also filled with American historical and biographical matter.

"The review literature of the United States begins with the *American Review of History and Politics* (Philadelphia, 1811-1813), by Walsh; but the ablest and most permanent publication of this sort has been the *North American Review* (Boston, 1815), which has been successively edited by Tudor, E. T. Channing and R. H. Dana, Edward Everett, Sparks, A. H. Everett, Palfrey, Bowen, Peabody, Lowell, The New York *Weekly*, with which Horace Greeley began his editorial experience, and the *Home Journal*, made famous in its early days by the pens of N. P. Willis and others, are illustrations of a style of publication honestly and thoroughly tried and unmistakably determined not to be profitable. The *Home Journal* has survived from 1849, and is still in a flourishing condition, owing to the fact that its original features have been largely changed and its character assimilated to that of a modern society journal, for which species of publication the American taste seems to offer a more promising field. On the other hand, the success of the New York *Nation*, a journal of high critical and literary ability, proves that a grade of periodical which attains remarkable success in Great Britain is neither unappreciated nor necessarily unremunerative in the United States. Ten years of successful publication by the Boston *Literary World*, and for a shorter period by the *Critic*, of New York, demonstrate that periodicals of criticism and literary intelligence are able to gain a foothold here by virtue of merit, and promise important and valuable additions to our periodical literature as culture becomes more general and the popular intelligence more exacting. While the daily press has temporarily interfered with the success of this class of periodicals by its enterprising intrusion into their field, it is all the while stimulating a public taste which must in time demand and sustain a hebdomadal journalism in this country less crude and less superficial in its judgments. The long list of failures which marks the history of this class of periodical literature in the United States is suggestive of the presence of men among us whose courage and ideals have been ahead of their times.

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Charles Eliot Norton, and Henry Adams, and has constantly maintained a high character both for style and critical ability. The *American Quarterly Review* (Philadelphia, 1827–1837); the *Southern Review* (Charleston, 1828–1832), by Elliott and Legaré; the *Western Review* (Cincinnati, 1828–1830), by Flint; the *New York Review* (1837–1842), established by Hawks, and subsequently edited by J. G. Cogswell and C. S. Henry; and the *Southern Quarterly Review* (Charleston, 1842–1852), were well conducted, but were short lived. The *Democratic Review* (New York, 1838–1852), afterward the *United States Review* (1853–1855), and subsequently revived by Florence and Lawrence as the *National Democratic Quarterly Review*; the *American Whig Review* (New York, 1845–1852), by Colton and Whelpley; the *Massachusetts Quarterly Review* (Boston, 1847–1850), by T. Parker; and the *New York Quarterly Review* (1852–1853), were also of short duration. The *New Englander* began at New Haven in 1843, and the *National Quarterly Review* at New York in 1860. The *International Review* was begun at New York in 1874. Minor critical journals have been the *Literary Review* (New York, 1822–1824), followed by Bryant's *New York Review and Athenæum Magazine* (1825), and its successor, the *United States Review and Literary Gazette* (1826–1827); and several periodicals in imitation of the London literary weeklies have been attempted, such as the *New York Literary Gazette* (1834–1835 and 1839); the *Literary World* (New York, 1847–1853), edited by Hoffman and the Duyckincks; *Norton's Literary Gazette* (New York, 1854–1855); the *Criterion* (New York, 1855–1856); the *Round Table* (1865–1868), and the *Citizen* (1864–1873). The *Literary World*, founded in Boston, 1870, by S. R. Crocker, and *Appleton's Journal* (New York, 1869), are successful literary weeklies; the former a critical periodical, the latter general. *The Nation* (New York, 1865), edited by E. L. Godkin, though more properly a weekly newspaper and political review, holds a high place in literary criticism, and has proved successful.

"The periodical religious literature of the country dates from the closing years of the last century. Omitting the notice of weekly journals, only those periodicals can here be mentioned which are of recognized importance in connection with the national theological literature. Of these the following is nearly a complete list: The *Theological Magazine*, bi-monthly (New York, 1796–1798); the *New York Missionary Magazine*, bi-monthly (1800–1803); the *Connecticut Evangelical Magazine* (New Haven, 1800–1814); *Monthly Anthology* (Boston, 1803–1811,) followed in the exposition of Unitarian sentiment by the *General Repository* (1812–1813), the *Christian Disciple* (1813–1819), the *Christian Disciple and Theological Review*, new series (1819–1823), and the *Christian Examiner*, bi-monthly (1823–1870), edited at various times by Palfrey, Jenks, Walker, Greenwood, Ware, Ellis, Putnam, Hedge, and Hale; the *Panoplist*, Boston, commencing in 1805 (edited by Jeremiah Evarts), absorbing in 1809 the *Missionary Magazine*, and about ten years later taking the name of the *Missionary Herald*, which is still issued as the organ of the American Board of Missions, but succeeded as a theological publication by the *Spirit of the Pilgrims* (1828–1833), conducted by E. Pond; the *Christian Magazine* (1807–1811), edited by Dr. John M. Mason; the *Christian Herald* (New York, 1816), transformed in its eighth volume, four years later, into the *Sailors' Magazine*, still published; the *Christian Spectator* (New Haven), *Congregationalist*, issued monthly from 1819 to 1828, and quarterly from 1829 to 1838, and succeeded after an interval of five years by the *New Englander* (1843); the *Christian Advocate*, monthly (Philadelphia, 1822–1834), Presbyterian; the *Princeton Review*, commenced as the *Biblical Repertory*, by Hodge, in 1825, in 1871 united with the *Presbyterian Quarterly Review*, when the titles of the two were combined; the *American Biblical Repository* (New York), issued quarterly from 1831 to 1850, when it was united with the *Bibliotheca Sacra* (Andover, 1844), with which the *Christian Review* (Baptist), commenced at Boston in 1836, and afterward published at New York, has been united, and which also in 1871 absorbed the *Theological Eclectic*, established at Cincinnati in 1865; the *American Quarterly Observer* of Edwards (Boston, 1833–1834), united with the *Biblical Repository*; the *American Quarterly Register* (Andover, 1829–1843); the *Literary and Theological Review* (New York 1834–1839); the *Universalist Quarterly* (Boston, 1843); the *Universalist Quarterly Review*, by G. H. Emerson (1844); the *Methodist Quarterly Review* (1841), commenced as the *Methodist Magazine*, 1818; Brownson's *Quarterly Review* (Boston and New York, 1844–1864, revived in 1873), begun as the *Boston Quarterly Review*, 1838; *American Quarterly Church Review* (Episcopal), commenced at New Haven, 1848, and subsequently transferred to New York; *New Englander* (New Haven, 1843); the *Theological and Literary Journal* (New York, 1849–1851), preceded by *Views in Theology*, published in occasional numbers (1824–1833); *Evangelical Quarterly Review*, Lutheran (1850–1870); *Religious Magazine and Monthly Review* (Boston, 1848), transformed in 1875 into the *Unitarian Review*, which is also published monthly at Boston; the *Presbyterian Quarterly* (Philadelphia, 1853–1862), by Wallace, united with the *American Theological Review*, founded by H. B. Smith in 1859, and after the union known as the *American Presbyterian and Theological Review*, till 1871, when, in conjunction with the *Princeton Review*, it took the name of the *Presbyterian Quarterly and Princeton Review*, by which it is now known; the *Free Will Baptist Quarterly* (Dover, New Hampshire, 1853–1866); *Mercersburg Review* (1854), the new series dating from 1867; the *Protestant Episcopal Quarterly Review* (1854); the *New Brunswick Review* (New Brunswick, New Jersey, 1854–1855); *Congregational Quarterly* (Boston, 1859); *Presbyterian Magazine* (Philadelphia, 1851–1860), succeeded after an interval by a similar publication first issued at Cincinnati and subsequently transferred to Philadelphia; the *Catholic World*, a prominent Roman Catholic monthly (New York, 1865); the *Baptist Quarterly* (Philadelphia, 1867); the *Reformed Church Monthly* (Philadelphia, 1868); the *Southern Review*, commenced in 1867 at Saint Louis under the auspices of the Methodist Church South, and still continued at Baltimore; and the *Quarterly Review* of the Evangelical Lutheran church (1871), succeeding to the *Evangelical Quarterly Review*."

The popular story papers.

The most notable successes attained by American publications not of a purely news character are found in a type of periodical of which Robert Bonner, of the New York *Ledger*, may be said to have been the fortunate discoverer. Mr. Bonner purchased the *Ledger* in 1851, and shortly thereafter converted it from a commercial sheet, devoted largely to the dry-goods trade, into a family newspaper, excluding from its contents everything relating to the business and news of the day, and substituting therefor a series of continued and short stories, not generally of the highest class of fiction. But he attracted public attention to his venture by engaging the best known literary and public men of the country to write for the *Ledger* over their own signatures. Among the contributors who thus assisted to make the *Ledger* widely known and read were Mrs. Sigourney, Fanny Fern, Edward Everett, William C. Bryant, Horace Greeley, Mrs. Stowe, and Henry Ward Beecher, and under the impetus afforded by these names it rapidly rose to an enormous circulation, which at times has reached as high as 400,000 per issue. The *Ledger* may be said to have been the original of that class of literary publications which has met with the greatest success both in this country and in England. There are in London nearly a dozen publications of this character, none of which, however, are conducted on as high a level as that for which the *Ledger* set a worthy example. These English story papers circulate in enormous quantities all over the kingdom. The imitations of the *Ledger* in the United States have been numerous, and frequently their publication has been attended with great pecuniary success.

Mr. Bonner's *Ledger*.

The sensational press.

The lapse from a journal of the kind which Mr. Bonner started to the lower grades of sensational reading matter is very easy, and has been found in the United States, as in every other country, one of the most profitable fields of journalism. The country is weekly flooded with poorly printed sheets, whose crowded columns are the receptacle for vilely written stories of exciting adventure and prurient tendency, and whose eager purchasers are the servant girls and the shop boys. Some of these journals hover close upon the borders of decency; and the general effect of this class of periodical literature is far from healthy or advantageous. It has come to have a circulation proportionately larger than that of any other class of journals, although it is still true that periodicals of this kind do not yet meet with the tremendous sale in this country which attends their publication in London.

Family story papers.

It is due to the enterprising publishers of the weekly class of papers to add that there are a number of them, now in a flourishing condition, which are devoted to what is described as family reading, which do possess a healthy moral tone, while they strive to fill their columns with matter which will prove entertaining to all elements in the community. These family story papers are now published in larger or smaller numbers in most of the chief cities of the United States.

Circulation.

The aggregate circulation per issue of the weekly and monthly periodicals of this class, including all describing themselves as "literary" periodicals, is 1,910,855 copies.

## THE RELIGIOUS PRESS.

Comparative statistics of the religious press.

The next most striking differentiation of the American periodical press suggested by the census inquiry has been the establishment and successful conduct of what is known as the religious press. In 1850 there were 191 religious newspapers and periodicals; in 1860 the number had increased to 277, an increase of 47 per cent. No attempt was made to estimate the circulation of the religious press until the census of 1870, when there were reported 407 religious papers, with an aggregate circulation of 4,764,358. The Tenth Census reveals this number increased to 553, with a correspondingly increased circulation.

The religious periodicals of the United States comprise among their number many of our oldest and most successful journalistic enterprises. In tracing the origin of this class of periodicals it is interesting to recall that when Bartholomew Green assumed the management of the original Boston *News-Letter*, in 1723, he gave it a semi-religious character, somewhat in consonance with the prevailing tendencies of public thought at that period and in that section of the country. In his "advertisement from the publisher" he declared "because this is a country that has yet, through the mercy of God, many people in it that have the state of religion in the world very much at heart, and would be glad, if they knew how, to order their prayers and praises to the great God thereon, I shall endeavour now and then to insert an article on the state of religion". Somewhat similar announcements were made by the publishers of other early newspapers. (*a*)

The first religious journal.

Over the honor of the establishment of the first religious periodical, distinctively of that character, in the United States there is a long-standing controversy, which this report will not undertake to decide. The Boston *Recorder* was first issued in Boston, January 3, 1816, (*b*) by Nathaniel Willis, whose father, a practical printer, had printed and published the *Independent Chronicle*, a whig newspaper, in Boston, from 1776 to 1784. The descendants of Sidney Edwards Morse have claimed for him the honor of being its first editor, and in support of this claim they have given what is generally regarded as satisfactory

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*a* In 1743 Kneeland and Greene, of Boston, published the *Christian History*, probably the first religious newspaper in the world. It was edited by Thomas Prince, jr.—*His. Mag., IX, New Series*, 39.

*b* In February, 1816, Nathan Whiting, of New Haven, Connecticut, issued proposals for a weekly religious newspaper under the title of the *Religious Intelligencer*, in an octavo of 16 pages.—Mansell.

evidence. The *Recorder* now forms a part of the *Congregationalist* of Boston. The *Watchman and Reflector*, a large and well-edited journal, was founded in Boston in 1819 as an organ of the Baptist denomination, and has had from the beginning a prosperous and influential career. In 1820 Sidney Edwards Morse left the office of the *Recorder* and established, in connection with his elder brother, the *Observer*—a journal which has had an equally prosperous career. About the same time were established quite a number of the existing religious journals. The *Zion's Herald*, in Boston, was founded in 1818 as the organ of the Methodist church, and the *Christian Register*, in Boston, in 1821, as an exponent of American Unitarianism.

Success of religious journalism.

From the very beginning the men who ventured into the field of religious journalism achieved a degree of success which has not been equaled in any class of periodical publication. This is explainable by the fact that they each had behind them a well-defined and well-organized constituency in the shape of the church whose creed they advocated, and whose membership took pride and found advantage in rendering efficient support. As a rule, they have been conducted with tact, judgment, and business sagacity. The editorial management of the religious journals has generally been consigned to men who are noted in their denomination for efficient services to the church, the publishers early adopting the plan of adding to the popularity of their journals by the introduction of secular departments, in which due attention was paid to the events of the day and to political, social, and material developments of importance.

Denominational organs.

Circulation of religious newspapers by denominations.

The honor of serving as the special organ of the large denominations in the United States is now divided between numerous papers, which are generally localized to a degree for the section of the country in which they are published, and which push their respective claims upon the members of their denominations with the business methods which distinguish the purely secular journals. The number of religious journals is thus constantly increasing, and every considerable religious sect in the United States now has its one or more exponents. (*a*) In this connection a table is submitted (Table X), showing the sectarian division of these papers by states. The following table gives the aggregate number and circulation of all the journals of each of the denominations:

| Denominations. | Number. | Circulation. | Denominations. | Number. | Circulation. |
|---|---|---|---|---|---|
| Baptist | 63 | 292, 428 | Presbyterian | 42 | 201, 410 |
| Christian | 4 | 7, 800 | Primitive Christian | 2 | 958 |
| Congregational | 14 | 92, 419 | Reformed | 11 | 24, 230 |
| Disciples | 11 | 56, 350 | Roman Catholic | 70 | 450, 752 |
| Dunkards | 4 | 900 | Second Advent | 12 | 51, 400 |
| Episcopalian | 33 | 90, 030 | Spiritualist | 7 | 41, 000 |
| Evangelical | 27 | 267, 166 | Swedenborgian | 3 | 1, 600 |
| Friends | 5 | 12, 075 | Unitarian | 4 | 15, 850 |
| Jewish | 16 | 52, 500 | United Brethren in Christ | 7 | 25, 285 |
| Lutheran | 22 | 77, 177 | Universalist | 9 | 30, 300 |
| Mennonite | 9 | 17, 425 | Unsectarian | 96 | 394, 642 |
| Methodist | 75 | 375, 461 | | | |
| Moravian | 2 | 8, 500 | | *a* 553 | 2, 595, 858 |
| Mormon | 4 | 8, 200 | Sunday-school papers | 194 | *b* 6, 028, 049 |

*a* 1 Shaker included in total number. *b* This includes the issue of enormous numbers of mere leaflets or single-page tracts, for weekly Sunday school use.

Unsectarian journals.

One striking peculiarity of the statistics of the religious press illustrated by this table is the large number of journals of a religious character which are undenominational. The success of this class of journals is perhaps the most notable point in connection with religious journalism, and may be taken as a reflex of the habits of religious thought which prevail among the people, and their number has more steadily increased of late years than that of the denominational journals.

Stability of the religious press.

In connection with the stability of the religious press, a notable remark was made by the Rev. Clement C. Rabb in closing the sixteenth year of his editorial connection with the *Christian Herald* of Cincinnati. He stated that nearly one-half of the religious papers which were upon the exchange list of that paper in 1852, when his connection with the journal began, had died for want of support during the sixteen years. The statement does not indicate any exceptional lack of vitality in the religious newspaper, while it certainly proves that religious journalism is subjected to precisely the same conditions and risks that surround and embarrass secular journalism. The number of journals of all kinds and descriptions that have been started and have failed in the United States, if it could be accurately ascertained, would be found to be

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*a* There are in Great Britain 400 religious newspapers, 315 of which are printed in London, 26 in Scotland, 9 in Ireland, 19 in Wales, and 31 in English provincial towns. They are representative of all the sects which have any standing in England, the largest number (13) being identified with the church of England. They vary as greatly in size as do those of the United States, and much more in price, running from sixpence to one penny; the better class of them, like the *Guardian* and the *English Churchman*, are six-cent papers. They are uniformly hebdomadal, one or two efforts to establish semi-weekly papers having failed. The oldest English religious newspaper is the *Watchman*, established in 1835 as the recognized organ of the Wesleyan Methodist body, and the *Guardian* (Anglo-Catholic), a sixteen-page paper, quarto, is the most profitable, if not the best edited and managed. It was established in 1846.

many times the number of periodicals now in existence. The blight of insufficient support has fallen with peculiar force upon the more stately periodicals devoted to theological discussion, of which a large number have been inaugurated in the United States and but few have survived for any length of time. The *Bibliotheca Sacra* (founded at Andover in 1844), the *Princeton Review* (originally founded as the *Biblical Repertory*, in 1825), and the *New Englander* (established in New Haven in 1843) are the most notable examples of a long and illustrious existence among American periodicals devoted to polemics. These, with many other religious periodicals which might be named with equal propriety, are striking illustrations of success attained and made possible by the voluntary labors of men who are glad to work for a cause which lies near to their hearts, not only without remuneration, but at a positive sacrifice of money and the labor which represents money.

## SUNDAY-SCHOOL AND CHILDREN'S PERIODICALS.

Periodicals for the young.

A distinctive feature of American journalism, and one which has been carried farther in this country than in any other, is the periodical adapted to juvenile reading. The first periodical of this class known to have been established in this country was the *Youth's Companion*, established in Boston in 1826 by Nathaniel Willis, the founder of the *Recorder*. This journal is still in existence, and is a handsome, well-printed eight-page weekly. Upon the model thus created innumerable journals have since been founded, and have met with no small degree of success.

Sunday-school papers.

Many of the children's periodicals are Sunday-school papers, and are sold in bulk to the officers of these organizations, instead of to annual subscribers. In this way they reach enormous circulations, and are frequently distributed gratuitously to their young readers. These papers are generally illustrated, with a fair degree of skill, and their contents are graded to the age of the average Sunday-school scholar. The census shows a total of 217 children's periodicals published in the United States in 1880, the greater part of which were of this class of Sunday-school papers. This count also includes a number of leaflets or lesson sheets, issued periodically, and published for the use of scholars and teachers in the Sunday schools of the several denominations.

A great educator.

Vicious juvenile prints.

In its periodical literature for the young the United States is incomparably superior to any other country on the globe. This class of journals, widely read as it is during the formative period in all sections of the country and by children of every class, grade, and nationality, is an educational influence not surpassed by any other agency at work to effect the elevation of the masses. It is greatly to be regretted that there are included among the children's periodicals a number of prints of the cheaper order, modeled with dangerous closeness upon the flashy, cheap literature for more adult minds, which pours in such an undiminishing stream from the presses of the Anglo-Saxon nations.

*St. Nicholas* and *Harper's Young People.*

In most complete contrast to the journals in question are such juvenile periodicals as the *St. Nicholas*, a monthly founded in 1870, and *Harper's Young People*, a weekly founded in the census year. The former has laid the best brains and the best pencils of the United States under tribute for the edification, amusement, and interest of young people, and it is absolutely unique in its wealth of original illustration and its variety of entertaining reading matter adapted specially to the tastes of the young people.

## THE AGRICULTURAL PRESS.

The first agricultural journal.

Continuing to trace the historical differentiation of the American press, the agricultural press next requires attention. The pioneer in this field appeared two years after the first religious journal, and was called the *American Farmer*, issued in April, 1818, in Baltimore, Maryland, and was founded by John S. Skinner, then and still well and honorably known in connection with the discussion of farming topics. The *American Farmer* was for a long time widely circulated throughout most of the states, and is still published.

Statistics of the agricultural press.

The attention of the agricultural classes is taken up by 173 agricultural journals, of all kinds and descriptions, with an aggregate circulation per issue of 1,022,171 copies, this number having increased from 93 in 1870, when their combined circulation was 770,752. The percentage of increase in circulation is quite as great as that of any other variety or class of periodical, a fact somewhat unexpected, inasmuch as the increasing habit of daily and weekly newspapers to devote a considerable portion of their space to the discussion of the freshest agricultural topics—and particularly to those which relate more or less directly to the produce markets—has had a perceptible influence in restricting the circulation of the purely agricultural journal.

Early agricultural papers.

Solomon Southwick established the *Plough-Boy* at Albany in 1821, and Thomas Reen Fessenden and T. W. Shepard founded the *New England Farmer* at Boston in 1822. These were followed by the *Southern Agriculturist*, published in Charleston, South Carolina, in 1828, by John D. Legare, and by the *Genesee Farmer*, published by Luther Tucker in Rochester, New York, in 1830. The latter year witnessed the establishment of the New York *Farmer and Horticultural Repository* by Samuel Fleet. The *Maine Farmer* appeared in 1833; and in 1834 Jesse Buell retired from active political journalism to found the successful *Cultivator* at Rochester. In rapid succession thereafter appeared the Boston *Cultivator*, the *Massachusetts Ploughman*, the *Quarterly Journal of Agriculture, Hovey's Magazine of Horticulture*, and the *American Agriculturist.*

The latter dates from 1842, and is one of the numerous periodicals of the same class which originated in all parts of the country at or about the same time, some of which are still in healthy existence, while others quickly subsided. The *Agriculturist* is especially worthy of mention, because of the remarkable success that has attended the unique and untiring efforts of its proprietor to increase and extend its circulation, which at one time reached a point undoubtedly higher than was ever before attained by a journal of its class. Its contents are duplicated every month for a German edition, which also circulates widely.

Varieties of the agricultural press.

These agricultural papers are filled with information and discussion upon all phases of farming, including generally some attention to the produce markets and to family reading matter. Of late years the number of special agricultural journals has been largely on the increase. For instance, the census inquiry reveals a number in different sections of the country devoted exclusively to horticulture or the dairy interest, to stock raising, grape culture, poultry raising, horse breeding, etc., and confined in circulation to subscribers whose attention is occupied with this species of farming. The circulation of these journals is necessarily limited, although many of them have reached a substantial basis, and like all the agricultural journals, they have been of incalculable service to the agricultural interests of the country in the introduction of new and better methods and the general education of the farming classes.

The agricultural journals are generally illustrated, although not in the highest nor always in a creditable style of the art, and are commonly issued once a week, although some of the best known of them are monthly publications. The journals devoted to specialties in agriculture are more apt to be monthly publications. There are several of these journals which are published both in the English and German languages, and half a dozen are exclusively German.

The multiplicity of these journals has prevented any one of them from attaining the large patronage which is enjoyed by several of the leading agricultural papers in Great Britain; and the American journals cannot be claimed to rank with the *Mark Lane Express* and *Agricultural Gazette* of London, either in the fullness or the value of their specially-prepared contents. It is not, however, to be inferred from the superiority of these English agricultural journals that there is any better support accorded to that class of periodicals in Great Britain than in the United States. On the contrary, Mr. John Chalmers Morton, the editor and proprietor of the *Agricultural Gazette*, in a recent appeal for additional subscribers, announced that the enterprise had always been conducted at a loss, and adds that "there is not one of the purely agricultural journals of England which has not for years been spending money unreturned. There is not one of them which is repaying the expenditure upon it". Mr. J. B. Lawes, the eminent agricultural chemist, supplements this statement by the declaration that "the weekly circulation of all the purely agricultural papers published in London does not collectively exceed 10,000 copies". He adds that "the owners of journals devoted to agriculture in the United States count their subscribers by tens of thousands". This latter statement, except in reference to two or three such journals, must be counted an exaggeration.

## THE EDUCATIONAL PRESS.

Vicissitudes of educational periodicals.

Educational journalism has grown to be a distinctive feature of the American press, the experience of the pioneers in this field having been as precarious, perhaps, as that of any other class of journalists. Most of the 88 educational journals reported are still in their youth, or are founded upon the wrecks of various ill-starred predecessors, and one authority estimates that there have been at least three hundred of these journals which have lived a longer or shorter period since the first was founded.

The first ventures.

There are several distinct types of this class of journals. The earliest was the official organ of the state superintendent of public instruction, the first example of which was the *District School Journal*, started March 25, 1840, at Geneva, New York, by Francis Dwight. Mr. Dwight sought to make his periodical the medium of official communication between the superintendent and the district-school officers, as well as to supply other information that would be useful to parents, teachers, and pupils. The *Journal* was subsequently removed to Albany, for the purpose of a closer connection with the state educational authorities, and a law was passed, under which the superintendent applied $2,800 to pay for eleven thousand *School Journals*, to be sent monthly into every school district in the state. This appropriation was continued for a number of years; and, as the editor once demonstrated, in response to frequent criticisms upon the use of the state funds to keep his periodical alive, it was all that enabled him to pay his printers' bills. In 1852, with volume XII, the *District School Journal* was united with the New York *Journal of Education*, and in the course of the same year it ceased to exist, the legislature of the ensuing winter having declined to make an appropriation for its support.

The *Teachers' Advocate*, founded at Albany in 1845 by T. W. Valantine, was established as the official organ of the State Teachers' Association, and was thus a type of another phase of educational journalism; but its existence was short and uneventful. Some of these official organs, however, have lived long, and have been the means of great good in the advancement of the interests of our system of public education.

State educational journals.

Conspicuous among these are the Pennsylvania and the Indiana *School Journals* and the Ohio *Educational Monthly*. The Pennsylvania *School Journal* was established in 1852 and the Indiana *Journal* in 1856, and both were sustained by the state, as proper and necessary adjuncts to the free-school system. The necessity of state support to keep these journals alive can be seen from the figures given by the same authority in reference to the Pennsylvania *Journal*. Of its twenty-fifth volume it printed 7,500 copies a month; and by the law of the state the school directors are allowed to subscribe for it out of the school fund. Of the 10,810 who might thus subscribe, 1,272 did so, or about 12 per cent. The number of teachers who subscribed was 1,196, or 7 per cent. of those employed in the state schools. The number of copies paid for was therefore 2,468, and the remainder of the 7,500 copies were mailed gratuitously to the secretaries of school boards, superintendents, and others. As an illustration of the difficulties with which the conductors of these educational journals have to contend, these figures are far more creditable to their zeal, enterprise, and disinterestedness than to the intelligence and public spirit of those engaged in the work of instructing our youth. This experience is in marked contrast to that of the *London School Master*, the leading educational journal of Great Britain, whose books are said to contain the names of 25,000 *bona fide* subscribers.

Private ventures in educational journalism.

The history of private enterprises in the publication of educational journals antedates that of the official organ, and is no more encouraging. The *Academician*, a semi-weekly octavo, appeared in 1818, at $3 a year, its editors being Albert Picket, president of the incorporated society of teachers, and his brother, John W. Picket. It lived through twenty-five issues, which were "dry reading". The *American Journal of Education* was founded in Boston in 1826, and was a pretentious publication of sixty-four pages, at $4 a year. Its conductors announced their endeavor to aid in diffusing enlarged and liberal views of education. It was succeeded, after an unprofitable career, by the *American Annals of Education* in 1830, which lived for ten years longer.

In 1836 the *Common School Assistant* was established at Albany by J. Orville Taylor, who was well known as an educational leader. He confessed at the end of the second year that his enterprise had never paid expenses, and at the end of the fourth volume he abandoned the undertaking.

Barnard's *American Journal of Education*.

Barnard's *American Journal of Education* was founded as a quarterly publication in 1855 by Dr. Henry Barnard and Dr. Abraham Peters, and immediately took rank as the best edited and most valuable of all the ventures of the kind yet seen in this country. It is still published; and in its files may be found some of the best educational literature that has appeared in the United States. (*a*)

## COLLEGE JOURNALISM.

The first college periodical.

Closely allied to educational journalism is the college press. In 1800 the precursor of college periodicals was published at Dartmouth college. This diminutive sheet, the *Gazette*, numbered among its contributors Daniel Webster, then an alumnus of some years' standing. Harvard followed in 1810 with the *Lyceum*, to which Edward Everett contributed. In 1827 the *Harvard Register* was started by C. C. Felton. Yale, Williams, Amherst, Hamilton, and other institutions had ventured in the path of journalism before 1835. All of these journals were ephemeral, and compare but poorly with their modern progeny. In 1836 the *Yale Literary Magazine* was founded. The oldest living college periodical, it continues to be in many respects the best.

The *Yale Literary Magazine*.

From the humble beginning at Dartmouth, the college press has multiplied, until it now includes 248 periodicals, from which reports were secured for the census. These publications were mostly monthly, but a fair proportion were of weekly or semi-monthly issue, while several appeared quarterly.

Daily collegiate newspapers.

The extreme development of college journalism was the appearance of two daily newspapers, edited and published by the students of Yale and Harvard universities. The *Yale Record*, established in 1877, was published every morning, except Sundays and holidays, during the collegiate year, at $4 a year, or 3 cents per copy; the *Harvard Daily Echo*, established in 1879, was published at noon each week-day during the term, at $2 40 a year, or 2 cents per single copy. The contents and character of both enterprises are creditable to the enterprise and intelligence of their conductors.

The printing of the collegiate press is necessarily done by contract in every instance, and for this reason it has been found impossible, and it was not deemed desirable, to include it in the statistics of gross product or wages. The editorial work upon the collegiate press is done by boards of editors, selected generally by vote of the classes, and is proffered without compensation.

Advantages of college journalism.

In typographical execution equal, if not superior, to the general press of the land, in range of topics wide and attractive, its articles for the most part the fruit of careful reading, earnest thought, and careful revision, the college journal claims notice and praise. The college paper gives to the student a considerable experience in practical journalism, affords an agreeable and profitable recreation, and gives to the world of patrons and friends of education an insight into the actual life of the college—a thing not to be gained from stately annual catalogues. It advertises in a dignified way the institutions represented, submits college sentiments, motives, projects, and deeds to the test of deliberation and thoughtful perusal, and is a power in the college for good. It is, as some one has said, "the outstanding member of the faculty," and fosters acquaintance and community of feeling with sister institutions. In fine, it cannot but be viewed as an important factor in the advance of higher education.

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[a] For most of the data contained in the above account of the educational press of the United States the special agent is indebted to an address on "Educational Journalism", delivered before the New York State Teachers' Association by C. W. Bardeen, editor of the *School Bulletin*, in 1881.

No collegiate journalism in other countries.

Little or nothing has been done in foreign countries in the field of college journalism. The several universities representing, in their undergraduates, fellows, and faculties, the acme of the national culture, are friendly and helpful to the public press; as is notably the case in Greece. No distinctively undergraduate journal, however, is in existence on the continent, and its publication would be discouraged alike by university and national authorities. In England attempts have been made at the great universities, but the success has been comparatively meager. Canada, on the contrary, bids fair to rival the colleges of the United States in this field. E. R. Gould, editor of the *Acta Victoriana*, furnishes a list of eight journals (three being from female colleges or seminaries), which compare creditably with our own leading college periodicals.

Intercollegiate publications.

Several unsuccessful attempts have been made to establish an intercollegiate periodical, the most promising of which was the *University Quarterly*, otherwise known as the *Undergraduate*. Somewhat pretentious in matter and form, it was for a time very successful, and had it been of longer life would have been an honor to American journalism. It originated at New Haven in 1860, and during the few years of its existence abounded in articles of sterling worth. There is unquestionably a field for a similar journal to-day, and efforts now making may supply the want.

School journalism.

In addition to the distinctively college press, there is a large class of publications from the schools and academies, similar in aim and scope to the college journals, but of less frequent issue and more ephemeral in character. When published as often as once a month, school journals have been included among the collegiate journals; but the great majority are annuals, and have not been enumerated.

Amateur journalism.

Slightly connected with this particular differentiation of the American press is amateur journalism, of which there are numerous instances; but they have no special significance beyond the testimony they bear to the increasing tendency of American life to seek expression, in all its phases, through the medium of the printing press.

## THE SUNDAY NEWSPAPER.

The first Sunday newspaper.

A phase of journalism which is lately meeting with great success is the Sunday newspaper. The first journal of the kind known to have been established in this country was the *Sunday Courier*, which made its appearance in New York in 1825, and lived but a few months. But the idea appears to have been a taking one among the men who were dabbling in newspaper enterprises, and after a few years various other Sunday papers made their appearance at intervals, the *Atlas*, started in 1837 by three journeymen printers, being the most successful of them. The records contain the names of more than a dozen such papers in New York prior to the war, only a few of which managed to survive the prevailing sentiment against journals of their character and date of issue. Within the last ten years, however, much of the popular prejudice against the Sunday sheet has been overcome; and some of these papers which publish only on Sunday morning are, on their smaller scale, among the most prosperous in the United States.

Statistics of Sunday newspapers.

The investigations of the census revealed the existence, in 1880, of no less than 252 newspapers which are printed on Sunday morning. Nearly half of these, however, were simply regular Sunday editions of the daily newspapers, 113 of which were printed seven days in the week during the census year, or 365 times a year. The habit of printing a Sunday edition in connection with the six issues of the week is of comparatively recent date, and is rapidly increasing in the principal cities of the United States. In all of these cities the time-honored custom of omitting publication on legal holidays is fast lapsing into desuetude, in recognition of the fact that the American people are a nation of newspaper readers, and desire their regular pabulum from the press, without reference to other interruptions in their daily habits of life.

Quite a large number of daily papers, notably those which are published in the southern and far western cities, are in the habit of printing a Sunday morning and omitting the Monday morning edition. This habit is one that originated with the New Orleans *Picayune*. It answers, partly at least, the religious prejudice against the Sunday press—all the work upon which is done on Saturday night or in the early hours of Sunday morning, while the papers published on Monday morning are generally all prepared and put into type during the hours of Sunday.

The prejudice against Sunday newspapers.

The prejudice against the Sunday paper, as it first presented itself in New York and other cities, was largely due to the fact that its contents were of a character which religious people regarded as especially unfit for Sabbath-day reading. They were a curious hodge-podge of miscellaneous reading, partly literary, partly political, much given to gossip of the society-newspaper style, and frequently addicted to the effort to increase their circulation by the publication of sensational matter, sometimes of a prurient character.

Sunday editions of the daily press.

The Sunday editions of the regular daily papers are generally made up of a lighter character of reading matter than that which is found in the daily issues, and are especially prepared for acceptable reading in the family circle.

Sunday journalism has developed in this country to an extent not seen in England or on the continent. May's *Directory* for 1881 gives 10 journals, all published in London, which are recognized as Sunday newspapers, and it adds that, as a matter of fact, there are but two—the *Observer* and the *Sunday Figaro*—published on Sunday alone, the others issuing editions on preceding or following days.

## THE PROFESSIONAL AND THE TRADE PRESS.

A thriving class of periodicals is that devoted to the interests of the professional pursuits. There is a great variety of these papers. The professions whose publications have been grouped in this inquiry are those of the law, medicine and surgery, teaching, and science and mechanics; and as no such grouping has been made heretofore in the census, it is impossible to give a statement of the growth of this class of journals during the decade. In 1872 the advertising directories gave the names of 71 periodicals devoted to medicine and surgery; this inquiry reveals a list of 114, with an aggregate circulation per issue of 315,179 copies. There were in the United States 18 medical journals in 1880. Of law journals there were 23 in 1872, and the number in 1880 was 45, with an aggregate circulation per issue of 55,215 copies. England had 21 law journals in 1880.

Statistics of professional periodicals.

Law and medical journals.

Allusion has already been made to the 88 journals devoted to the educational interests, which is exclusive of the 160 school and college periodicals, which do not seem to belong properly to the same class. To science and mechanics the energies of 68 journals were regularly devoted in the census year. From the latter classification the attempt was made to exclude all periodicals which can be more properly described as trade journals, although the distinction was at times a vague one.

The circulation of these journals is of course confined to the members of each profession, and is much more limited than their membership. They have been found invaluable aids to professional study, and their conduct reflects the highest possible credit upon those engaged in the enterprises. The medical and surgical journals of the United States especially rank very high, and are much prized in foreign schools. They keep fully abreast of the latest advances in the several branches of the profession, and their columns have come to be the receptacles for the best work of the most skillful physicians and surgeons. The various branches of the profession are represented by special journals, dentistry, for example, having five periodicals of exceptional value. The *American Journal of Insanity* has been conducted by the physicians in charge of the New York State Lunatic Asylum at Utica, New York, for thirty-six years, and is known as an authority on lunacy practice all over the civilized world; it also ranks as the oldest of existing journals devoted to this subject. The law journals publish promptly and accurately digests of the latest decisions in the courts of all the states, and they have thus become quite as valuable to the profession as the law library.

Importance of the professional press.

The trade press, as may be called, has increased rapidly of late years, and when the census was taken it numbered 248 journals, which were devoted to the interests of one or another of our manufactures. Many of these journals are conducted with marked enterprise and ability, and are among the best specimens of the typographical art which issue from the American press; and there is now no considerable industry in the United States which has not one or more journals devoted to this interest, their attention being largely taken up in the discussion of new processes of manufacture and in careful analyses of the markets. But incidentally they publish much interesting literature, often specially prepared, which bears more or less directly upon the particular industry with which they are associated, or its collateral branches.

The trade press.

## ILLUSTRATED NEWSPAPERS.

Illustrated journalism supplies a peculiar and fruitful phase in the history of the newspaper press of all countries. The first attempt in this direction was the famous *Penny Magazine*, founded in London in 1832, which added immensely to its popularity by making a specialty of illustrations. Its wood-cuts were indifferently executed, but they carried the paper even among people who could not read; and the friends of popular education found it one of the best educational agencies England ever had. It was followed by *Punch* in 1841, a periodical based upon the idea that the picture is the natural and realistic complement of linguistic wit and humor. The pictures in *Punch* were for a long time as poor as its wit was trivial; but it gradually drew to its assistance the famous caricaturists and writers of that day, and with the aid of the pencils or the brains of John Leech, Thackeray, Richard Doyle, Mark Lemon, and others *Punch* reached the popularity and success to which both artistic and literary excellence still entitle it. It found a number of imitators, of which *Fun*, *Judy*, and *The Hornet* are the best known.

The first illustrated journal.

The *Illustrated London News* was started in 1843. Its illustrations were cheap and inferior at first; but from the date of the great exhibition, in 1851, they became good specimens of the constant improvement in wood-cut engraving, and the journal itself reaped enormous profits, its circulation on occasions mounting as high as 150,000 per issue. The success of the *Illustrated London News* was well assured before any attempt was made to start a similar publication in the United States.

The *Illustrated London News*.

The first venture in this direction appeared in Boston, in *Gleason's Pictorial*, by Gleason & Ballou. This journal was shortly removed to New York, where it reappeared in January, 1853, as the *Illustrated News of New York*, published by Barnum & Beach, with Frank Leslie as managing foreman. It lived but one year. After its suspension Frank Leslie established his *Illustrated Newspaper*, which rapidly grew into a profitable undertaking. The first number of *Harper's Weekly, a Journal of Civilization*, appeared January 3, 1857. The few engravings of the first numbers were merely illustrative of the text

First American illustrated journals.

of fiction and description; but very shortly the events of the day began to be illustrated, and the popularity and success of *Harper's Weekly* were at once assured. The increase both in the number and character of its illustrations has kept pace with the rapid development in the art of wood-cut illustration.

Illustrated daily journalism.

The *Graphic.*

In the meanwhile a great number of illustrated papers of one kind and another had appeared in the American field, most of them, however, like the *Scientific American*, subordinating illustration to text. It remained for the proprietors of the New York *Graphic*, in 1873, to discover the possibility of the application of illustration to the immediate news of every day, and they issued the first illustrated daily journal of the world on March 3 of that year. The successful carrying out of this idea was rendered possible by the improvements in the art of photolithographic printing, which permitted the immediate transfer of the artist's work to stone plates, from which it could be printed. There are a number of methods of preparing pictures for presentation, none of which require explanation in this connection. It may be said generally of this photolithographic work that it has the great advantage over the ordinary wood-cut of preserving in detail the exact peculiarities of the artist, and enables a journal like the *Graphic* to reproduce, in admirable manner, perfect fac-similes of the best artistic work at a comparatively slight expense. The *Graphic* shares with the *Illustrated London News* and the Paris *Le Monde Illustré*, *Harper's Weekly*, and the *Illustrated News of New York* the honor of pictorially representing, in spirited illustration, the great events of every continent. In the meanwhile the London *Graphic*, established in 1870, had given a great advance to illustrated journalism by inducing artists and painters of the highest class, who had hitherto held aloof from such work, to contribute directly toward the art education of the people. There are now a number of illustrated journals, both monthly and weekly, which contribute the finest specimens of the pictorial art to current literature.

The use of illustration in class periodicals.

The use of the illustration has become quite common among the class periodicals of the United States, the census inquiry revealing that there were in 1880 no less than 481 periodicals which were regularly illustrated. These journals are enumerated, under their proper classification, in Table I. Their popularity and success are both enhanced by the pictorial feature, and the quality of illustration in their columns is steadily improving with the improvements in the processes of producing good illustrations at cheaper rates.

## THE FOREIGN PRESS—GERMAN-AMERICAN NEWSPAPERS.

An unique phase of American journalism.

A distinctive peculiarity of the American press, almost unique in this country, is the large number of journals published in the languages of the European countries. In 1872 there were 523 of these journals, and in 1880 the number had risen to 799, which is 7 per cent. of all the periodicals of every kind and description published in the United States. This feature of our newspaper press is so noteworthy that it was deemed proper to prepare special tables (see Tables VIII and IX), in which the various data relating to the foreign papers published in this country are grouped with reference to those of each language, by states and territories. The fifteen languages in which papers are printed, beside the English, were the following, those which have appeared in the press since 1872 being marked with a star (*): German, French, Spanish, *Danish, Swedish, Italian, *Chinese, Norwegian, Bohemian, *Polish, *Dutch, Indian, *Irish, Portuguese, and *Catalan.

An index of the character of immigration.

This class of journalism is a sure index of the effect of the immense foreign immigration upon our civilization, and may be regarded as indisputable evidence of the superior intelligence of the class of citizens who seek new homes in the United States. The proportion of newspaper readers among them, as judged by the circulation of these papers, is certainly larger than the proportion of newspaper readers among those who remain behind; and when we have regard for the large proportion who are supplied by periodicals published in English, the ratio is indefinitely increased.

The number and success of these journals afford striking testimony to the tenacity with which the foreign-born citizens of the United States stick to the mother tongue in spite of the difficulties and embarrassments its use involves. Another explanation of their success is found in the eagerness of the foreign-born citizen to learn at regular intervals the news from home, which many of these papers make it an especial point to supply in even fuller degree than they do the local news, just as the first colonial newspapers devoted the greater part of their space and effort to the republication of the news from Great Britain.

The German press.

The number and circulation of the German-American newspapers, as compared to that of the other papers in foreign languages, are out of all proportion to the number of German citizens, as compared either with the French, the Italian, or the Scandinavian. There were, in 1880, 641 German periodicals, of which 80 were daily newspapers, 466 weekly newspapers, and 95 periodicals devoted to specific objects, and published monthly, semi-monthly, etc.

The first German-American newspaper.

The first German newspaper printed on this continent was published by that eminent pioneer printer, Christopher Souer, or Sauer, at Germantown, Pennsylvania, in 1739. He also printed a German almanac (Thomas, v. 1, p. 272). Another newspaper in the German language was published weekly in Philadelphia as early as May, 1743. Its printer was Joseph Crelius, and its name is understood by Thomas to have been the *High Dutch Pennsylvania Journal.* It existed for several years. In 1748 Godhart

Armbruster commenced a fortnightly publication in the same place in the German language, which he called *Die Zeitung*, and which was described by an advertisement in the *Pennsylvania Gazette* as "a Dutch and English gazette, containing the freshest advices, foreign and domestick, with other entertaining and useful matters in both languages, adapted to the convenience of such as incline to learn either", printed "at the German printing office, in Arch street; price five shillings per annum". Franklin at one time printed one of these papers.

In 1762 Henry Miller commenced in Philadelphia the publication of *Der Wöchentliche Philadelphische Staatsbote* with German types, which was continued until the British took possession of the city in 1777. Revived again after the evacuation, the journal continued until 1812, when it was finally discontinued altogether.

For a considerable period during its existence there were two English and German papers published contemporaneously every week in Philadelphia—a fact which is chiefly significant as bearing out the ordinary statements regarding the number and the intelligence of the Germans who were among the early settlers in Philadelphia. The original German printing outfit established in the city, like the first press introduced into Boston, was at the expense of a London society, which was formed, in the case of Philadelphia, for the purpose of "promoting religious knowledge among the German emigrants to Pennsylvania". School books and religious tracts in large numbers were printed from this press, and one at least of the German newspapers of which mention has been made was a direct outgrowth from it.

The early German press of Philadelphia.

In 1810 there were eight German newspapers, all weekly, published within the limits of the state of Pennsylvania, and one published in both German and English; but there is no record up to this time of the establishment of any German newspaper in any other state. Of these nine German journals, one only was printed in Philadelphia, two in Lancaster, one in Carlisle, two in Reading, two in Easton, and one in Harrisburg. One of these—the Reading *Adler*—was founded in 1796, and has been in continuous publication ever since. It is now the oldest German newspaper in the United States, and there are but fourteen existing papers which can boast an earlier date of establishment. The next German newspaper in seniority of existence is the Lancaster (Pennsylvania) *Der Volksfreund und Beobachter*, which was founded in 1808, as a federal organ, by William Hamilton & Co.

Statistics of the German press.

In the interval there have grown up in all the large cities German newspaper establishments which are marvels of business thrift and prosperity. In cities like New York, Cincinnati, and Saint Louis the daily German newspapers reach circulations which nearly equal those of the most prosperous English papers, and divide with them the regular advertising patronage. The New York *Staats-Zeitung*, which was founded in 1834 as a weekly paper, became a tri-weekly in 1842 and a daily in 1845, enjoys a daily circulation which is not exceeded by that of more than four of the English metropolitan dailies. It is claimed for the *Staats-Zeitung* that it has the largest circulation of any daily newspaper printed in the German language in the world, none of the papers published in Vienna, Berlin, Cologne, or Frankfort being its peers in this respect, or, it may with truth be added, in other respects. (*a*) It is edited with the same care, skill, and ability which distinguish its English contemporaries in the metropolis, all of the news of the Associated Press being nightly translated for its columns, and the same spirit of enterprise marked its method of conducting all the departments. One feature of its circulation is unique among metropolitan dailies, all of its issue being taken by the regularly appointed carriers to the residences of subscribers, and its actual subscription list is probably as large as that of any New York daily. In Cincinnati the *Volksblatt*, founded as a weekly in 1836 and as a daily in 1838, stands equally well. In Saint Louis the daily circulation of the German papers is 21 per cent. of the aggregate daily circulation of the city; in New York it is 10 per cent., and in Cincinnati 28 per cent.

The German daily press of the United States.

The New York *Staats-Zeitung.*

In 1850 there were published in the United States 133 German newspapers, which number had been reduced to 76—according to Coggeshall—in 1856. In the latter year there were 26 German dailies in existence, of which four were published in Cincinnati, three each in New York, Philadelphia, Milwaukee, and Saint Louis, two each in Pittsburgh, Baltimore, and New Orleans, and one each in Louisville, Chicago, Belleville, and Newark. There are now 80 German dailies published in thirty-nine cities of the Union; and there is hardly a town of size sufficient to afford good support to a weekly English newspaper, and around which there is a considerable settlement of German population, which does not also support a German weekly. Pennsylvania still holds its own, as it has from the first, as the chief locality for German publications; but of late years the most rapid increase in the German publications has been observable in the larger western cities and in the rural towns of the Northwest.

Growth of the German press in America.

There were published in the United States during the census year 641 periodicals in the German language. Of these, 80 were published daily, 466 weekly, and 95 at all other periods. The aggregate number of copies of the dailies per issue was 447,954; weeklies, 1,326,248; all others, 708,060, and the average subscription price of the dailies was $7 81, and of the weeklies and all others, $2 01. The amount paid annually in wages was $2,398,475 89, an average of $4,164 03 to each establishment, and the gross value of annual product was $7,737,299 40. The number of persons employed was 4,064—3,964 males

Present statistics of the German press.

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[a] It has been estimated that from 60,000 to 75,000 of the German-American newspapers are regularly circulated in the German Empire.

and 100 females. The aggregate number of pounds of paper used per issue was 209,146.50, an average of 326.28 pounds to each paper, and the aggregate reams of paper per issue was 5,268.74. The total number of German papers established in the census year was 41; suspended, 33.

Vicissitudes of the German press.

The German newspapers have their vicissitudes; and the ratio of suspensions to new establishments is probably somewhat larger than among newspapers printed in English. The great majority of existing German journals of all kinds have been founded within the last twenty-five years, and it was stated by Coggeshall in 1856 that of the 72 German papers he found then existing, only 21 had been in existence for nine years, and 15 of the 21 thus enumerated have since ceased to exist.

## THE FRENCH-AMERICAN PRESS.

The French press of the United States.

The early history of American newspapers published in the French language is necessarily one of isolation, the first venture of this kind of which there is any trace being the *Courrier de Boston*, a weekly newspaper, printed on a sheet of crown quarto by Samuel Hall, in Boston, in April 1789, for J. Nancrede, a Frenchman, who then taught his native language at the university. It was published only six months. (*a*)

New Orleans.

Several newspapers were published in the province of Orleans immediately after its purchase by the United States, a majority of which were either published in French, or in French and English jointly. Of the ten papers which Thomas discovered there in 1810, one tri-weekly was in French, one daily was in English, and one daily was in English and French; and three weeklies were in English and French, with a Spanish weekly and semi-weekly. None of the papers enumerated by him are now in existence. In the same year, however, *Le Propagateur Catholique*, a French Catholic journal, was founded, and is still in existence. *L'Abeille*, one of the two prosperous French dailies now in existence there, was founded in 1827. In 1856 there were but four French papers published in the entire country, two of which were in New Orleans, one in New York, and one in Nauvoo, Illinois.

Statistics of the French-American press.

In 1880 there were five French daily newspapers, with an aggregate circulation per issue of 21,500, published one in San Francisco, California, and two each in New Orleans, Louisiana, and New York city. There were 30 weekly French newspapers and 6 French journals of other periods of issue. The aggregate circulation per issue of these 36 periodicals was 54,810. They were located in the following states: California, 4; Illinois, 1; Louisiana, 13; Massachusetts, 4; Michigan, 2; Minnesota, 1; Missouri, 1; New York, 8; Ohio, 1; and Rhode Island, 1. Three of the French publications were founded in the census year, and one of the number suspended. There have been several efforts to establish French weekly newspapers at points in Vermont where irruptions of French Canadians have located. *L'Union Canadienne* was published for a short time at Vergennes, Vermont, and *L'Idée Nouvelle*, with its reading matter in alternate French and English columns, was printed for a short time in Burlington, Vermont, in the interests of Canadian annexation. The *North Star*, at Caribou, in the extreme northern extremity of Maine, surrounded by the French and Swedish settlements, introduced departments in both languages during its brief existence. Journals of this type are not likely to ever prove successful in that part of the United States.

The *Courrier des États-Unis*.

The leading French newspaper of the United States, the *Courrier des États-Unis*, founded March 1, 1828, is now published in New York city every morning, including Sunday, with a weekly edition on Saturday. The idea of its founder was to publish in the states an organ in the French language, and to excite attention to French literature, which at that time was entirely ignored in this country. This idea excluded consideration of politics, commercial interests, news, or international interests; and it is somewhat surprising that the paper should have met with the prompt success that attended it. It was published weekly, in eight quarto pages, at a subscription price of $8, but in less than two years it became a semi-weekly. In 1839 it became a tri-weekly, and three years later, in May, 1851, the daily editions were commenced. In addition to its regular weekly editions, the *Courrier* publishes a weekly that is especially made up for circulation in Europe, and is largely sent there. The other weekly editions may now be found in the most distant points of the continent wherever French settlements exist of any size, including the Canadas, Louisiana, the Pacific coast, Mexico, the West Indies, and Central and South America.

The *Courrier* owes its remarkable success to the business sagacity and journalistic instincts of Frederic Gaillardet, who took charge of it in 1839. He thus tersely defined his idea of the functions of the journal he sought to make and succeeded in making:

> There is a great field to be occupied by a newspaper which can become both the representative and the defender of the French nation in America, which will uphold the traditions of our manners, of our customs, and of our language among the populations of French origin; which can offer itself as a friend and ally to this population in upholding its native idioms and ideas, and in carrying the French diction to all parts of the New World—it will sustain and rally round it all those who speak the language, and of these different scattered members it shall make, if it is possible to do it, one body and one spirit.

The *Courrier* has maintained itself successfully and with great credit ever since, although its circulation has at no time approximated to those which the German dailies of that metropolis have long enjoyed. It is edited

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*a* Thomas.

with discretion and ability, and its peculiarity is its adaptation of several of the unique features of the daily journals of Paris, including the printing of a serial story in daily installments. The rival of the *Courrier*, *Le Messager Franco-Américain*, was established in 1859, and publishes also a weekly, on Sunday, and a semi-weekly, which appears on Sunday and Thursday. It partakes of the characteristics of the *Courrier*.

## THE WELSH-AMERICAN PRESS.

The Welsh periodical press of the United States.

The first newspaper in the Welsh language in America made its appearance in the city of New York, as a semi-monthly, in the year 1832. It was called *Cymro America*, and was first printed wholly in the Welsh, then in Welsh and English. It lived less than a year, owing, perhaps, to the panic caused by the cholera. Its editor was J. A. Williams, a printer.

In January, 1838, Rev. William Rowlands, D. D., established the first Welsh monthly in America, *Y Cyfaill o'r Hen Wlad*, in New York city, and except for a few years continued to publish it until his death, in 1866. It was printed for a time in Rome, New York, and Scranton, Pennsylvania, but has been published in Utica, New York, for many years. After Dr. Rowlands' death, the magazine was bought by the Welsh Calvinistic Methodists (whose organ it was), and was for a time edited by Rev. William Roberts, D. D., and Rev. Morgan A. Ellis. Rev. Dr. Roberts, Utica, has been its sole editor for a number of years. It contains forty pages octavo, and of late years has been more strictly religious than before the establishment of weekly Welsh papers.

In 1840 Rev. Robert Everett, D. D., of Steuben, Oneida county, New York, commenced the publication of *Y Cenhadwr* (*The Messenger*) in the interest of the Welsh Congregationalists. It was at first printed in the Utica *Herald* office, and was then removed to the editor's home, in Steuben. After Dr. Everett's death, in 1875, it was published by his son, Lewis Everett, who died in 1881, when the magazine was purchased by Rev. Edward Davies, of Waterville, New York. These two publications have been of great benefit to the Welsh people, though the circulation of neither of them ever reached 2,000. In 1842 Dr. Everett published *Y Dyngarwrr* (*The Philanthropist*), devoted to the anti-slavery cause, but in about two years this was merged in *Y Cenhadwr*. In 1850 and 1851 he also published *Y Detholydd* (*The Eclectic*), consisting of selections from the magazines of Wales.

About 1840 or 1841 a monthly magazine was started in New York city in the interest of the Baptists by Rev. Dr. Phillips. This was called *Y Beread*. It lived less than a year; but in 1842 it was revived in Utica as *Y Seren Orllewinol* (*The Western Star*), under the editorship of Rev. William T. Phillips. It passed into the hands of Rev. Richard Edwards (one of its compositors), who removed it to Pottsville, Pennsylvania, where it was published for many years. Its circulation never reached 1,000, and it finally suspended.

In 1853 John M. Jones established *Y Cylchgrawn Cenedlaethol* (*The National Magazine*), and published it about two years and a half. It was a purely literary journal, consisting largely of selections from Welsh magazines. In 1856 Rev. John Jones published *Y Golygydd* (*The Editor*) in Cincinnati, Ohio, but it lived but a short time. In 1857 Rev. William Roberts, D. D., commenced to republish *Y Traethodydd* (*The Essayist*), a Welsh quarterly review, with American additions. It was issued for about four years. In April, 1876, Rev. O. Griffiths started *Y Wawr* (*The Dawn*) at Utica, where it is still published monthly. In 1848 Evan E. Roberts, of Utica, began to publish *Haul Gomer* (*Gomer's Sun*), a semi-monthly newspaper. It was obliged to suspend in about nine months on account of the difficulty in procuring Welsh compositors. In 1858 *Yr Arweinydd* (*The Leader*), another semi-monthly magazine, was published in Rome, New York, by R. R. Meredith, and continued to appear three or four years. *Y Bardd* (*The Poet*) was published for a few months by Thomas G. Price, in 1858, at Minersville, Pennsylvania, and about the same time a few numbers of *Y Ford Gron* (*The Round Table*) appeared, issued by a company. It did not succeed. *Blodau'r Oes ar Ysgol*, a monthly magazine for children, appeared in 1870, published by Hugh J. Hughes, in New York city. On the death of Mr. Hughes it passed into the hands T. S. Griffiths and W. Apmadoc, Utica, who sold it to Rev. M. A. Ellis, Cincinnati. Shortly after it suspended. R. T. Daniels, Pittsburgh, Pennsylvania, published a small monthly for a short time in 1871. It was called *Y Negesydd*. In the same year, 1871, a company started a small monthly in Hyde Park, Pennsylvania—*Yr Ymwelydd*. It was short-lived.

Sketch of the Welsh-American weekly press.

January 2, 1851, John M. Jones, of New York city, published the first number of *Y Drych* (*The Mirror*), the first weekly Welsh newspaper printed in America. In December, 1854, he sold it to a stock company. In a couple of years it passed into the hands of J. W. Jones, then to J. Mather Jones, and is now owned by Thomas J. Griffiths, who has printed it in Utica for nearly twenty years. Mr. J. W. Jones became one of its editors in its second or third year, and has been its chief editor (except for a short time) ever since. J. C. Roberts has been associated with him for about twelve years. In May, 1855, J. M. Jones commenced to publish *Y Cymro Americaidd* (*The Cambro-American*) in New York, and continued its publication until the war broke out, when it suspended. In the beginning of 1854 a stock company in Utica started *Y Gwyliedydd Americanaidd* (*The American Watchman*). It was printed at the office of the Utica *Herald* until 1855, when it was bought by the *Drych* company.

In 1868 a stock company established the *Baner America* in Scranton, Pennsylvania, and published it for several years. It then passed into the hands of Hon. T. J. Phillips, Scranton. It was sold in 1877 to T. J. Griffiths, proprietor of the *Drych*, with which paper it was merged. In 1872 a company commenced the publication of *Y Wasg* (*The*

*Press*) in Pittsburgh, Pennsylvania, where it is still published. There have been other weekly papers of a political character published for campaign purposes, such as *Seren Oneida*, *Cyfaill yr Undeb*, *Yr Amserau*, in Utica; *Y Gwron Democrataidd*, in New York; and *Tarian y Gweithiwr*, in Scranton, Pennsylvania.

A literary class does not exist among the Welsh people in America; and the contributors to the magazines and newspapers come partly from among the clergy, but more largely from the mechanics and artisans, especially the miners. The contents are largely tinged with theology and theological discussions; but news about the Welsh people in Wales and in America is the main feature. The Welsh journals do not, of course, equal the best English publications; but, considering that they are largely written by men and women of the working classes, and are circulated among such a small constituency, they testify to much mental activity and a high degree of culture among those who labor for daily bread in other than literary pursuits. (*a*)

In 1880 there were 5 Welsh periodicals, and their aggregate circulation was 19,880. Four of these 5 periodicals were published in the state of New York, and the fifth in the state of Pennsylvania.

## THE AMERICAN PRESS IN OTHER LANGUAGES.

The Italian press.

There was an Italian newspaper started in New York city in 1854. In 1880 the number had increased to 4, with a circulation of 6,600. Three of these were published in California, and the fourth in New York.

The Norwegian press.

A Norwegian paper was published in Wisconsin as early as 1850. There are now 17 Norwegian periodicals, 1 of which is a daily, published in Chicago; 11 are weeklies, located in the northwestern states of Iowa (6), Illinois (4), Minnesota (3), Wisconsin (1), and Dakota territory (1), and having an aggregate circulation of 44,470.

The Swedish press.

The Swedish papers, located in the states of California (1), Illinois (10), New York (4), Minnesota (4), Kansas (1), Michigan (1), and Nebraska (1), were, in 1880, 24 in number, 22 of them weekly, with an aggregate circulation per issue of 79,455.

The Spanish press.

The Spanish papers were 26 in number, 2 of them daily—1 in San Antonio and 1 in San Francisco—and 12 of them weeklies, and together they had a circulation aggregating 66,000. The weekly and other Spanish papers were published in Arizona (1), California (6), Missouri (1), New Mexico (4), New York (9), and Texas (5).

In 1850, when there were but 3 newspapers in San Francisco, 1 was in Spanish.

The Danish press.

There were eight Danish papers published in the states of California (1), Illinois (4), Michigan (1), Nebraska (1), and Wisconsin (1), 6 of them weeklies, and all of them combined having a circulation per sue of 3,200 copies.

The Dutch press.

Nine journals, eight of them weekly, were printed in the Dutch language. These were located in the states of Iowa (2), Michigan (6), and Wisconsin (1), and their united circulation per issue was 11,000.

The Bohemian press.

The Bohemian-speaking population of the United States is noticeably successful in sustaining periodicals, there being, in 1880, 13 printed in this language, 2 of them daily—1 each in New York and Chicago—and 11 of them weekly, with a circulation of 25,150. The 11 weeklies were located in the states of Illinois (3), Iowa (1), Nebraska (1), New York (2), Ohio (1), Texas (1), and Wisconsin (2).

The Polish and Portuguese papers were two each, with aggregate circulations of 5,000 and 10,000, respectively.

There was one paper each in Catalan and in Irish printed in New York city.

The Chinese press.

Among the curiosities of the American press are the two newspapers published in San Francisco, California, in the Chinese language. These papers are as widely different from anything else published in this country as it is possible to be. *The Oriental* (*Wah Kee*) was established in 1875 by Yee Jenn, who learned the job-printing business subsequent to his arrival in this country, one year previously. He makes use of about 7,000 of the Chinese characters; and, as he has never been able to import Chinese type to this country, all the characters in the paper are formed by hand with a peculiar ink. The sheet, when thus prepared, is impressed upon a smooth stone, over which is constructed a crude machine answering for a press. Upon the stone as thus impressed each separate sheet of the edition is placed, subjected to pressure, and when removed is found to be printed with duplicate characters. The process is one of primitive lithography. When the edition is worked, the stone is chemically cleaned for the next paper. The contents of *Wah Kee* consist of advertisements, some San Francisco local news, and extracts and news from the Chinese press. It is sold at 10 cents a copy, or $5 a year, and claims a circulation of 1,000 copies, many of which are sent to China. The second Chinese paper, "The Chinese-English newspaper" (*Tong Fan San Bo*), was established a year later, is very similar in contents and appearance, and is prepared and printed in the same manner. It claims a circulation of 750, which is said to be regularly increasing. It is sold at the same price. Both these Chinese journals are weekly. (*b*)

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*a* The special agent is indebted to Mr. Benjamin F. Lewis, of Utica, New York, for the historical data of the Welsh-American press.

*b* A Chinese newspaper was first established in San Francisco in 1853.—Rev. Henry Cotton.

Two Indian journals, two of them weekly, are printed in the Indian territory, one of them half in English and half in Cherokee.

The full details of these foreign papers will be found in Tables IX and XIV.

The location of this foreign American press is worth attention, as indicating with much the same fidelity as the census tables of nativity the states in which the larger colonies of the several nationalities of our foreign-born citizens are located.

The difference between the population of the United States and that of Great Britain is well illustrated by the difference in the statistics of the foreign press of the two countries. Contrasted with the figures above given, there were in Great Britain in 1880 but 23 journals published in all languages other than the English. Of these, six were published in the French language, including three in the Channel Islands, and but three in the German language. There was one paper printed in the Italian language, and one was published in English, French, Portuguese, and Spanish combined. One paper was printed partly in Gaelic, and eleven were in Welsh. With the exception of an occasional English newspaper, published for the benefit of the English-speaking travelers, there are few journals on the continent of Europe in a language other than that indigenous to the country. The French newspapers printed in several European cities hardly form an exception to this rule, as they are read by the native population.

## THE NOMENCLATURE OF AMERICAN NEWSPAPERS.

The nomenclature of the American press presents a curious study, and during the colonial period there was little disposition to seek for diversity of title. In nearly every colony the first newspaper established was a *Gazette*, as has been seen; and until after the revolution that name was as frequent as all others combined. Of the thirty-seven newspapers in existence in 1775, sixteen were *Gazettes*. The second name most frequent of adoption was the *Mercury*, adapted from the *Mercurie* of the Elizabethan era in England. Then followed, in order, the *Journal*, *Post-Boy*, *Packet*, *Courant*, *Post*, and *Herald*—names obviously suggested by the functions of the newspaper or typical of the methods of its delivery. The changed conditions that surrounded American journalism immediately following the revolution were immediately illustrated in the rapid variations in newspaper nomenclature. The intimate relations of the press to political parties was proclaimed in the new titles which made their appearance, and the *Democrat*, the *Republican*, the *Whig*, the *Constitutionalist*, the *Patriot*, the *Federalist*, the *Palladium*, the *American*, and titles of similar significance, became the predominating ones. The name *Advertiser* began also to appear frequently during this period, generally as a secondary caption, in recognition of the growing importance of the periodical press as a medium of business communication between the individuals of a community. As early as 1812, as may be seen from the list of the newspapers of that day elsewhere published, the tendency toward unique and fantastic newspaper titles was well developed. This tendency has continued ever since, particularly in the more recently settled sections of the United States, where it has not only become excessive to a degree unknown in other countries, but has been carried to extremes bordering on the absurd.

## UNITED STATES vs. ENGLISH JOURNALISM.

Unique conditions of journalism in the United States.

It is difficult to institute a rigid comparison between the press of the United States and that of other countries, because the conditions of existence are totally unlike. In general development the periodical literature of the United States and that of Great Britain present many points in common, and there has been in both countries, progressing simultaneously, the same remarkable development of the special or technical press. The regard for the interests of particular trades, professions, and fields of inquiry has stimulated the printing presses of both countries to a degree seen nowhere else, and may perhaps be ascribed to the popularization of the higher lines of thought and intelligence. In what may be called its abstruse press, Germany is superior to either the United States or England, and France is not behind them; but the journals of which we are speaking are of the kind which are fitted to the wants of the many rather than to the few, and in the effort to lift the former up to a higher grade the special press of the United States may take an undoubted precedence of that of England.

The periodical press of England and the United States contrasted.

This tendency is, if anything, carried to too great an extreme in the United States—a fact clearly ascribable to the greater and closer competition here, and the consequent disposition to resort to literary and typographical devices for securing the patronage which others possess and endeavor to retain. There are fewer of this class of journals, in proportion to the population superficially interested in them, in England than in the United States. This is due to the more gradual English development of this class of periodical literature—a development which was well under way while the ordinary newspaper press was getting its first foothold in the United States.

England, however, has not been free from the influences of artificial stimulus in her press history. In 1846, when the railroad mania was at its height in Great Britain, there were no fewer than eighteen journals, some of them of diurnal issue, which sprang into existence, made money while the excitement lasted, and disappeared with the collapse of the bubble. In 1851 only three of these periodicals survived, and at present, notwithstanding the great and healthy growth of the English railroad system, there are but four journals published in the interest of railroads, beside two which are devoted to the cause of railway employés. We have in the United States as many strong and well-sustained newspaper establishments as has Great Britain; but we have an infinitely larger number that are weak and even ephemeral, like the English railway periodicals of 1846.

The tendency in England is toward the consolidation of popular support around the journalistic establishments which have long existed and are able to be liberally conducted. Such has not been the tendency in the United States, certainly not until within a few years, and then only with respect to a class of newspapers like the metropolitan press. That such will be the tendency ultimately we are led to believe, not only by the experience of English journalism, but by the obvious drift already apparent here, and by a firm conviction of what is best and natural in the premises.

Typographical superiority of the English press.

It is natural, under the circumstances, that in typographical characteristics the special or class journals of Great Britain should, as a rule, be far superior to those of the United States. The art of printing has reached such great perfection in both countries that to command its best results requires only the command of the means. Many of the technical journals of this country are execrably printed, because the use of modern type, good paper, and improved machinery is not warranted by the receipts. In the struggle for existence the American journals permit their columns to be disfigured by venturesome advertisers, who will pay for monstrosities of type or wood-cut to attract attention, and will pay for nothing else. These things are inevitable until such time as publishers shall be able to dictate terms to their advertising patrons, instead of accepting dictation from them.

Paper and imprint compared.

The quality of paper used in England is, as a rule, better than that which is commonly employed here. It is better, not because it is more easily obtainable, but because more money is paid for it. The imprint is generally clearer, partly because of the better quality of the paper and partly because of the greater care and expense bestowed upon the press-work. The display of advertisements is almost uniformly in better taste, in better classification, and with greater regard for the requirements of typographical beauty.

While all this must be said by way of a general comparison of the typography of English and American periodicals, it is still true that we have individual publications in the United States, in goodly numbers, which are typographically equal to anything done in England or on the continent. In every large American city there are journals which present regularly an appearance which is creditable to the art in its best development. This is becoming strikingly true in the case of our metropolitan dailies and their auxiliary issues.

Daily press of Great Britain and the United States contrasted.

The editorial work contrasted.

The contrast between the daily journalism of Great Britain and that of the United States is different, yet it is quite as marked. The London and the New York daily newspaper display an equal amount of enterprise in the collection of the news of the world, but it is exerted in different ways, and its results are spread before the people in accordance with different notions of what is the most effective. The London journal is regarded by the average American as heavy and stupid; while the average Englishman is apt to look upon the American daily as altogether too frothy and superficial to be profitable reading. It has for many years been the custom in London to employ the best attainable literary ability in constant editorial writing, as well as in continental and other correspondence. More and more every year the American journals of the metropolitan and large provincial cities tend in the same direction, and the American editor now enjoys a salary which will average as high as that of any other professional man. (*a*) But the mark of scholarship and of painstaking work is not as discernible in the editorial writing of the daily press of this country, nor is there, perhaps, the same opportunity for its display. The erudite disquisition which is of daily appearance in the British press is displaced in American newspapers by a far wider variety of information and a far more miscellaneous collocation of reading matter. The intimate relations of Great Britain with continental politics led the chief daily journals many years since to the establishment of expensive and ably equipped bureaus in the European capitals, whose special telegrams fill column after column of reading space, to the exclusion of a large portion of that more miscellaneous reading matter which the American newspaper supplies in such a bountiful manner.

Superior features of the American daily press.

This is displaced in American journals by a multiplicity of news items, telegraphic and otherwise, in which are mirrored every day the multiform if somewhat monotonous life of fifty millions of people, living at peace with each other and working out a civilization as varied as it is extensive. The American press uniformly publishes more news, even though it is not better, than its

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*a* It may be doubted whether the general staff of a London newspaper, with perhaps the single exception of the *Times*, is better paid than a staff of corresponding numbers in New York. A few writers here and there may receive a higher rate of remuneration, but put all expenses together, and the New York paper will be found to cost the most in its production. Reporters in London receive from £2 to £4 a week. Men could not be got to do the same kind of work here for a corresponding price. The New York dailies pay more for editorial articles than their London contemporaries, always excluding one paper from the comparison. Again, the chief editors in this country are generally in part proprietors, and have their shares given to them, or at least acquire them on easy terms.—L. J. Jennings, in *Galaxy*, volume IX, No. 4.

Mr. James Grant, in 1872, in making a comparison between the salaries paid to editors in the three cities of New York, London, and Paris, concluded that those of the former city were on the whole the highest.

English contemporaries. In its general features it is a journal for the masses, which can be said of no prominent English daily. It consults all tastes, all pursuits, all grades of the community, and the undeviating tendency of its development has been toward popularization. Sensationalism is the inevitable accompaniment of this tendency, and American newspapers draw much of their vitality from it. But at the same time they are, as a rule, the conservators of law, of morals, and of patriotism, and strive more directly and successfully than English newspapers to enlarge their field of usefulness by the completeness of their records and the accuracy and comprehensiveness of their contents. Their general characteristics are not unlike those of the people for whom and to whom they speak, and their rapid and encouraging improvement from year to year in every department of newspaper growth is one of the marked signs of the times. (*a*)

English newspaper taxes.

The marked difference in the development of the periodical press of the two countries is largely due to the difference of governmental conditions. Since the revolution, with the single exception of a five years' income tax on advertisements from 1863 to 1867, the press of the United States has been absolutely free from government tax of every kind or description. It has had the added advantage during a great portion of the century of the use of the mails without prepayment of postage, and always the advantage of much cheaper rates of postage than have prevailed either in Great Britain or on the continent. In England, on the other hand, the government laid heavy and various imposts upon the newspaper, the last of which has only been removed since 1864. The taxes were threefold—the advertisement duty, the stamp duty, and the paper duty; and until within a few years after the passage of the reform bill of 1832 there had been for more than thirty years a 4*d.* stamp on all newspapers, 3*s.* 6*d.* duty on every advertisement, and 3*d.* per pound weight on newspapers. The price of a newspaper was then 7*d.*, and the smallest advertisement cost 7*s.*

Reduction of the stamp duty in 1836.

The effect of these high prices, necessitated by government tax, was to keep the British press in a condition which practically forbade progress. At the time when this stamp duty was reduced, in 1836, from 4*d.* to 1*d.*, the newspaper press of the United States had already surpassed that of Great Britain in number, while its aggregate annual circulation was nearly double that of the British press, although the population of the United States, by the census of 1830, was but 12,866,020, that of Great Britain being then 24,392,485.

Repeal of the English duty on advertisements and the tax on paper.

The taxes on newspapers continuing onerous, there occurred in Great Britain about 1850 a concerted and widely organized movement for relief, which resulted, in 1853, in the repeal of the duty on advertisements, and two years later (1855) the agitation led to the abolition of the penny stamp on newspapers. There then remained only the tax of three half-pence per pound on paper, a tax which bore heavily upon literature and publishing in all their diversified departments. This duty remained unrepealed until 1861. The effect of this repeal in stimulating publication and increasing circulation may be gathered from the fact that the remission of the duty reduced the average cost of paper twenty-five per cent., and it averted the suspension of many provincial and local metropolitan journals, which had in many cases been passing through a losing struggle for existence. (*b*)

Effects of the repeal of taxes on the English press.

Something of the effect of this final freedom from all tax upon the circulation of English newspapers was depicted by Edward Baines, member of parliament from Leeds, in a speech made by him in 1864 for the limited extension of the political franchise in parliamentary boroughs. He quoted a number of specially-prepared statistics, which went to show that in 1831, when the stamp on newspapers was 4*d.*, and the duty on paper 3*d.* per pound weight, the total yearly circulation of newspapers for the United Kingdom was 38,648,314. In the year 1864, in which Mr. Baines spoke, the annual aggregate circulation of London newspapers alone was 205,462,400, while the total yearly circulation of newspapers in the United Kingdom was 546,059,400. Recalling the fact that this increase in circulation was accompanied by an increase in population of only 30 per cent., it presents a phenomenon that not even the astonishing growth of the press in the United States surpasses. (*c*)

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*a* The result of leaving newspapers to manage themselves in the United States is, that they are, as a rule, more enterprising than English newspapers. More money, for instance, is here spent in a single day for news than a London daily would spend in a week, and it is nothing unusual to see a whole page of telegraphic news in a New York morning newspaper. Atlantic cable messages of a column or two in length are as common as a police report. When a message of the same kind appeared lately in a London paper, people were struck with amazement, and the rest of the journals prostrated themselves in dust and ashes. From three to five columns of congressional debates are telegraphed to New York every night during the session. In the midst of the Abyssinian war the English papers were not above accepting some important telegraphic news concerning the British army from the correspondent of the New York *Herald*.—L. J. Jennings in the *Galaxy*, 1870.

*b* Grant, *Newspaper Press*, vol. II, p. 317.

*c* The rapid development of the newspaper press of the United States has been an unfailing topic of comment in Great Britain. In his *History of Advertising*, published in 1874, Mr. Henry Sampson declares:

> It is almost impossible to tell the number of papers published throughout the United States of America, each individual state being hardly aware of the quantity it contains, or how many have been born and died within the current twelve months. The Americans are truly a great people, but they have not yet settled down into a regular system, so far, at all events, as newspapers and advertisements are concerned.

Mr. Sampson adds that "a professed and apparently competent critic" assures him that "there are quite 3,000 newspapers now (1874) in the states, and that at least a tithe of them are dailies". As a matter of fact, there were in that year 7,339 periodicals published in the United States, of which 678 were daily journals.

Nevertheless, in point of numbers, the growth of the provincial press of Great Britain has been comparatively slow, even since the removal of all these burdensome taxes upon knowledge. (*a*) It is within the scope of this inquiry to make a comparison of the newspaper press of Great Britain with that of the United States. In May's *English Press Directory* for 1881 the total number of publications of all kinds printed in the United Kingdom is placed at 2,997, of which 2,076 were political newspapers and 921 were periodical journals of class characteristics. The political newspapers were classified as follows, by periods of issue, and among the geographical divisions of the British isles:

| When published. | Number of newspapers published in— | | | | | | Total. |
|---|---|---|---|---|---|---|---|
| | Metropolis. | England. | Wales. | Scotland. | Ireland. | British isles. | |
| Daily, morning | 14 | 45 | 3 | 12 | 13 | 1 | 88 |
| Daily, evening | 14 | 48 | 1 | 10 | 5 | | 78 |
| Five times a week | 2 | 10 | | | | | 12 |
| Three times a week | 7 | 9 | | 1 | 8 | 3 | 28 |
| Twice a week | 11 | 70 | 2 | 12 | 23 | 5 | 123 |
| Weekly | 361 | 893 | 58 | 141 | 108 | 9 | 1, 570 |
| Twice a month | 12 | | | | 1 | | 13 |
| Fortnightly | 14 | 1 | | 1 | | | 16 |
| Monthly | 104 | 15 | | 5 | 5 | | 129 |
| Quarterly | 2 | | | | | | 2 |
| Irregular and miscellaneous | 8 | 7 | 1 | 1 | | | 17 |
| Total | 549 | 1, 098 | 65 | 183 | 163 | 18 | 2, 076 |

The periodical publications were similarly classified, as follows:

| When published. | Number of periodicals published in— | | | | | | Total. |
|---|---|---|---|---|---|---|---|
| | Metropolis. | England. | Wales. | Scotland. | Ireland. | British isles. | |
| Daily | 3 | 1 | | | 2 | | 6 |
| Three times a week | | | | 1 | | | 1 |
| Weekly | 61 | 14 | 1 | 6 | 4 | | 86 |
| Fortnightly | 8 | 2 | | | | | 10 |
| Monthly | 464 | 92 | 22 | 33 | 15 | 1 | 627 |
| Bi-monthly | 7 | | | 1 | | | 8 |
| Quarterly | 108 | 13 | 1 | 2 | 3 | | 127 |
| Half-yearly | 9 | | | | | | 9 |
| Irregular and various | 36 | 10 | | 1 | | | 47 |
| Total | 696 | 132 | 24 | 44 | 24 | 1 | 921 |

The English directories differ as widely as the American in their statements of the statistics of the newspaper and periodical press. Mitchell's *Directory* for the same year places the number of newspapers in the United Kingdom at 1,886, divided as follows: Metropolis, 378; England, 1,087; Wales, 66; Scotland, 181; Ireland, 154; British isles, 20; the number of periodicals at 1,097; total, 3,083, as against 2,997 reported by May's *Directory*. These discrepancies, like those which occur in the reports of the American press, are doubtless due to the adoption of different rules to determine what publications shall be regarded as newspapers or periodicals, and what shall be thrown out as mere advertising devices.

Comparison of statistics—English and American press.

Comparing the statistics here given with those contained in the tables submitted with this report, we find that the United States, with a population of 50,155,783, had 971 daily papers, which was 1 to each 51,654 of population, while Great Britain, with a population of 35,246,562 in 1881, (*b*) had 172 daily papers, which was one to each 204,922 of population. This extraordinary difference is somewhat reduced by taking England alone; 125 of the 172 daily papers embraced in the above comparison having been published in that portion of Great Britain the population of which is reported at 20,793,820, which is an average of one daily journal to each 166,351 of population. Recalling the fact that England is far better supplied with daily newspapers than any other country in the world, except the United States, and especially regarding the compactness of its population, and the correspondingly greater facilities for quick and easy circulation, the unique standing of our own diurnal journalism is made evident by these comparisons.

Carrying the same analysis farther, we find in Scotland, with a population of 3,734,370, 22 dailies, which is one to every 169,744 of population.

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*a* Mr. James Grant asserts this to be the fact also with reference to the daily metropolitan press. "It was the general belief," he writes, "that when the stamp duty of a penny on newspapers was reduced to a half-penny as regards the postal transmission of journals we should at least have some addition to the number of our daily journals. But not one single daily paper, morning or evening, has been added to our previously existing list (1872). Nor, considering that no new morning newspapers could have the shadow of a chance of success without an expenditure of at least £50,000, is there any probability that we shall, for many years to come, see any additions to the present six morning journals."—*The Newspaper Press*, vol. II, p. 406.

*b* I have used the preliminary figures of the recent census of Great Britain.

In Wales we find 4 dailies and 1,359,895 population, or one daily to each 339,974 people.

There were 20 dailies published in Ireland, with its population of 5,159,839, which is one daily to each 257,992 of population.

Contrasting these figures with those of individual states in the United States, we may arrive at a closer comparison. The population of New York state is but 76,968 less than that of Ireland; and New York supports a daily newspaper to every 44,199 of population.

Comparison by individual states.

There were only three states in the Union where the number of daily papers was so small, in comparison with population, as in England itself. These were the states of Mississippi, where one paper was printed to each 226,319 of population; West Virginia, with one daily to each 309,228 of population; and Alabama, with one daily to each 210,417 of population. Arkansas, which had but six daily papers and a population of 802,525, averaged one daily to each 133,754 of population, which is 33,000 less than the average for England. The illiteracy statistics of these southern states are to be taken into account in estimating the significance of these comparisons. On the other hand, the variations in the circulation of the daily papers printed enter into the calculation as a modifying element. This fact is best proved by the case of Nevada, which, with a population of 62,266, supported no less than 14 daily papers in the census year, or one to every 4,448 of population, while the total circulation of the Nevada dailies was but 17,155.

Daily papers in cities and towns of England.

We have seen that the average population of the cities in the United States which support one or more daily newspapers is 32, 374, and that, as a rule, a population of 10,000 or under is sufficient to support a daily. England presents an extraordinary contrast to this rule in the United States. City after city, with a population far exceeding these figures, remains to-day without daily publications of any kind. The following list contains the names of the principal English towns with a population of 20,000 or over which had no daily paper in 1880. The population statistics are as estimated by May, from whose directory the list is compiled, the number of weekly, semi-weekly, and tri-weekly papers being added in the case of each town:

| Town. | County. | Population. | Papers. | | | Town. | County. | Population. | Papers. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | *W.* | *S. W.* | *T. W.* | | | | *W.* | *S. W.* | *T. W.* |
| Aldershot | Hants | 30, 000 | 4 | ...... | ...... | Kighley | York | 29, 000 | 2 | ...... | ...... |
| Bacup | Lancastor | 29, 000 | 2 | ...... | ...... | Kidderminster | Worcester | 22, 330 | 3 | ...... | ...... |
| Barnsley | York | 29, 021 | 3 | ...... | ...... | Kingston | Surrey | 30, 000 | 1 | ...... | ...... |
| Barrow-in-Furness | Lancaster | 40, 000 | 2 | 2 | ...... | Leamington | Warwick | 22, 000 | 4 | ...... | ...... |
| Batley | York | 28, 071 | 2 | ...... | ...... | Leigh | Lancaster | 33, 592 | 2 | ...... | ...... |
| Bilston | Stafford | 24, 188 | 1 | ...... | ...... | Lincoln | Lincoln | 40, 000 | 1 | 1 | ...... |
| Birkenhead | Cheshire | 80, 000 | 1 | 1 | ...... | Luton | Bedford | 22, 000 | 2 | ...... | ...... |
| Burnley | Lancaster | 40, 858 | 2 | ...... | ...... | Macclesfield | Cheshire | 35, 450 | 2 | 1 | ...... |
| Burton-on-Trent | Stafford | 35, 000 | 2 | 1 | ...... | Maidstone | Kent | 30, 000 | 2 | 4 | 1 |
| Cambridge | Cambridgo | 30, 078 | 3 | ...... | ...... | Middleton | Lancaster | 20, 000 | 1 | ...... | ...... |
| Canterbury | Kent | 20, 962 | 6 | ...... | ...... | Pendleton | Lancaster | 50, 000 | 3 | ...... | ...... |
| Carlisle | Cumberland | 31, 049 | 2 | 1 | ...... | Reading | Berks | 32, 324 | 3 | 1 | ...... |
| Chatham | Kent | 45, 792 | 2 | ...... | ...... | Rochdale | Lancaster | 70, 000 | 2 | ...... | ...... |
| Chester | Cheshire | 35, 257 | 2 | 2 | ...... | Rotherham | York | 35, 000 | 2 | ...... | ...... |
| Colchester | Essex | 26, 343 | 3 | 3 | ...... | Saint Helens | Lancaster | 57, 000 | 4 | 1 | ...... |
| Coventry | Warwick | 37, 670 | 3 | 1 | ...... | Salford | Lancaster | 170, 000 | 2 | ...... | ...... |
| Crewe | Cheshire | 24, 300 | 2 | ...... | ...... | Shipley | York | 25, 000 | 1 | ...... | ...... |
| Darwen | Lancaster | 30, 000 | 1 | ...... | ...... | Shrewsbury | Salop | 23, 406 | 3 | ...... | ...... |
| Devonport | Devon | 49, 449 | 2 | ...... | ...... | Southampton | Hants | 70, 000 | 4 | 1 | ...... |
| Dudley | Worcester | 43, 782 | 2 | ...... | ...... | Southport | Lancaster | 32, 000 | 1 | ...... | 1 |
| Enfield | Middlesex | 20, 100 | 1 | ...... | ...... | Stalybridge | Lancaster | 21, 092 | 2 | ...... | ...... |
| Farmworth | Lancaster | 24, 000 | 1 | ...... | ...... | Stockport | Cheshire | 53, 014 | 3 | ...... | ...... |
| Gateshead | Durham | 48, 627 | 1 | ...... | ...... | Stockton-on-Tees | Durham | 37, 612 | 2 | ...... | ...... |
| Gorton | York | 21, 616 | 1 | ...... | ...... | Torquay | Devon | 26, 000 | 2 | ...... | ...... |
| Gravesend | Kent | 21, 265 | 5 | ...... | ...... | Warrenton | Lancaster | 32, 144 | 2 | 1 | ...... |
| Halifax | York | 71, 000 | 3 | ...... | ...... | Wednesbury | Stafford | 25, 030 | 2 | ...... | ...... |
| Heywood | Lancaster | 22, 000 | 2 | ...... | ...... | West Bromwich | Stafford | 47, 918 | 1 | 1 | ...... |
| Hyde | Cheshire | 30, 000 | 2 | ...... | ...... | Wigan | Lancaster | 45, 000 | ..... | 1 | 1 |

Many of the above-enumerated towns are market towns or the centers of large manufacturing and agricultural interests. We have seen that the whole United States, with its population of 50,155,783, will not furnish one-third as many towns with equal population without from one to five daily papers published in each. The great number of large towns without daily newspapers explains the large ratio of population to each paper published in England.

To further emphasize the contrast, it may be added that the smallest English town in which a daily paper is published is Grimsby, in Lincolnshire, with a population of about 30,000. Many of the largest provincial cities, like Hull, population 143,000, and Leicester, population 130,000, were satisfied with two dailies. Manchester, population 400,000, had six dailies, and Liverpool, population 527,083, had eight, which is a smaller number than the cities of equal size in the United States sustain.

The marked contrast between the press of the United States and that of Great Britain is the larger average circulations which obtain in the latter country—the natural consequence of the fewer number of papers published in proportion to population and their greater stability. (a)

## THE CIRCULATION OF NEWSPAPERS IN NEW YORK, LONDON, AND PARIS.

Americans the greatest newspaper readers in the world.

We have long been accustomed to the fact that the people of the United States are the greatest readers of newspapers in the world. The data regarding the press in other countries are not sufficiently complete to permit of an actual demonstration by comparative figures; but the general statement of the number of newspapers published in proportion to population, as given above, is sufficiently conclusive as to the general fact.

The circulation of the daily newspapers in the three cities of New York, London, and Paris affords something of a basis upon which to reach a right conclusion in the matter.

The daily press of New York, London, and Paris.

The Tenth Census shows twenty-nine daily journals published in the city of New York, with an aggregate daily circulation of 765,843, the population of the city at the same time being 1,206,299.

There were in the same year twenty-eight daily journals of all kinds published in the city of London, with its enormous population of 3,254,260 in 1871. The best attainable information as to the circulation of these journals places the aggregate at 710,000, or less than the aggregate circulation of the New York journals.

It has been found impossible to obtain reliable information as to either the number or the circulation of the Paris daily journals. The number is much larger than that of either New York or London, and several of them have enormous circulations. New ventures in journalism are so constantly appearing and disappearing in the French capital that a statement which is good for one year is worthless for the next. French authorities have estimated recently that the combined circulation of all these dailies is in the neighborhood of half a million copies, although statements placing it much higher are of frequent appearance.

Ratio of circulation to population in the three cities.

The circulation of the Paris journals is very largely confined to the environs of the city itself, while the issues of the daily press of London and New York, in about the same relative ratio, are largely sent into the provinces and the states. The figures given for the daily circulation of the papers published in these cities do not therefore represent the actual number of those who buy a daily paper in either metropolis. On the other hand, it is safe to calculate that every printed paper thus circulated is read by at least two persons, some estimates doubling the average number of readers to a copy. Even at this low estimate the figures given supply, after making due allowance for the editions sent out of the city, a daily newspaper to every man, woman, and child in New York city.

The same method of reaching a conclusion will assign a daily newspaper to one in every three of the population of London and one in every two of the population of Paris. The proportion of readers to population in London and Paris is much larger than in any other portions of either country, while in New York city the proportion is not as large as this inquiry has revealed it to be in several other American cities.

Circulation of London and Paris daily newspapers.

There are single journals, both in London and Paris, which reach a much larger circulation than any single journal in the United States. Since the abolition of the stamp duty there has been no authentic method of reaching the actual circulation of the London dailies, but the shrewd estimates made are undoubtedly not many thousand copies out of the way. The stamp returns show that the London *Times* increased in circulation as follows: 1834, 10,000; 1844,

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*a* Mr. H. P. Hubbard, in his *Newspaper Directory of the World* (1881), gives some interesting comparisons regarding the comparative circulation of English and American newspapers, as follows:

"Eight thousand two hundred and eleven newspapers and magazines published in the United States and Canada, whose circulation is given, emit an aggregate per single issue of 20,677,538 copies. The average circulation of each journal is 2,041, against an average circulation of 7,602 of each British publication, thus showing that the average American journal has but 27 per cent. of the circulation of the average British.

"The aggregate of all issues for one year from the 8,211 American presses mentioned is 1,836,473,592 copies, against 1,734,841,956 copies, issued by the 2,928 British presses. Thus it will be seen that our foreign cousins, with but little more than one-third the number of American publications whose circulation is known, send out within one-eighteenth of as many copies per annum as ours. This may at first seem incredible when we consider that the population of the entire United Kingdom does not exceed 35,000,000, while that of the United States and Canada varies but little from 54,000,000. There are, however, in the United States and Canada, in round numbers, 2,000 publications whose circulations are not included in the American lists. Estimating their average issues per press at the same as those given, these 2,000 presses would add to the annual American issues 459,118,398 copies, giving to America for its 54,000,000 people an aggregate of 2,295,591,990 newspapers and other periodicals per annum, or at the rate of $42\frac{51}{100}$ copies per annum for each individual. The British press, issuing 1,734,841,956 copies for 35,000,000 people, furnishes to each individual within the kingdom $49\frac{56}{100}$ copies per annum, showing that were the circulation of the British press confined wholly to its immediate kingdom the average Briton would intellectually devour seven more periodicals in the course of a year than the average American and Canadian. It should not be forgotten, however, that the press of Great Britain enjoys an extensive field of circulation among the inhabitants of its numerous colonies—in Australia, South Africa, India, and even in Canada—to which the American press has no parallel. Subtracting, therefore, from the total circulation of the press of the United Kingdom that which seeks the colonies, it is fair to infer that the remainder does not exceed, per capita, the number supplied by the American press to its own readers."

23,000; 1854, 51,650. During the Crimean war the figures reached 70,000, and remained stationary for several years at that figure, with a tendency to decline under the pressure of the excellent penny papers which had then recently sprung into existence. The present circulation of the *Times* is believed to be about 60,000, while the London *Daily Telegraph* makes a claim, not generally disputed, to a circulation of 150,000,(a) and the *Daily Evening Echo* claims 140,000. The London *Daily News* has been steadily gaining upon its competitors for some years back, and its present circulation may be safely placed at 100,000. In Paris *Le Petit Journal* prints daily 130,000 copies, and the *Figaro*, which is generally believed to be the journal nearest it in circulation, prints 70,000 copies daily.

Circulation of the New York daily newspapers.

The largest average daily circulation claimed by any one of the New York journals is 120,000. On frequent occasions, in response to an extraordinary demand, the leading journals will print an issue whose numbers closely approximate the largest average given for the *Telegraph*, of London, or *Le Petit Journal*, of Paris. The Boston *Herald*, situated in a city not more than half the size of New York, publishes on the average 100,000 papers, and can on occasion increase this number almost as much as it is increased in New York.

Newspaper circulations in continental Europe.

It may be added that there is no other European country in which the circulation of the daily newspapers reaches figures that approximate the dimensions of those of London, Paris, and New York. The *Allgemeine Zeitung*, of Augsburg, is believed to be the only German paper which has yet reached a circulation above 50,000; and it is a suggestive fact that the German daily with the largest circulation is published in the city of New York.

The latest authentic figures I have been able to obtain relating to the circulation of the German newspapers showed in the German empire, in 1875, thirteen daily newspapers which issued between 10,000 and 20,000 copies regularly, six which issued between 20,000 and 30,000, and two only which published more than 30,000—the Cologne *Zeitung* and the Berlin *Volkszeitung*. The periodical publications of a literary character, for the entertainment of the people, have a circulation in Germany exceeding in dimensions that of the same class of publications in the United States. Thus the *Gartenlaube* in 1875 sold 328,000 per issue, the *Familienzeitung*, illustrated, 200,000, and the *Modenwelt* 156,000. These figures exceed any that can be given for this country, although the aggregate circulation of this class of periodicals is much greater in the United States, in proportion to the population, than in Germany.

In Italy and Spain 5,000 is considered a large circulation for the best journals that are published, and the most popular paper in the former country (*Opinione*) did not exceed 20,000 copies, even during the excitement of the war of 1859. *The Unita Cattolica*, for a number of years the most firmly established Italian paper, never exceeded a circulation of 10,000.

## THE RELATIONS OF THE UNITED STATES POST-OFFICE DEPARTMENT TO THE NEWSPAPER PRESS.

An investigation now first made.

The relations existing between the post-office department of the United States government and the newspaper and periodical press have always been peculiarly intimate, and present a most interesting theme of investigation. No attempt has ever been made to historically trace the development of these relations, and much material which would shed interesting light upon the subject is unfortunately not now available. In the pursuit of an investigation which seemed to be a natural and necessary complement of a report of this character the special agent applied to the post-office authorities and was courteously permitted the use of all the public documents and other data in the possession of the department, and was afforded every facility for making a thorough and satisfactory investigation, with such advice and assistance as it was in the power of the officers in charge of this branch of the government to render. The results are presented in chronological form.

A simultaneous development.

The post-office service and the newspaper press have developed together. At the beginning the press leaned upon the department, depending altogether upon its assistance for expediting its circulation. The government, on the other hand, assumed somewhat of the attitude of a patron of the newspaper press, and avowedly undertook to encourage its growth as the most important disseminator of intelligence among the people. When the postal system of the United States was first organized, the press of the country was insignificant in character and volume, and its issues did not promise any very great burden to the mails. The rates of newspaper postage were therefore fixed at much lower figures than those charged for the transmission of letters, as they have in fact remained from that day to this.

The first federal postal act.

By the postal act of 1793 the rates of postage charged for a single letter (*i. e.*, one composed of a single sheet of paper) were: Under 40 miles, 8 cents; under 90 miles, 10 cents; under 150 miles, 12½ cents; under 300 miles, 17 cents; under 500 miles, 20 cents; over 500 miles, 25 cents; while newspapers were sent under 100 miles, or within the state where published, for 1 cent each, over 100 miles

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[a] The daily circulation of the London *Telegraph*, recently certified by public accountants, averages over 260,000. The weight of paper used each morning is 21 tons. The paper is printed on ten Hoe machines, which turn out an average of 120,000 copies per hour.—Joseph Hatton, in *Harper's Magazine*, 1881.

and out of the state where published, 1½ cents. Magazines and pamphlets, 1½ cents a sheet under 100 miles; if periodicals, over 100 miles, 2½ cents a sheet; if not periodicals, 4 and 6 cents. The provisions of the postal act of 1793, so far as they relate to the transmission of newspapers and periodicals, were as follows:

Extracts from the act of 1793.

SEC. 21. That every printer of newspapers may send one paper to each and every other printer of newspapers in the United States free of postage, under such regulations as the Postmaster-General may provide.

SEC. 22. *And be it further enacted,* That all newspapers conveyed in the mail shall be under cover, open at one end, and carried in separate bags from the letters, and charged with the payment of one cent each for any distance not over one hundred miles, and one and a half cents for any greater distance: *Provided,* That the postage for a single newspaper from any one place to another in the same state shall not exceed one cent; and that where the size of mails and the mode of conveyance will admit of it, magazines and pamphlets may be transported in the mails at one cent per sheet if conveyed any distance not exceeding fifty miles, one and a half cents for any distance over fifty miles and not exceeding one hundred miles, and two cents per sheet for any greater distance. And it shall be the duty of the Postmaster-General and his deputies to keep a separate account of the newspapers, magazines, and pamphlets, and the deputy postmasters shall receive fifty per cent. of the postage thereon exclusive of their own allowance.

[Additional act—same year.]

SEC. 6. That no newspaper shall be received by the deputy postmasters to be conveyed by post unless they be sufficiently dry and inclosed in proper wrappers, on which, beside the direction, shall be noted the number of papers which are inclosed for subscribers and the number for printers. The deputy postmasters shall form all newspapers deposited in their offices to be conveyed by post into mails, and if any deputy postmaster shall open or permit any other to open any mail not directed to his office to be opened, he shall, on conviction thereof, forfeit for such an offense a sum not exceeding twenty dollars.

Different principle in newspaper and letter postage.

But one principle of difference in rates in the postal transmission of newspapers was recognized in the original postal act, while two distinct principles were adopted in reference to the transmission of letters. Newspapers paid one cent postage for all distances within 100 miles, and a cent and one-half for all greater distances, without reference to their weight, while letters paid postage, according to their weight, upon a graduated scale of distances.

These rates made the burden of letter postage an onerous one from the start, while it was never claimed that the postage then charged upon newspapers was other than a reasonable one. The theory was that the cost of the mail service was to be paid out of the letter postage, and that the newspapers were to have the advantage of the revenues thus created for their contemporaneous transmission through the mails.

Postal modifications up to 1833.

Nevertheless the principles adopted in the first postal law remained unchanged for half a century. The following letter of Postmaster-General Barry to Hon. Felix Grundy, chairman of the Senate committee on post-offices, written in 1833, contains a *résumé* of the postal laws and their modifications up to that date:

SIR: In answer to your inquiry, I beg to state that from the earliest period of our government, when the circulating medium was much more limited, and consequently its nominal value was greater than at present, there has been no essential variation in the price of letter postage, as will be seen by the following statement:

| Miles. | Not exceeding— | Cents. |
|---|---|---|
| 30 | 60 | 8 |
| 60 | 100 | 10 |
| 100 | 150 | 12½ |
| 150 | 200 | 15 |
| 200 | 250 | 17 |
| 250 | 350 | 20 |
| 350 | 450 | 22 |
| 450 | ..................... | 25 |

Newspaper postage on distances not exceeding 100 miles, 1 cent; exceeding 100 miles, 1½ cents.

The law was revised by Congress in May, 1794, and the same rates of postage were again determined upon. The law of March 2, 1799, slightly reduced the rates on letter postage; newspaper postage continued as before. The law was revised in 1810, but no change was made in the rates of postage.

From February 1, 1815, to March 31, 1816, 50 per cent. was added to all postages for the purpose of raising a revenue in aid of the expenses of the war in which the country was then engaged. In April, 1816, Congress then reduced the postage on letters, but newspaper postage continued as before, except that the postage was reduced to 1 cent, though conveyed more than 100 miles for delivery in the same state in which they were printed.

In 1825 the law was revised but the rates on postage were confirmed.

Under these circumstances I am warranted in the conclusion that the rates on newspapers were so far settled that no important difference in their aggregate amount was to be contemplated, and the experience of forty years, without producing an opposite conviction in the public mind, was sufficient to justify the conclusion that the principle was settled.

On this principle all existing contracts for transporting the mails have been predicated. A reduction of the rates will require a very important reduction of the mail facilities of the country.

In relation to the postage on newspapers, the consequence of a reduction will be no less embarrassing. The expense of their transportation is very great, and their numbers are constantly multiplying. It is an occurrence of almost every day that a ton's weight of newspapers is carried in our mail hundreds of miles together, and at a rate of from 80 to upward of 100 miles a day; and if the postage on them shall be abolished, the number will be multiplied and the cost of their transportation increased. It will probably be the means of superseding many of our village newspapers by supplying their places with papers from the cities, which will render it difficult for their rapid transportation at any expense. (*a*)

It is evident from the phraseology of this letter that the agitation of a reduction of letter postage began long previously included also a demand for the reduction of newspaper postage as well. Indeed, not only a reduction but the entire abolition of newspaper postage was asked. In the previous year a resolution making inquiries as to the expediency of such an abolition had passed the House of Representatives. In response to this resolution, Postmaster-General Barry wrote as follows:

**Demand for a reduction of postage on letters and newspapers.**

*To the House Committee on Post-Offices and Post-Roads:*

SIRS: I have the honor to acknowledge the receipt of your letter inclosing a resolution of the House of Representatives relative to the expediency of abolishing the postage on newspapers and periodicals, in which you inquire the amount of net revenue received from this source, and the amount of each separately; also my opinion upon the propriety of adopting this measure. Having a due regard for the prosperity of the department, and with no other intention than that which may be useful to the committee in forming a correct opinion on the subject, to the first inquiry I will observe that the amounts of postage on newspapers and pamphlets are kept together, without distinguishing one from the other. The commission of postmasters is the same on both, and no occasion has ever arisen for separating them in the books of the department. The postage on pamphlets which are not periodicals is very inconsiderable. The intention of the law appears to be to evade and discourage their transmission by mail, except in cases where it might be required as a matter of considerable interest to the object which is to be accomplished. The postage on newspapers and periodicals arises principally from the former, probably more than four-fifths of the whole. The remainder is almost entirely on periodical pamphlets.

The gross amount of postage on newspapers and pamphlets for the year ending June 30, 1830, was $196,606 34; that for the year ending June 30, 1831, was $223,485 01. The increase in one year was $26,878 67. The commission allowed to postmasters on newspapers and pamphlets is 50 per cent. of the gross amount; but by reserving to the department the fractions of cents the net proceeds are a little more than one-half the gross amount.

The net proceeds of postage on newspapers and pamphlets for the first above-mentioned year amounted to $98,513 44; for the second year, $112,111 22. The increase in the net proceeds was $13,597 78.

To the second inquiry I have the honor to submit the following remarks:

The increase of postage on newspapers is in a greater ratio than that on letters; and the increase of postage of every description is in a ratio considerably beyond that of the population and business of the country. This great ratio of increase has resulted from the greatly increased facilities which have been given to communications by mail.

Having perceived at an early day the propriety and necessity of making such improvements in some of the leading mail-routes as would be calculated to draw every kind of communication as much as possible into the mails, and would thus increase the revenue to a greater amount than the increased expenditure required for such improvements, my attention has been constantly directed to this object. The propriety of the course adopted has been justified by the results. The improvements have called for a considerable expense, yet they have increased the revenue beyond their cost. But if improvements should now cease to be made, the ratio of increase of the revenue will be of necessity diminished.

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*a* The text of the act of 1825, so far as it related to newspapers, was as follows:

"SEC. 30. That all newspapers conveyed in the mails shall be under cover and open at one end and charged with a postage of one cent each for any distance more than one hundred miles, and one and a half cents for any greater distance, provided that the postage on a single newspaper from any one place to another in the same state shall not exceed one cent; and the Postmaster-General shall require those who receive newspapers by post to pay always the amount of one quarter's postage in advance; and should the publisher of any newspaper, after being three months previously informed that his newspaper is not taken out of the office to which it is sent for delivery, continue to forward such paper in the mails, the postmaster to whose office such paper is sent may dispose of the same for the postage unless the publisher pay it.

"If any person employed in the department of the post-office shall improperly detain, delay, embezzle, or destroy any newspaper, or shall permit any other person to do the like, or shall open or permit another to open any mail, or take a newspaper not directed to the office where he is employed, said offender shall, on conviction thereof, forfeit a sum not exceeding fifty dollars for each said offense, and if any other person shall open or take a newspaper, or shall embezzle or destroy the same, not being directed to such person, or not being authorized to receive or open the same, said offender, on conviction thereof, shall pay a sum not exceeding twenty dollars for every such offense.

"If any person shall take or steal any packet, book, or mail of newspapers from or out of any post-office, or from any person having custody thereof, such person shall upon conviction be imprisoned not more than three months for every such offense and be kept at hard labor during such imprisonment.

"If any person shall inclose or conceal a letter or other thing or any memorandum or writing in any newspaper, pamphlet, or magazine, or in any packages of newspapers, pamphlets, or magazines, or make any writing or memorandum thereon which he shall have delivered into any post-office, or to any person for that purpose, in order that the same may be carried by post for letter postage, he shall, on conviction thereof, forfeit or pay the sum of five dollars for each and every offense, and the newspaper package or memoranda intended to be delivered to the person to whom it is directed shall be held till the amount of single letter postage is paid for each article of which the package is composed.

"No newspapers shall be received by the postmaster to be conveyed by post unless they are sufficiently dried and inclosed in paper wrappers on which, beside the direction, shall be noted the number of papers which are inclosed for subscribers and the number for printers, provided that the number intended be indorsed.

"The postmaster, in any contract he may enter into for the conveyance of the mail, may authorize the person with whom such contract is to be made, to carry newspapers, magazines, and pamphlets other than those conveyed in the mails; provided that no preference shall be given to the publisher of one newspaper over another in the same place. When the mode of conveyance and the size of the mail will admit of it, such magazines and pamphlets as are published periodically may be transmitted through the mails to subscribers at one and one half cents a sheet to any distance not exceeding one hundred miles, and two and one half cents for any greater distance. And such magazines and pamphlets as are not published periodically, if sent in the mails, shall be charged with a postage of four cents on each sheet for any distance not exceeding one hundred miles and six cents for any greater distance."

The gross amount of postage for the year ending June 30, 1833, may be fairly estimated at $249,000, and the net revenue at $125,000. If the postage shall be abolished on newspapers and pamphlets, it will materially diminish the earnings of postmasters, as their compensation generally does not now exceed a fair equivalent for their labor. They would probably solicit an increase of commissions on letter postage. Should this be granted, the diminished means for carrying on the operations of the department and for that progress of improvement which the country demands would consequently be $249,000 for the first year, with a loss of its progressive increase from year to year; and if the postmasters should be denied an increase of commission to counterbalance the loss they will sustain in being deprived of this part of their compensation, the immediate diminution to the net revenue of the department would amount to $125,000 a year. There must also be estimated the increased expense of transporting the mails incurred by the additional weight which would be added to it. * * * Should the measure be adopted, it would give an immediate check to all further improvement to mail facilities. In order to preserve the rapidity and certainty of the connections now secured between the large commercial towns it will probably be necessary to provide for separating newspapers from the letter mail. The newspapers and periodicals are held to be of inestimable value to the community, though it has not yet been considered to be the duty of the government to distribute them through the Union entirely at the public expense. The freedom of the press guaranteed by the Constitution, and the small share of postage with which these publications are charged, compared with the whole expense of their transportation, demonstrate the estimation in which they are held by the government. If they should be transported entirely free of postage, an equivalent amount appropriated from the treasury for their transmission would be at the expense of the government, or if the department shall depend upon its own resources alone, then their transmission will be at the expense of those who pay the revenue in postage on letters.

From the preceding view of the facts the committee will judge of the policy and justice of adopting either of the alternatives stated, and how far the energies of the department would be embarrassed by abstracting from it the revenue derived from newspapers and pamphlets, at the same time adding to its charges the increased number which it would be required to transport. (*a*)

Proposed abolition of newspaper postage.

A bill for the abolition of the postage on newspapers having been introduced in the Senate and referred to the committee on post-offices and post-roads, that committee, through its chairman, made the ollowing adverse report on May 19, 1832:

The committee beg leave to report that they are aware of the importance of advancing information throughout the community through the medium of newspapers, and that it is the duty of the government to promote an object so laudable and desirable, so far as is consistent with the successful operations of the post-office department. The other great interests of the country, the safety of the department, and the beneficial effects which are everywhere felt from its operation, should not be hazarded for slight cost, nor should the principles of justice and equity be sacrificed for the attainment of fancied benefits wrought in any other but a tangible and durable form.

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The object of the bill is a more extensive circulation of newspapers; and if this object be attained, it must in the same proportion increase the burdens of the mail. This will operate unjustly and press heavily upon the mail contractors who have already entered into obligations to meet their arrangements without reference to the new state of things which would be produced by the passage of this bill.

The postage on newspapers and pamphlets for the three years ending July 1, 1833, was as follows: 1829, $180,656 48; 1830, $205,098 55; 1831, $228,876 56. On the same progressive ratio of increase they will for the current year amount to upward of $250,000. Of this sum not more than one-fifth was derived from periodicals and pamphlets; and if the postage on newspapers shall be abolished, it is probable that most of the periodicals and pamphlets will assume the form and character of newspapers.

One-half of this sum is retained by the postmasters on account of compensation for their services. If this part of their compensation shall be taken from them, while their labor is increased, it would be but equitable to increase their compensation in some other way. And if no remuneration shall be made to postmasters in lieu of the compensation which would be withdrawn by the passage of this bill, yet will the law establishing new rates impose upon the department an additional burden of from $100,000 to $234,000 per annum. The passage of this bill will deprive it of the means of sustaining itself, by diminishing its revenue more than $100,000.

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From a careful investigation of the subject the committee are satisfied that the provisions of the bill cannot be sustained without an annual appropriation from the treasury, and that appropriation must be increased from year to year, for the increase of newspaper postage is greater than the increase of letter postage in a duplicate ratio. The increase of the weight of newspaper mails, even while subject to postage, is to the increase of letter mails as about thirty to one. It must then be obvious that, if the revenues arising on letter postage are not sufficient to defray the expense of transporting the letters and newspapers conveyed in the mails, the deficiency will continue to increase as the weight of the mail shall increase. The measure would probably in a few years become a serious burden to the treasury,

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*a* As an illustration of the difficulties with which publishers had to contend, as well as the post-office department, because of these dead papers, we reproduce the following circular, addressed by Thomas Ritchie, of the Richmond *Enquirer*, to the postmasters at every office to which one or more of his papers were sent in 1819:

"RICHMOND, *November* 6, 1819.

"SIR: In these times it is a point of some importance to save as much as I can. One dead paper at one post-office may be a trifle; but one paper lying dead at 150 or 200 offices may amount in the year to a very serious loss. I have therefore determined to address a circular letter to each of the post-offices to which the *Enquirer* is forwarded, respectfully requesting the postmasters to inform me if there be any of its papers not taken up by the subscriber to whom it is addressed.

"It would be an additional obligation to me if you, sir, would add why the paper is not taken up; if the subscriber be dead, who is his representative; if removed, to what state he has emigrated; and any other information touching the matter which you may deem important for me to possess.

"You would also serve me essentially by informing me whether the *Enquirer* comes regularly to your office, and whether there be any change in its route or in the run of the mails which might make it arrive sooner at its place of destination.

"I have nothing else to offer you, sir, for any attention you may pay me in this way than the sincere thanks of one who works hard for the bread which he eats, and who is therefore unwilling to throw away any of his work. I am encouraged to hope for success in this application by the recollection that three years ago I made a similar experiment, whose results were as pleasing to me at the time as they have since been profitable. I have now on file more than one hundred very obliging letters in reply to mine; and the information thus kindly communicated saved me from fifty to one hundred papers annually, which had otherwise been wasted 'upon the desert air'.

"Any information you can furnish now or hereafter about the transmission of my papers will be gratefully acknowledged by, sir, your obedient servant,

"THOMAS RITCHIE."

> and might prove the foundation for a pretext at no distant day for imposing a tax on newspapers as an equivalent for the expense of their transportation—a measure which at this time would meet the disapprobation of the whole community.
>
> The inevitable consequence of passing this bill would be to resort to the treasury for the transportation of newspapers. To such a resort there are many and, in the opinion of the committee, very weighty objections.
>
> * * * * * * * * *
>
> Newspapers cannot be transported without expense, and they are generally distributed by the mail at a much lower rate than in any other way that can be devised. The price fixed is much lower than the actual cost to the department. If they were excluded from the mails, the weight would be so diminished as greatly to diminish the expense of transportation. It is the weight of the mail that subjects it to heavy charges for transportation; and from the best estimate that can be made the weight of the letters transported in all the mails of the United States does not amount to more than one-fifteenth part of the whole weight, yet the postage on letters for the year ending the 1st of October last amounted to $1,823,563 08, and the postage on newspapers and pamphlets for the same period amounted to $228,876 56, about one-eighth part of the same for fifteen times the weight.
>
> The postage on newspapers is not a tax. It is no more in the nature of a tax than is the freight paid on merchandise. It is money paid for a fair and full equivalent in service rendered, and paid by the person for whose benefit and by whose venture the service is performed. The law does not require newspapers to be distributed by the mails. It only extends to their proprietors that privilege when it becomes their interest to avail themselves of it in preference to other and more uncertain and expensive modes of conveyance. There does not appear any sufficient reason why the public should pay for transporting printers' articles or merchandise to a distant market any more than the productions of other kinds of industry. In all cases the expense must be defrayed either by a tax or by the person for whom the service is performed; and the committee cannot perceive a more equitable way than for each one to pay for the services actually rendered to himself for his own benefit and by his own order.
>
> From whatever source the revenue to be applied to that object shall be derived, yet it is drawn from the public, and if the bill shall pass it will in fact impose a tax upon the people for the transportation of newspapers. The greatest benefit from this tax will accrue to him who receives the greatest number of distant newspapers. The operation then will not be in favor of the laboring class of the community. The industrious and useful farmer or mechanic generally contents himself with one or two weekly newspapers, while his more wealthy neighbor is able to indulge himself with as many every day. The measure will therefore operate as a tax for the benefit of the wealthy at the expense of his more industrious and useful neighbor. The committee do not perceive the justice of taxing that portion of the community who read the fewest papers for the benefit of those who read the most.
>
> The effect this bill would have upon the newspaper establishments of the country, and indeed upon the political character of the nation, is a subject worthy of deep consideration. There is a prevailing curiosity in the interior to see and read the papers which are published in the large cities, and to learn the news and rumors which are circulated there. If these papers shall be transported without expense, it is apparent that they will be generally preferred, although all the useful intelligence that they contain is now circulated, with but a few hours delay, through the medium of the local press.
>
> The city editors, by fixing agents in the different towns and villages to receive and circulate their papers, will depress and finally supplant the smaller establishments and monopolize the news of the large cities, whose political atmosphere is not always the most congenial to the spirit of independence or calculated to promote that manliness of spirit which has always characterized the great body of the common people of our country; and that spirit which constitutes the safeguard of our liberties will gradually decline, and the loss consequent upon such a state of things cannot be compensated by any saving of postage on newspapers. A concentration of political power in the hands of a few individuals is of all things the most to be dreaded in a republic. It is of itself an aristocracy more dangerous and potent than any other, and nothing will tend more to prevent it than the sustaining of the newspaper establishments in the towns and villages throughout the country.
>
> The committee, upon a full view of the subject, are of the opinion that it would be entirely inexpedient to pass the bill, and therefore recommend its indefinite postponement.

Inequalities of newspaper postage rates.

The soundness of the argument advanced by this committee against the free carriage of newspapers in the post has been demonstrated by the experience of more recent years. At the particular period of the preceding report there was a great deal of complaint on the part of the publishers of interior newspapers that the postal laws already discriminated most unjustly in favor of the metropolitan newspapers. These mammoth papers—for this was the golden era of the New York "blanket sheet"—were carried long distances at the same rates of postage charged to the smaller local press, and they conveyed the latest news to the people of the interior towns earlier than the publishers in the latter, obliged to wait for their news for the arrival of the same papers, could republish and circulate it. Thus the mail service was the real cause of that concentration of political influence about a few centrally-located newspapers, which has been spoken of elsewhere in this report as one of the marked journalistic characteristics of the second era. It was the mail facilities they enjoyed which gave to newspapers like the *National Intelligencer*, of Washington, a reputation and a circulation all over the Union such as no paper, however superior, can command in these days of telegraphic communication. Everywhere the people were obliged to await the arrival of the *Intelligencer* before they could learn what had transpired in Washington on the day previous to its publication, and the gentlemen of this committee were naturally affrighted by the vision of the concentration of political power about a few establishments, which this state of things, if left to the development then in progress, would eventually work. But the invention of the telegraph put all the journals of the Union on a par with respect to priority in the publication of the news, and thus restored journalistic development in the United States to healthy and natural conditions.

Consolidation of newspaper power the consequence.

Railroads and steamboats as mail carriers.

In the meanwhile the department continued to devote its energies to facilitating the rapid transmission of newspapers in the mails. The following extract from the annual report of Postmaster-General Amos Kendall for 1835 shows the early recognition of the steamboat and railroad as a revolutionizing element in postal history:

> Sufficient attention has been given by the undersigned to the manner in which newspapers and other printed matter are conveyed through the mails to satisfy him that it is radically defective. No supervision or power to punish exercised or bestowed by the Postmaster-General is able to prevent on some occasions the canvas bags in which printed matter is stowed from being left behind, so long

as they are being carried separately from the letter mails or on the outside of coaches and stages. To prevent the evil in some degree, it has been provided in the contracts lately awarded on the mail routes to the West that on the outward trips no passengers shall be carried in the mail-coach, and that it shall be devoted exclusively to the mails, and on similar routes along the seaboard the same restriction will be applied in that direction. It is believed that the enforcement of the contracts in this respect will insure the safe conveyance of the newspapers so far as they travel on these routes.

A very great improvement in this respect is anticipated by the arrangements now in progress to run steamboat mails on the rivers during steamboat navigation and on a portion of the Mississippi during the whole year. The multiplication of railroads will form a new era in the mail establishment; they must soon become the means by which the mails will be transported on most of the great lines of intercommunication; and the undersigned has devoted some attention to the devising of a system which shall render the change most useful to the country.

Federal supervision over the contents of newspapers carried in the mails.

The same report of Mr. Kendall broached a subject in connection with the mail transmission of newspapers which had already made much excitement in the southern states, and constitutes one of the most interesting chapters in the history of the relation of the United States mail to the newspaper and periodical press. Mr. Kendall's report continues:

A new question has arisen in this department. A number of individuals have established an association in the northern and eastern states, and have raised a large sum of money, for the purpose of effecting an immediate abolition of slavery in the southern states. One of the means resorted to has been the printing of a large mass of newspapers, pamphlets, tracts, and almanacs containing exaggerated and, in many instances, false accounts of the treatment of slaves, illustrated with cuts calculated to operate on the passions of the colored men and produce discontent, assassination, and civil war. These they attempt to disseminate through the slaveholding states by the agency of the public mails.

As soon as it was ascertained that the mails contained these productions great excitement arose, particularly in Charleston, South Carolina, and to insure the safety of the mail in its course southward the postmaster agreed to retain them in his office till he could obtain instructions from the Postmaster-General. In reply to his appeal he was informed that it was a subject upon which the Postmaster-General had no legal authority to instruct him. (*a*) The question again came up from the postmaster at New York, who had refused to send the papers by the steamboat mail to Charleston, South Carolina, to whom I also answered that the Postmaster-General possessed no legal authority to give instructions on the subject. But as the undersigned had no doubt that the circumstances of the case justified the detention of the papers, he did not hesitate to say so. Important principles are involved in this question, and it merits the grave consideration of all the departments of the government.

There is no quarter whence domestic violence is so much to be apprehended in some of the states as from some of the servile population preyed upon by mistaken or designing men. It is to obviate danger from this quarter that so many of the state laws in relation to the circulation of incendiary papers have been enacted.

Without claiming for the general government the power to pass laws forbidding discussions of any sort as to the means of protecting states from domestic violence, it may safely be assumed that the United States have no right, through their officers or departments, knowingly to be instrumental in producing within the several states the very mischief which the Constitution commands them to repress. It would be an extraordinary construction of the powers of the general government to maintain that they are bound to afford the agency of their mails and post-offices to counteract the views of their citizens in the circulation of papers calculated to produce domestic violence, when it would be at the same time one of their most important constitutional duties to protect the states against the natural, if not necessary, consequences produced by that very agency. The position assumed by this department is believed to have produced the effect of withholding its agency generally in giving circulation to the obnoxious papers in the southern states. Whether it be necessary more effectually to prevent by legislative enactments the use of the mails as a means of avoiding the violation of constitutional laws of the states in reference to this portion of their respective rights is a question which, it appears to the undersigned, may be submitted to Congress upon the statement of the facts and their own knowledge of the public interest.

President Jackson advocates the right of federal supervision.

In the extreme view here advocated, of the right of the general government to exercise a discretionary supervision over the character of the contents of newspapers conveyed in the mails, Mr. Kendall reflected the sentiment of the administration and of a large element in the democratic party. The annual message of President Jackson for the same year contained the following passage on this subject:

I must also invite your attention to the painful excitement produced in the South by attempts to circulate through the mails inflammatory appeals addressed to the passions of the slaves, in prints and in various sorts of publications calculated to stimulate them to insurrection and to produce all the horrors of a servile war.

There is doubtless no respectable portion of our fellow-countrymen who can be so far misled as to feel any other sentiment than that of indignant regret at conduct so repugnant to the principles of our national compact and to the dictates of humanity and religion. Our happiness and prosperity essentially depend upon peace within our borders, and peace depends upon the maintenance, in good faith, of those compromises of the Constitution upon which the Union is founded. It is fortunate for the country that the good sense, the generous feeling, and the deep-rooted attachment of the people of the non-slaveholding states of the Union, and their fellow-citizens of the same blood in the South, have given so strong and impressive a tone to the sentiments entertained against the proceedings of the misguided

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*a* Postmaster-General Kendall wrote as follows to the postmaster of Charleston, South Carolina, in response to a request for instructions as to how he should dispose of "incendiary documents" received at that office. It should be added that before the answer to the request came a public meeting was held in Charleston, which unanimously resolved that the matter in question should be burned, and this resolution was carried out, the mails being searched and rifled for that purpose:

"I am satisfied that the Postmaster-General has no legal authority to exclude newspapers from the mails, or to prohibit their carriage or delivery on account of their character or tendency, real or supposed. * * * But I am not prepared to direct you to forward or deliver the papers of which you speak. * * * By no act of mine, official or private, could I be induced to aid, knowingly, in giving circulation to newspapers of this description, directly or indirectly. We owe an obligation to the laws, but a higher one to the communities in which we live; and if the former be permitted to destroy the latter, it is patriotism to disregard them. Entertaining these views, I cannot sanction, and will not condemn, the step you have taken. Your justification must be looked for in the character of the papers detained and the circumstances by which you are surrounded."

persons who have engaged in these unconstitutional and wicked attempts, and especially against the emissaries from foreign parts who have dared to interfere in this matter, as to authorize the hope that those attempts will be no longer persisted in; but if these expressions of the public will shall not be sufficient to effect so desirable a result, not a doubt can be entertained that the non-slaveholding states, so far from countenancing the slightest interference with the constitutional rights of the South, will be prompt to exercise their authority in suppressing, so far as in them lies, whatever is calculated to produce the evil.

In leaving the care of the other branches of this interesting subject to the state authorities to whom they properly belong, it is nevertheless proper for Congress to take such measures as will prevent the post-office department, which was designed to foster an amiable intercourse and correspondence between all the members of the confederacy, from being used as an instrument of an opposite character. The general government, to which the great trust is confided of preserving inviolate the relations created among the states by the Constitution, is especially bound to avoid, in its own action, anything which may disturb them. I would therefore call the especial attention of Congress to the subject, and respectfully suggest the propriety of passing such a law as will prohibit, under severe penalties, the circulation in the southern states, through the mail, of incendiary publications intended to instigate the slaves to insurrection.

President Jackson's recommendation for the prohibition by law of the circulation of incendiary matter through the mails was referred by the Senate to a select committee, of which John C. Calhoun, of South Carolina, was chairman. Mr. Calhoun reported, February 4, 1836, that the measure proposed by the executive would violate the Constitution and imperil public liberty. The report says:

A Senate committee denies the right.

Nothing is more clear than that the admission of the right of Congress to determine what papers are incendiary, and as such to prohibit their circulation through the mails, necessarily involves the right to determine what are not incendiary and enforce their circulation. * * * If Congress may this year decide what incendiary publications are, they may next year decide what they are not, and thus laden their mails with real or covert abolitionism. * * * It belongs to the states, and not to Congress, to determine what is and what is not calculated to disturb their security.

Mr. Calhoun proposed that each state should determine for itself what kind of reading it would deem "incendiary", and that Congress should thereupon prohibit the transmission by mail of such matter to that state. His report concluded with a bill, which contained this provision:

State supervision proposed.

*Be it enacted, &c.*, That it shall not be lawful for any deputy postmaster in any state, territory, or district of the United States knowingly to deliver to any person whatsoever any pamphlet, newspaper, handbill, or other printed matter or pictorial representation, touching the subject of slavery, where by the laws of said state, territory, or district their circulation is prohibited; and any deputy postmaster who shall be guilty thereof shall be forthwith removed from office.

This bill was ordered to a third reading in the Senate by ayes 18, nays 17—Mr. Van Buren, the vice-president, giving the casting vote in the affirmative. It failed, however, to pass, and that ended the matter.

The following year Postmaster-General Kendall returned to the subject of the inequalities of newspaper postage, especially complaining of the constantly increasing cost and trouble to which their transmission subjected the department and of the great injustice done the local press for the benefit of the metropolitan journals. He said (December 5, 1836):

Injustice to local press due to unequal postal rates.

Great changes have taken place in the newspaper business of the country since the present rates of postage were established. Newspapers have not only increased in number, but many of them have grown to an inordinate size. Postage, however, is the same, whether the newspaper be great or small. If not carried over one hundred miles out of the state where printed it is one cent; if out of the state, and over one hundred miles, one and one-half cents. The policy of reducing the rate of postage on newspapers generally is doubted. They constitute in weight over two-thirds of the mails, are in many parts of the country difficult of transportation, and produce numerous failures. These considerations would be of no moment if it were really necessary that large quantities of newspapers should be transported from one end of the Union to the other as a means of instructing and enlightening the public mind, but that phase can be as well provided for by the local press as by the newspapers from a distance. To reduce the rates of postage on newspapers below the actual cost of carrying them would be to tax the correspondence of the country generally for the benefit of the large newspaper establishments in the principal cities, to the injury of the distant and country press. Such a measure is not believed to be consistent with sound principle or good policy. It is not sound principle to tax the business of one portion of the people for the benefit of another portion. It is not good policy to aid the large city establishments in monopolizing the newspaper circulation to the exclusion of the local and country press. But there is just and good policy in graduating the postage on newspapers according to the size and weight of the matter to be conveyed.

The following scale of newspaper postage is therefore suggested in lieu of the present, namely:

| Size of paper. | RATES OF POSTAGE. | |
|---|---|---|
| | Carried not over 200 miles nor out of the state. | Carried over 200 miles and out of the state. |
| | *Cents.* | *Cents.* |
| Between 550 square inches or under | ½ | 1 |
| Between 550 square inches and under 920 | 1 | 1½ |
| Over 920 square inches | 1½ | 2 |

If these rates were reduced one-half, it would not materially diminish the means of the department, provided the entire newspaper postage were paid in advance. So great an innovation would probaby be inexpedient. But where editors will pay in advance the postage on their whole impression sent by mail the Postmaster-General might be safely authorized to accept one-half of the foregoing rates. Circular newspapers are now extensively used, of every device and conventional size, all answering the purposes of letters, to evade the payment of postage. It would check this abuse if they were in all cases subject to double postage, to be paid in advance.

The rates of postage on periodicals and pamphlets may be as judiciously regulated upon the same principle as that suggested for the newspapers, and reduced to the least rate which will pay for their transportation.

If a preference be given to anything, it should be to works of agriculture, science, and mechanical arts; but the principle I believe to be a good one in relation to mails that everything ought to pay its own way.

To render the department measurably independent of the railroads and accomplish other important results an express mail has been started on the great mail line between New York and New Orleans. The great express mail is five days and seventeen hours going from New York to Mobile, and one day is occupied in transporting the mails between Mobile and New Orleans. This mail leaves far behind the news conveyed by railroad or any other means. The editors and the people of New Orleans will receive the news from New York in less than half the time it has heretofore occupied in its transmission. The editors will have the advantage of being the original dispensers of the news to their subscribers, and the people will obtain it from their own papers without postage five or six days sooner than it can reach them by the New York papers with postage. The editors and people along the whole road and to the right and left will participate in the same advantages to a greater or less degree.

On the other hand, the circulation in the South of newspapers from the principal cities in the North will undoubtedly be diminished. This injury is more than counterbalanced by the benefit secured to the local establishments; and if it were not, it is not to be brought into competition with the advantages of an earlier transmission and dissemination of commercial and other intelligence. No measure should be taken to injure the great city establishments, but it would be unreasonable and unjust to withhold information from the people of the South because the mail cannot carry with equal expedition the cumbrous sheets from the northern newspaper presses.

Prepayment of all newspaper postage first suggested.

The above extract contains the first suggestion, officially made, of the advantage to the postal service that would result from the establishment of the principle of prepayment of all newspaper postage as the condition-precedent to a reduction of the existing rates. Meanwhile the agitation for a reduction both of letter and newspaper postage continued to increase, and Congress was flooded with petitions and memorials on the subject. In May, 1838, Mr. Montgomery, from the House committee on post-offices and post-roads, submitted a report on sundry petitions and memorials relating to the reduction of postage on letters and newspapers, in the course of which it was said that—

The committee have not yet been able to agree on any change in the postage of newspapers, pamphlets, and other printed matter sent by mail; but all agree that some change is desirable and necessary, in order to make the postage more equitable. The committee still have the subject under consideration, and should they be able to agree upon a change they will report the subject to the House. From the facts contained in the annexed letter of the Postmaster-General, it is obvious that there is a great disparity in the postage on newspapers, pamphlets, periodicals, etc., and great disparity between the postage on newspapers, pamphlets, etc., sent by mail and the postage on letters.

The letter of Postmaster-General Kendall, replying to a request from the committee for the size in square inches and the weight and number of newspapers, with a statement of their comparative postage when sent by mail, and any other information relative to newspapers and pamphlets that he might deem necessary to supply, contained the following:

The lowest rate of newspaper postage is now one cent, half of which goes to the postmasters, leaving only half a cent to pay for transportation and other incidental expenses. This undoubtedly falls short of the actual cost for this service to the department, and there are many considerations dissuading from an increase of this rate on newspapers of a reasonable size. The distance upon which this rate is chargeable is within the limits of each state, and 100 miles if carried out of the state where mailed. It seems to me inexpedient to disturb or compromise the principle upon which this provision is founded, or alter the lowest rate on newspapers or papers of a moderate size. The same objection does not extend to an adjustment of postage on newspapers carried out of the state where printed and over 100 miles. On the contrary, the public interests of the several states as well as of the local press throughout the Union require that newspapers conveyed great distances shall be subject to a rate of postage which will approximate the cost of transportation and delivery. More especially is it desirable that the expense of transportation and delivery should be levied upon these large sheets, three-fourths of which are filled with matter of no utility to the distant reader. If the department be required to transport useless matter of this sort, those who send or receive it should pay the cost, instead of throwing it upon the letter correspondents; and it is believed to be good policy in reference to the public interests and the interests of the press generally, as well as to the convenience of the mail service, to discourage, so far as can be done, the inordinate size of newspapers which is now so much in fashion, especially when they are to be conveyed by mail.

By the existing law every publisher of a newspaper is allowed to receive free of charge one copy of every other newspaper published in the United States. When this provision was adopted the number of newspapers printed in the whole Union was not probably one hundred and fifty, and no inconvenience was likely to arise from the privilege granted. Now the number of newspapers published in the Union is believed to be from thirteen to fifteen hundred, and some publishers exchange with five or six hundred. Of these, not one hundred are of any practical use to them. They serve merely to overload and delay the mails, and are generally thrown away without being opened. It is found that on the express lines all news of importance is now sent in slips, not exceeding two columns in size, cut out of papers of from ten to eighteen columns upon a side, or printed for this special purpose, containing only one-fifth or one-ninth of the newspaper. Publishers now obtain the important news before receiving the newspaper with which they exchange. A shorter way of exchange would be accomplished by confining it to an interchange of slips, somewhat smaller in their dimensions, by the ordinary mail. It would probably be more acceptable to the printers if the permission to receive newspapers free were restricted to a certain number of papers. In relation to periodicals, pamphlets, and magazines, it is now optional with the Postmaster-General to permit them to be carried by mail or not. This discretionary power has not, however, been exercised to exclude them. On the contrary, great latitude of construction has been indulged in, which has opened the mails to a quantity of printed matter, under the name of periodicals, which is scarcely entitled to admission. The practice of sending this matter by mail had become so inveterate that this purpose with me was more of an experiment to regulate than to abolish it. It has every year very greatly increased, and already presents a serious obstacle to the speed of the mails; and as the Postmaster-General has power to send it in separate mails, if necessary, it need not impair the efficiency of the service, provided it be made to pay the full cost of its transportation and delivery.

So many changes have taken place within a few years in the manufacture of paper, that the names used in law to designate paper for use and indicate the sizes originally intended by them render the execution of the law in reference to the class of mail matter under consideration extremely difficult and perplexing. The weight of the pamphlet, or the size of the page in square inches, without reference to the name of the paper—whether medium-roll or superior-roll—affords a certain and unchangeable criterion by which the postage may be adjusted.

In compliance with your request, I have caused a number of newspapers to be bought and weighed, and herewith send you a statement of the result. The weight of an ordinary letter is about one-fourth of an ounce. The ruling operation of existing laws upon the postage of newspapers for long distances, compared with each other and with letters, so far as weight is concerned, is illustrated by the following table:

| Name of paper. | Weight. | Present postage. | Letter postage on same weight. |
|---|---|---|---|
| Eastern Argus | 0. 666 | $0 01½ | $0 50 |
| Ohio Statesman | 0. 812 | 01½ | 75 |
| Delaware Gazette | 0. 958 | 01½ | 75 |
| Boston Morning Post | 0. 779 | 01½ | 75 |
| Richmond Enquirer | 1. 229 | 01½ | 1 00 |
| Pennsylvanian | 1. 354 | 01½ | 1 25 |
| Pennsylvania Inquirer | 1. 562 | 01½ | 1 50 |
| New York Courier and Enquirer | 1. 750 | 01½ | 1 75 |

It hence appears that letter postage is one hundred and sixteen times as high as newspaper postage; on the largest paper about thirty-three times as high as on the smallest, and sixty-eight times higher than the general average; so that the postage on the smallest newspaper is two and two-thirds times as high as that on the largest. From the same data, in connection with the supposed number of newspapers conveyed by mail, it is estimated that if newspapers and other printed matter paid as high postage as letters the revenues of the department would now be about $25,000,000, instead of $4,000,000. On the other hand, if letters paid no more by weight than newspapers, the revenues would not be $1,000,000, and the operations of the department would be brought to a standstill.

From these facts and considerations it is abundantly evident that, if the letter correspondence were not taxed to pay for the transportation of newspapers, it would not be necessary to impose upon letters a postage exceeding 10 cents for any distance. The revenue which would accrue from two rates—one of 5 cents for short distances and 10 cents for long—would, it is not doubted, pay for the transportation of the letter mails with greater certainty and expedition than they travel now. But so radical a change in the policy of the government in connection with the mail service is not to be expected, if it is even to be desired. All that can be hoped for is that the postage on large newspapers and on those carried great distances shall be increased, to the end that their bulk and weight may be diminished, and that they may afford to the department and the community a greater proportion of the means necessary to effect their transportation.

It is not easy to determine what should be the maximum size of newspapers which shall be conveyed at the lowest rate of postage. If the question were not incumbered by the existing practice of printers, I should say it should be smaller than the daily papers in this city, so small as to give a reasonable assurance that their contents consisted chiefly of useful and interesting matter. To enable the committee to judge for themselves on this point, I send herewith the papers alluded to in the statement above. I also transmit to you a statement showing the size of the pages and the weight of sundry periodicals. The following is an exhibit of the weight, size of sheet, and rate of postage of several of these periodicals, as also the postage to which they would be subject if charged at letter rates:

| Name. | Weight in ounces. | Present postage. | Letter postage on same weight. |
|---|---|---|---|
| Missionary Advocate | 0. 875 | $0 05 | $0 75 |
| Thompsonian Manual | 1. 75 | 05 | 1 75 |
| Turf Register | 2. 25 | 04½ | 2 25 |
| Western Messenger | 2. 75 | 07½ | 2 75 |
| So. Int. Messenger | 4. 25 | 10 | 4 25 |
| Foster's Reprint of Blackwood | 6. 00 | 15 | 6 00 |
| Littell's Magazine | 6. 25 | 10 | 6 25 |
| Journal of Medicine | 8. 25 | 17½ | 8 25 |
| Law Library | 9. 25 | 17½ | 9 25 |
| North American Review | 16. 00 | 25 | 16 00 |

It will be observed that the highest weight and postage on letters, newspapers, and periodicals has been taken as the basis of this calculation.

It is proper to remark that the burden of conveying newspapers and other printed matter short distances is scarcely felt by the department. It is the masses which pass along its great connecting lines between cities and sections of the Union which are found so expensive and so difficult to convey. The weight of such matter delivered within 100 miles of the starting point would not be perceived, although it would not at present rates pay the expense of transportation. So far as that consideration is involved in the question, there is no pressing call for a change in the present policy. On the whole, I am clearly convinced that the size of the sheet and page being a tolerably correct indication of the weight, is the best basis for newspaper and pamphlet postage, and that the postage should be greatly increased on the larger size and on all of the sizes conveyed great distances, and ought to be reduced on letters in an equal ratio. But if there is to be no increase of postage on printed matter, then there should not be, at present, any reduction of postage on letters, because it would make absolutely necessary a ruinous curtailment of mail facilities.

Again, on February 24, 1838, Postmaster-General Kendall wrote to the House committee on post-offices and post-roads, in response to its request for his opinion as to the expediency of abolishing the postage on newspapers altogether. The letter was written in reply to the following resolution, passed by the House and submitted by the committee for his consideration:

Postmaster-General Kendall opposes the abolition of postage on newspapers.

*Resolved*, That the committee on post-offices and post-roads be instructed to inquire into the expediency of abolishing by law the postage upon newspapers; and that the said committee report to this House, first, as to the policy of abolishing postage on newspapers distributed by mails in the respective counties where the respective papers may be published; and secondly, as to all newspapers sent by mail into any part of the United States.

The letter is as follows:

I propose to consider the latter portion of this resolution first: the expediency of abolishing postage on all newspapers conveyed by mail.

1. Newspapers and other printed matter yield the department the net revenue of half a million dollars annually. If the department was to lose this revenue, it must be followed by a ruinous retrenchment of the mail service.

2. It would operate unjustly, by taxing other interests to pay for the transportation and delivery of newspapers. Already injustice is done to letter writers and receivers by throwing upon them almost the entire expense of transporting newspapers and other printed matter. More than two-thirds and probably five-sixths of the weight transported by mail is composed of printed matter, and it pays but about one-sixth of the net revenue. To make the newspapers free, without other provision to pay for their transportation, would aggravate this injustice, and instead of affording any equivalent would act injuriously. The effect would be an additional weight of matter thrown in the mail to impede and often delay the transportation of letters. Thus the letter writers and receivers would be taxed more heavily for a worse service. And if the tax to pay for the transportation of newspapers be laid upon something else, or the expense be taken out of the general revenues of the country, the injustice will be the same.

3. It would destroy or cripple all the newspaper establishments in the interior towns and villages, and in a great measure concentrate the newspaper business in the great cities, and principally New York city. Settle the principle that the news generally be permitted to travel faster than the newspapers, and that all newspapers shall be conveyed free of charge, and the newspaper establishments in the city of New York will be almost the only ones in the Union worth possessing. Our people are eager for news, and will resort to the readiest expediency to obtain it early. If in New Orleans or Saint Louis or the Red river or the Upper Missouri, they can get it quicker in a New York paper than in those published in their own towns and villages, and as cheap too, they will take the New York papers and drop their own.

The New York press is justly entitled to the advantages of its position, but the correspondence of the whole nation ought not to be taxed to add artificial ones. Letter writers and correspondents should not be called upon to pay their money, not only to no direct benefit to themselves, nor yet for the benefit of the newspaper press generally, but to enable the New York publisher to come into competition with other publications throughout the Union and at their own doors. A tariff to produce competition is as unjust as a tariff to prevent it; the only difference is that the injury falls upon the other party. The newspapers sent by mail should pay for their own transportation and delivery, but nothing more. To relieve them from this tax is to give their proprietors a bounty to enable them to come into competition with others of their own trade throughout the Union, the advantages of which will be enjoyed by the great city press with an equivalent injury to all others.

The injury to proprietors of newspapers generally would find no equivalent in any benefit to the people; it is the news they want, and not particular newspapers. The news is just as valuable read in papers printed at their own doors as in papers printed thousands of miles off, if there be no advantage in having it quicker from the distant paper than that which they may enjoy by their own. On the other hand, a great deal may be sent by slips in closed mails or in signs or by telegraph. It is for the true interests of the country to spread intelligence with the greatest possible rapidity. Newspapers are favored in the mails because they are the means of disseminating intelligence. To withhold intelligence because newspapers cannot be carried so rapidly as intelligence may be otherwise conveyed is sacrificing the end to the means; it is sacrificing the interests of the people and the press generally to the interests of a few newspaper proprietors in the great cities or any one city; and if the people are to be taxed in order that masses of newspapers may be carried free, when the news might fly to them on horseback or through the air or instantaneously along the electric wire, they will be taxed not only without an equivalent benefit, but even to bring upon themselves a serious injury. The public wrong is aggravated by the consideration that at least three-fourths of the contents of many newspapers are totally useless to the readers when received. Look at the large daily papers of the commercial cities; they seldom contain a page of matter which is of interest to any reader outside the city where printed or in its immediate vicinity. If it were deemed to be right to tax correspondents for the purpose of sending the news free, would there be any excuse for taxes to give free transportation for mere waste paper?

There are no moral considerations which should induce Congress to give especial advantage to the city over the country press. It is not likely to be in purer hands or subject to better influences. If it be true that cities are the sores of the body-politic, the reverse is very likely to be the case.

Nor are there any practical considerations which encourage this preference. If the newspaper business be monopolized at one or a few points, there is danger that the newspapers will fall under the control of a few men of wealth and power, who will thus extend an undue influence throughout the nation. One man or a few, or one corporation or a few, may buy up the true press, and with their hired writers fail not only to advance the rights of man and the cause of liberty, but carry some great point of ambition or speculation in derogation of the rights of the people and the general interests of society. Even if corruption does not taint the purity of the press, the proposed policy will give to favored points an undue and even an injurious influence over the other portions of the Union. There may be subjects in relation to which the different sections of our country have different interests and feelings which can only be made known with due weight by a well-sustained local press. Our nation is not one in relation to the several subjects discussed in the newspapers; and in many respects we are twenty-six independent nations. Each of these has its separate interests, systems of legislation, jurisprudence, and police which require a well-sustained local press to discuss local differences, right its separate wrongs, and maintain its rank and importance among its confederates. Legislation by Congress to give advantage within its borders to the press of other cities would be an attack upon the state press, and indirectly upon the dignity and importance of the state itself. Indeed, to give a bounty to the press of the great commercial emporiums of the nation, enabling it to disseminate, free of postage, the earliest foreign and most important domestic news in all the cities and villages of all the states, would be to destroy a great portion of the local press and extend through the states a control and consolidation both in politics and business incompatible with the true interests and even with the continuance of our federal system.

The other branch of this inquiry is as to the expediency of abolishing postage on newspapers conveyed by mail within the respective counties where they are printed. This proposition is in some respects in the opposite extreme; it would operate to the benefit of the local and country press, and in some degree to the injury of the city and other distant journals. It would therefore in particular be unjust to the latter. Distant presses, however, ought not in fact to receive a bounty to enable them to compete with the local press, because postage on newspapers sent by mail great distances is not adequate to pay the cost of transportation and delivery. Most of this cost is now paid out of the letter postage. Yet to make the local press free is deemed unjust and impolitic because it would increase the tax on letters for the benefit of newspapers, and violate the great principle that the persons whose interests are served by the government shall pay for the cost of the service.

In another respect such a measure is objectionable. It would reduce the revenues of the department, and would operate unequally. In a portion of the Union the counties are very large, being subdivided into townships for local purposes. In other portions they are small, having no subdivisions of that sort. Many of the counties in the South and West are unequal in size and population, while it is not so in many counties of the North. Hence to make newspapers free in the counties where printed would operate much more advantageously to the latter section of the nation than to the former. The difference would be so great as to constitute of itself the fatal objection to the proposed measure.

On the whole, my opinion is that the postage on newspapers carried short distances should not be taken off, but that on newspapers carried great distances it should be increased. In short, the newspaper postage should be so regulated as to pay for the transportation and delivery of newspapers, including those sent free, and the postage on periodicals, magazines, and pamphlets should be regulated upon the same principle. Since the origin of the prevailing practice a great change has been wrought in the printing business of the country. Then there were but few newspapers and no periodicals, and indeed newspapers were published almost exclusively in the large cities. Their cheap transportation, therefore, was to establish means of disseminating their intelligence among the people. Now we find newspapers in almost every neighborhood, and periodical works have sprung up in nearly every section of the Union. The means of acquiring intelligence are therefore at the doors of the people, and it is no longer necessary to raise a tax in their interest to give transportation to newspapers with a view to their enlightenment. By disseminating intelligence to editors free the government accomplishes the great object of disseminating it freely among the people.

The size of newspapers has been greatly enlarged. It is not many years since newspapers as large as the *Globe* and the *National Intelligencer* first made their appearance. Now some of the weekly papers have swollen to great dimensions. Yet no one of these huge sheets pays more postage than the smallest penny paper of the Union. That such a graduation of postage is unequal and unjust it requires no argument to illustrate.

A new element should be made to enter into the rate of newspaper postage, and that is the size of the paper. If papers of a moderate size were fixed at one rate, and to all over that size a higher rate was charged, the effect would probably be to reduce them all to a smaller size, containing all the useful matter, and thus ridding the mails of a mass of waste paper now transported without any purpose but to the delay of the mails and the injury of the revenue.

By the present law the newspapers transported not over one hundred miles when out of the state where printed pay one cent postage, half of which goes to the postmaster who delivers them. This puts all newspapers carried not over one hundred miles when out of the state where printed at a less rate of postage, and gives advantage to the papers printed within the state over those printed out of it. Though this would be objectionable if our Union was of one opinion, yet, considering that the states are in many particulars separate and independent, it does not appear inappropriate.

Probably no better basis can be found on which to rest the lowest rates of newspaper postage than to have within these limits everywhere one rate for small papers and another higher rate for larger ones. The system would in these particulars be as perfect as it can well be made.

I would respectfully suggest a remodeling of the whole system of newspaper postage, as demanded by justice to the public interests, on a basis established upon the following proposition, viz:

On newspapers not exceeding —— square inches in size and not carried over 100 miles and out of the state where printed, *one cent*. On newspapers exceeding —— square inches in size and carried as above named, —— postage.

On newspapers not exceeding —— square inches in size and carried over 100 miles and out of the state where printed, ——. On newspapers exceeding —— square inches in size and carried as above, ——.

The right of printers to receive papers free should be limited to a reasonable number. The postage on periodicals, magazines, and pamphlets should be regulated on similar principles; the rates should be sufficient to cover the charge of transportation and delivery and nothing more.

Another reform in this respect is much needed, and has every day become more urgent. The mail which leaves New York city daily for the South is believed to average two tons in weight, more than a ton and a half of which is printed matter. At Baltimore it separates, and about one-half goes west and the other half south. It is now difficult to carry other than by steam-power on the sea or railroads. The stage lines, where the roads are not highly improved, are impeded daily and often broken down with this increased weight of the mails, delaying and sometimes losing the letter mails, and always injuring their valuable contents. Indeed, when one travels upon these lines and sees how the mails are piled on and in the stages, and sees how they are unloaded and exposed, he cannot but marvel that such vast sums of money and so many valuable papers are hazarded in them at all. I cannot but be impressed with the folly of attempting to convey this heavy mass with the speed required at this age for business correspondence, and with the bad policy of so legislating as to increase it, especially when no general interest is to be promoted thereby. Indeed, without the redeeming power of railroads it would be necessary under the present tendencies of things to give up the hope of transmitting letters and newspapers with the same speed and cause them to be conveyed on separate lines. But if the railroads relieve the department on some lines, they leave it to all of its embarrassments on others, and the relief which they give is at an increase of expense which the accumulating matter they convey will go but a short way to remunerate.

If the committee were disposed to adjust the newspaper postage upon the principle hereinbefore suggested, the letter postage might be greatly reduced.

Newspapers sent outside the mails.

Congress still failing to take any action, the newspapers of the country began to largely avail themselves of the facilities offered by railroads and steamboats for the transmission of their papers outside of the mails, and as this practice increased the revenues of the department from newspaper postage were sensibly affected. This was in violation of the existing postal law, and Postmaster-General John M. Niles, in his annual report dated December 5, 1840, called the attention of Congress to the subject in the following words:

The greatly enhanced expense of the transportation of the mail on railroads is not the only way in which they affect the revenues of this department. The great facilities which they afford for the transportation of letters and newspapers out of the mail evidently diminished and reduced the postage receipts. This is proved by the sudden falling off of the revenue where these facilities have recently been provided. Information has also been received from the agents of the department, showing that letters, packages, and newspapers were extensively conveyed out of the mails on the railroads, steamboat lines, and many of the stage-coach routes. So far as this practice was detrimental to the income of the department it was believed to be in violation of law. I endeavored to suppress it, regarding it as my highest duty to enforce the laws. The practice of carrying newspapers out of the mails without having secured a provision in the contract I found to be so general that it could not be suppressed without great inconvenience to the public; and as the ambiguity of the law admitted of doubt in regard to the restriction, I concluded that I should best discharge my duty by permitting these practices to continue and leave it to Congress to remove the prohibition or make the law more explicit for its enforcement. As it is probable that the enforcement of the prohibition would have the effect of stopping the carrying of newspapers on the mail routes rather than causing them to be conveyed in the mails, it would seem both just and politic to abolish the restriction entirely.

Postmaster-General Niles also alluded to the inequalities of the existing rates of newspaper postage in the same report as follows:

Inequality of newspaper and letter postage.

The low rates of postage on newspapers and other printed matter originated in considerations of public policy, and were designed to promote the general dissemination of intelligence among the people, and the reasons for this policy, if deemed ever to have been just, have in a great measure ceased to exist. When the mail establishment was first organized printing was confined to the large cities, and there were few other channels for conveying newspapers but the mails. Now there are printing establishments in almost every village, and railroads, steamboats, and other lines of communication afford cheap and convenient channels for conveying newspapers and also other publications, the greater portion of which are distributed among the people without the agency of the mails. * * *

All newspapers now pay the same rates of postage, although some are ten times the dimension and weight of others. This is not only unjust to those who pay the taxes, but equally so to publishers. It gives an undue advantage to the large establishments in the commercial cities over the penny papers in the same place, and over the country newspapers, which are more removed from sinister influences and in general are the most independent channels of sound public opinion. There seems no good reason for the difference in postage between periodical and non-periodical pamphlets, and the distinction, in fact, is often difficult to preserve. By the present law all printed matter, except newspapers, is taxed by the sheet, but by the change in the forms of publication the postage is not and cannot be collected with any uniformity from the difficulty experienced by the postmasters in classing the various publications. Sixteen pages of octavo or twenty-four of duodecimo constitute a sheet, although it is often impracticable to distinguish between them. To remove all of these difficulties, and to establish a uniform rate of postage on printed matter, the best rule would be to tax it by weight; and if there should be an objection to so great a change, newspapers could be divided into three classes, according to their dimensions, on the plan recommended by the Postmaster-General in his report for 1836. To the proposition to tax other printed matter by weight it is believed there can be no objection. Whether the other more important reforms which have been recommended are effected or not, the tariff of postage on newspapers and other printed matter demands a radical change.

The advance of the postage on newspapers and other printed matter, although regarded as eminently just, is not admitted to be indispensable, but the object in view is a revision and an equalization of the tariff.

The plan to base postage upon weight.

Special Agent Plitt's report.

This report appears to have contained the first official suggestion that the true method of arriving at a just rate of newspaper postage was to tax by weight. Even he advanced the suggestion with timidity so far as newspapers were concerned, although confident there could be no objection to the principle in reference to other printed matter. His suggestion appears to have been derived from the report of Mr. George Plitt, a special agent of the post-office department, who was instructed to make an inquiry regarding the rates of newspaper postage in England and the United States. Mr. Plitt reported as follows:

Newspapers are sent free to any part of the British kingdom, provided they are mailed within eight days after they are printed, and all foreign newspapers are charged with postage at the rate of 2*d.* each. Every newspaper published in England pays a stamp duty of 2*d.* It would therefore seem scarcely right to tax it again when sent by mail. The average number of newspapers received daily for delivery in the London post-office is 11,460; the average number of newspapers posted in London is 83,510; the average number of newspapers daily distributed and forwarded is 3,000.

The transportation of newspapers, pamphlets, and other printed matter is by far the most burdensome portion of the mails, for which the department receives a very inadequate compensation. The price paid to the contractor is generally in proportion to the weight of the mail, and consequently that portion for which the lowest compensation is received is that for which the highest price is paid for transmission. To remedy this in some measure I would earnestly recommend that newspapers and printed matter of every description should be charged by weight. There is no reason or justice in the present law so far as regards the transmission of printed matter by mail. While one of the smaller newspapers pays as much postage as some of the mammoth sheets published in New York and elsewhere, which are perhaps 6 feet square, it is positively unjust to the publishers, the public, and the mail service. If newspapers were charged by weight, both the public and the department would be benefited by the change, for the publisher would surely be careful to see that every paper should be well dried before it was sent to the post-office, thus securing its transmission without being rubbed or defaced; and it would at the same time aid in decreasing the weight of the mails. The postage upon all newspapers should be paid in advance, except when sent to offices within the county, district, or parish within which they are published. In that case they might be sent free. Publishers of newspapers should not be allowed to send their exchange papers free of postage, as at present. As well might the merchants demand from the department a free exchange of their prices current, or any other class of citizens be allowed to send free of postage everything in relation to any particular branch of business in which they might be engaged. As the country extends and increases in population, the attention of the department will necessarily be turned to one great object: the most effectual manner of decreasing the weight of the mails with the least injury to the public, in order that it may be enabled to convey them with the speed that seems to be demanded by the increased wants and enterprise of the country. This cannot be done without lessening the circulation of the newspapers to legitimate and reading subscribers, by excluding from the mails entirely such matter as is now transported from one section of the the Union to another without being taken from the post-office. As evidence of this the following statement of the average number of newspapers remaining uncalled for each week in the post-offices of New York, Philadelphia, Boston, and Baltimore will be sufficient to prove:

| | |
|---|---|
| New York | 750 |
| Philadelphia | 400 |
| Boston | 500 |
| Baltimore | 400 |

The number of periodicals and other publications remaining dead in these post-offices is in about the same proportion. If the postage upon these papers and pamphlets had been paid in advance, the probability is that they would have been called for, or, if not, the department would have at least received its legal equivalent for their transportation. Supposing that the 13,500 post-offices in the United States receive a proportionate quantity of dead printed matter respectively, and that all this amount could be culled from the mails by the system of prepayment, what an immense weight at once would be taken away! A newspaper of the size of the *Globe*, *National Intelligencer*, or Philadelphia *Inquirer* will weigh, when dry, without a wrapper, about two ounces. If papers are allowed to go free in the counties where they are published a prepayment of 1 cent per ounce postage would be but a reasonable charge for those sent beyond the limits of the county; for other printed matter of all kinds 2 cents per ounce might be charged for a distance of anything under five hundred miles, and 3 cents for any distance beyond; this would be a reduction of the present price, and yet the revenues of the department would be augmented. As the one great desideratum is to lessen the weight of the mails, all publishers might be allowed the privilege of sending their newspapers by private conveyance or otherwise, even over the mail-routes.

It will be observed that the newspaper postage law recommended by Mr. Plitt in 1840 is identical, except in the matter of rates, with that now in force in the United States.

Difficulty with publications not newspapers.

The annual report of Postmaster-General C. A. Wickliffe, dated December 2, 1841, called the attention of Congress to a new difficulty growing out of the unsatisfactory condition of the laws with reference to the postage on newspapers, as follows:

> I do not desire that the rates on newspapers proper should be increased, though much might be saved the department if the principle of full postage were applied to newspapers, provided such regulations were deemed acceptable to public opinion. I must, however, earnestly invite your attention to the necessity for the enacting of some law by which a just discrimination may be made in the imposition of postage on newspapers proper and those mammoth periodicals which assume the names of newspapers, and which are in fact the republication of books, reviews, and novels, sent through the post-office, not always to subscribers, but in large masses to agents, to vend in the markets of more distant cities and towns, which greatly increase the size and weight of the mails and the expense of transportation without a corresponding remuneration to the department. The great number of these large publications which have been sent by the mails from Baltimore to Wheeling has largely contributed to the frequent irregularity of the western mails.
>
> I respectfully inquire whether it is just that the United States mail shall be compelled to transport one of these newspapers, weighing nearly one pound, for one cent and a half, from Boston or New York to Louisville, Kentucky, to a factor, to sell for the benefit of the book writer, while the letter of friendship or business is taxed 25 cents postage between the same points?
>
> I have already alluded to the establishing of what is called the printers' express, for the carrying of letters, packages, and newspapers upon the post-roads of the United States for pay and compensation, as one cause tending to greatly reduce the revenues of the department. I must beg leave to bring the subject to your notice, in the hope that you will invite the attention of Congress to the necessity of some further legislation to effectually protect the interests of the general government in its post-office department.

Mr. Wickliffe in his next annual report thus reverted to the habit of newspaper publishers of sending their issues outside the mails in violation of the law:

Newspaper transmission outside the mails.

> Connected with this subject is the business of transporting newspapers out of the mails over mail roads in violation of law. When applied to by postmasters and contractors to instruct them upon their duties upon this subject, I addressed to the contractors a circular letter, in which I gave them my opinion of what the law of Congress was upon the subject. A copy of that letter accompanies this report. The correctness of the opinion contained in this circular letter has been questioned. I was confident of the facts therein expressed, believing them to be correct, and felt it a public duty to publish them when called for by those to whom the duty of transporting the mails was confided, and am gratified to find my views sustained by the official opinion of the Attorney-General.

The following is an extract from the circular letter above referred to:

> Congress, by the act of 1825, has expressly declared that no stage or vehicle which regularly travels trips on post-roads shall convey letters, nor shall any packet-boat or other vessel which regularly plies on a water route declared to be a post-road convey letters.
>
> The thirtieth section of the act of 1825 provides that the Postmaster-General, in any contract that he may enter into, may authorize the person with whom such contract may be made to carry newspapers, magazines, and pamphlets other than those conveyed in the mails, provided no preference shall be given to one publisher over another in the same place. The practice has grown up of sending newspapers on the cars and steamboats that transport the mails. This is a right claimed by some editors, and others have addressed letters to their subscribers inviting them to receive their papers in that way in preference to the mails.
>
> This is a subject which has given rise to no small portion of abusive denunciation of the head of this department. This right is called for by the cheap penny papers, as they are called. The laws of Congress have made no distinction between newspapers. The postage is imposed upon all newspapers, regardless of their size. It applies to all alike, and all must share the same fate in the mails. It is true the act of 1825 has authorized the Postmaster-General, in making the contracts for carrying the mails, to authorize the contractor under certain conditions to carry newspapers out of the mails. Without such permission no such right exists, and the contractor who carries them violates his contract with the government. Such a privilege upon many of the railroads and steamboat routes would no doubt be advantageous alike to the publisher and public, but it must be granted upon application and specific terms.
>
> If, therefore, any publisher wishes to convey newspapers on your line out of the mail, he should make application to you, stating the name and number of the papers, daily or otherwise, and upon your report of application to this department the terms upon which it can be done will be made known, which terms will be applicable to all other papers. You are requested to report to this department, when known to you or your agents, monthly, the name and number of newspapers which are daily transported over your line by way agents, out of the mail, and between what places.

Postal law of 1845.

The long agitation of the subject led finally to a revision of the postal laws in 1845. Under the act of March 3 of that year the following rates of postage were adopted: For a letter not exceeding one-half ounce in weight, under 300 miles, 5 cents; over 300 miles, 10 cents; and an additional rate for every additional half ounce or fraction thereof. Pamphlets, magazines, etc., per ounce, 2½ cents, and each additional ounce 1 cent. Newspapers under 30 miles, free; over 30 and under 100, or any distance within the state where published, 1 cent; over 100 miles and out of the state, 1½ cents. Carriage by express was prohibited unless the postage was previously paid. It will be seen that while the letter postage was very considerably reduced by this act, newspaper postage remained the same as it had been from the organization of the government, except that all newspapers were carried free for 30 miles from the place of publication. The principle of charging by weight was applied to all periodicals and pamphlets under this law, which resulted in a very considerable increase in the cost of their transmission by mail. The details of the law of 1845, respecting the mailing of newspapers, were contained in the following extract:

Extracts from the law of 1845.

> Sec. 2. That all newspapers of no greater size or superficies than 1,900 square inches may be transmitted through the mails for the delivery and be delivered to all subscribers or other persons, within 30 miles of a city or town or other place in which the paper is or may

be printed, free of all charge for postage whatever. And newspapers of and under the size above stated which shall be conveyed in the mail beyond 30 miles from the place where the same shall be printed shall be subject to a rate of postage chargeable upon the same under the thirtieth section of the act of Congress approved March 3, 1825; and upon the newspapers of greater size and superficial extent than 1,900 square inches there shall be charged the same rates of postage which are prescribed by this act to be charged upon magazines and pamphlets.

Referring to the act of 1845, Postmaster-General Johnson, in his annual report, dated December 1, 1845, said:

Postmaster-General Johnson upon the law of 1845.

A discrimination has been made in behalf of newspapers and other printed matter because they are supposed to advance the policy of the government by contributing to the general diffusion of intelligence among the people, upon which depends the maintenance and perpetuation of our free institutions.

There was under the old law a great difference in the tax upon letters and printed matter; the tax upon the former was unnecessarily high and became oppressive to the citizens, while the tax upon the latter was not so high as materially to interfere with their general circulation.

There are returns made of the weight of the different kinds of matter passing through the mails, upon which an opinion might be formed of the actual cost of the different kinds, or the proportion each should pay. One of my predecessors had an account kept in 1838 for one week of the weight of the mails, distinguishing between the weight of letters, newspapers, and pamphlets in the cities of New York, Philadelphia, Baltimore, Washington, and Richmond, from which it appears that the whole weight of the mails was 55,241 pounds, of which the newspapers weighed 48,868 pounds, the periodicals 8,857 pounds, letters (free and taxable) 1,916 pounds. It is confidently believed that the difference in weight between printed matter and written communications passing through the mails is greater since the passage of the late law than before; that nine-tenths of the whole weight of the mails, and a greater inequality in bulk, is composed of printed matter, paying about one-ninth of the expense. This great inequality in the cost of transportation did not warrant the difference of postage under the former law, and was most unjust to the friendly and business correspondence of the country. The reduction of letter postage by the late law was but an act of justice to that class of our citizens which had been so long and oppressively taxed for the benefit of others. The same necessity did not exist for the reduction of the rate upon printed matter. This has always been low—greatly below the actual expense of its transportation—and yet not so high as to interfere with the original policy of the government. I therefore recommend the restoration of the former postage upon all printed matter passing through the mails, with the right reserved to publishers to take them out of the mails over post-roads.

I also recommend a limitation of the number of papers editors may interchange free through the mails. There are now understood to be between seventeen and eighteen hundred printing establishments in the United States from which newspapers issue. From this fact alone it will be readily seen what abuses may be practiced upon the departments.

Increased newspaper postage recommended.

In his next annual report Postmaster-General Johnson returned to the discussion of this subject, again recommending an increase of postage upon printed matter. Alluding to the fact that the revenues of the previous year show a great deficiency, he said:

I recommend that the postage on newspapers be so adjusted as to approach more nearly the cost of transportation and delivery, and be made more equal and just between the publishers. This may be accomplished without any material interference with the policy of disseminating intelligence among the people by their general circulation.

When this policy was first adopted, newspapers were few in number and were published in the principal cities, and low postage seemed necessary to secure the object of their publication, and the rates were fixed without much regard to the size, or weight, or the distance they were to be transported, while the letter postage was made high, so as to cover the transportation of both. Newspapers are now published in every village throughout the Union and furnish the means of information to almost every neighborhood. This injustice to written correspondence occasioned by taxing it with the transportation of newspapers has been partially removed by the reduction of the rates on letter postage.

From this act of justice an injury has resulted to the community at large by transferring the cost of transporting newspapers upon the general revenues. No satisfactory reason now exists why those who buy or sell newspapers should have the cost of transportation paid by the revenues collected from the great body of the people. The low postage on newspapers, without regard to size, weight, or the distance to be taken, operates unfairly between the publishers themselves, by enabling those papers published in large commercial cities to compete with the village press by circulating in their localities, while sending the papers free for 30 miles from the place of publication counteracts to some extent this advantage, an advantage alike unjust to the editor and unjust to the community, as the burden of both is thrown upon the Treasury.

As an act of justice between the publishers themselves the rate of postage should be regulated by the size and weight of the paper and the distance to be carried, reserving the right to them to take their own papers over mail routes out of the mails. As an act of justice to the community these rates should be so high as to cover any deficiency the reduced rates of postage on letters may make, so as to make the income of the department equal to its expenditures. Transient newspapers other than those sent by the publisher to subscribers, as they are usually sent in lieu of letters, should be rated higher than other newspapers. All printed matter passing through the mail should be prepaid.

The Postmaster-General's report for 1847.

In the next Congress after that which effected the reduction of postage an effort was made for the restoration of the old rates, as the postal revenues did not pay the expenses of the department. The effort did not succeed as to letter postage, but transient newspapers were charged 3 cents, prepayment being required; the postage on circulars was raised from 2 to 3 cents; newspaper postage to California and Oregon was fixed at 4½ cents; and letter postage to the Pacific territories at 40 cents. In the meanwhile the revenues from newspaper postage were steadily increasing. The number passing through the mails and the receipts for their carriage are stated in the annual report of Postmaster-General Johnson, dated December 6, 1847, as follows:

The newspapers passing through the mails annually are estimated at 55,000,000; pamphlets and magazines at 2,000,000. The number of transient newspapers paying 3 cents postage cannot be ascertained with any accuracy, as the postage is usually returned with that of letters.

For the year ending June 30 last there was derived from the postage on newspapers, pamphlets, etc., $643,160 59, making an increase over the previous year of $81,018 10 and an increase over the annual average of the nine preceding years of $114,181 61. The total revenues of the department for the same year were $3,945,893 31.

The postage on newspapers is unequal and unjust to the publishers themselves. The same postage is charged on each paper without regard to weight. Many of the larger class of papers weigh more than 2½ ounces each, and pay but 1½ cents for any distance over 100 miles; and if charged as letter postage would pay under 300 miles 15 cents, and over 300 miles 30 cents. Other papers weigh as low as one-half an ounce, only one-fifth of that weight, and pay the same rates. Some of the larger sized periodicals weigh over 12½ ounces, and pay 14½ cents over 100 miles, and if charged with letter postage would pay under 300 miles $1 30, and over $2 60. This inequality of tax on the different publications should be regulated in some way, and no reason exists why the postage on newspapers should not be regulated by weight, as on letters. The weight and bulk of the mails, which add so greatly to the cost of transportation and actually impede the progress of the mails, are, I think, attributable to the mass of printed matter daily forwarded from the principal cities of the Union and from all parts of the country. Justice requires that their transportation should be paid by the postage charged upon them, and it is believed that the present rates would not meet with objection if the postage could be equalized and in all cases collected.

In his report dated December 2, 1848, Postmaster-General Johnson again urged that newspaper postage be regulated by weight, and said:

Postmaster General Johnson's report for 1848.

For the purpose of taxing, the matter conveyed in the mails is classified as follows: First, letters; second, newspapers. The latter class has always been esteemed of so much importance to the public, as the best means of disseminating intelligence among the people, that the lowest rate has always been afforded for the purpose of encouraging their circulation. Heretofore a charge has been made upon every paper without regard to weight, which is unjust to the publisher as well as to the public, and there is no satisfactory reason why they should not be charged by weight as well as letters and other sealed packages. This would lead to a discontinuance of the practice of depositing newspapers in the mails before they are dry, which renders them more liable to injury, and their weight is greatly increased by the dampness of the paper. A uniform rate of 1 cent upon each ounce or fraction of an ounce would be more just and proper, while at the same time it would yield as much revenue as the present rates. Third, all other printed matter of whatever nature or kind should be rated with double newspaper postage.

In the report of Postmaster-General Collamer, of November 19, 1849, is the following:

To exhibit separately the increase in the revenue derived from letter postage and printed matter the following comparison is instituted:

| | Year ending June 30, 1848. | Year ending June 30, 1849. | Rate of increase. |
|---|---|---|---|
| | | | *Per cent.* |
| Letter postage, including stamp sales | $3, 350, 304 | $3, 882, 762 | 15. 9 |
| Newspaper and pamphlet postage | 767, 335 | 819, 016 | 6. 7 |
| Aggregate | 4, 117, 639 | 4, 701, 778 | 14. 2 |

The whole number of letters passing through the mails charged with postage amounted last year to 62,000,000. On all these letters the postage collected was $3,882,762; on newspapers and pamphlets, $819,016. It is well known that the postage on newspapers and pamphlets, in proportion to their weight and numbers, is in a very great degree less than the letter postage, so that they did not pay their proportion of the expenses of the service. It therefore follows that the letter postage pays not only for its own cost, but also what the newspaper postage falls short of its proportion. It is not to be understood, however, that any increase of newspaper postage is proposed. It has long been regarded as a sound public policy to promote the circulation of these publications by cheap postage, and it may be advisable to proceed further in this policy, especially with a view to increasing their circulation in the vicinity of publication, provided no decided injustice be done in that same vicinity.

Postmaster-General N. K. Hall, in his report dated November 30, 1850, stated that "the gross revenue of the department for the year ending June 30 was $5,552,971 48, of which the amount received from newspaper and pamphlet postage was $919,485 94". After recommending that the provision which imposed an additional half-cent postage upon newspapers sent more than 100 miles, and out of the state where they were mailed, be repealed, so as to leave the uniform inland postage on newspapers sent to subscribers from the place of publication at 1 cent each, he continued:

The postage upon pamphlets, periodicals, and other printed matter, except newspapers, may be simplified and somewhat reduced with advantage to the department. Two cents for the pamphlet or periodical of the weight of two ounces or less, and 1 cent for each additional ounce or fraction of an ounce, is recommended as the inland rate upon all pamphlets, periodicals, and other printed matter, instead of the present rate of 2½ cents for the first ounce, and 1 cent for every additional ounce or fractional part of an ounce. The sea-going charge on such matter and on newspapers, twice the inland rates to and from the points to which it is proposed that the letter postage shall be 10 cents and four times the inland rate where the letter rate is 20 cents, is deemed a just and proper rate. This would, in some cases, increase the postage on printed matter sent to the Pacific coast and by other sea lines where the postage is not fixed by postal arrangements. But the postage to California, as above proposed, would hardly equal the price now charged by private expense for the conveyance of the same weight. It will be perceived that the reduction proposed in the postage on printed matter is not large. The reason for the proposed reduction on letter postage is found in the fact that the rates upon printed matter are now exceedingly low when compared with letter rates. The average postage on letters is estimated at about $3 16 per pound, and on newspapers and pamphlets at about 16 cents per pound. After the reduction proposed the average inland postage on letters will be about $2 50 per pound when not prepaid and $1 50 per pound when prepaid.

The postal law of 1851.

In 1851 another postal law was enacted which reduced letter postage to 3 cents (one-half ounce) for all distances under 3,000 miles, or 5 cents if not prepaid; weekly newspapers, where published in the county, to actual subscribers, free; under 50 miles and out of the county, 5 cents a quarter; over 50 and under 300 miles, 10 cents; over 300 and under 1,000 miles, 15 cents; over 1,000 and under 2,000 miles, 20 cents; over 2,000 and under 4,000 miles, 30 cents. Monthly newspapers one-quarter, and semi-monthly one-half these rates; semi-weekly double, tri-weekly treble, and oftener than tri-weekly five times these rates; newspapers under 300 square inches, one-quarter these rates; if paid quarterly in advance, a deduction of one-half to be made from these rates. Transient newspapers, circulars, and other printed matter, 1 cent an ounce under 500 miles; over 500 and under 1,500 miles, 2 cents; over 1,500 and under 2,500 miles, 3 cents; under 3,500, 4 cents; over 3,500, 4 cents. Books under 32 ounces, 1 cent an ounce if prepaid; if not, 2 cents an ounce.

In 1852 the following modifications were made: Letters sent over 3,000 miles and not prepaid, 10 cents postage; newspapers, circulars, etc., under 3 ounces, 1 cent; every additional ounce or fraction, 1 cent; small newspapers and periodicals, published monthly or oftener, and pamphlets of not more than 16 octavo pages, sent in single packages of not less than 8 ounces, prepaid, one-half cent an ounce, or if not prepaid, 1 cent. Books, bound or unbound, less than 4 pounds, under 3,000 miles, 1 cent an ounce; over 3,000, 2 cents an ounce; 50 per cent. added when not prepaid. By the act of the same year postage-stamps and stamped envelopes were ordered.

Postmaster-General James Campbell commented as follows upon these changes in his annual report for 1854:

> Under the act in operation prior and up to July 1, 1851, the postage, for instance, on a weekly newspaper when sent not over 100 miles or any distance in the state where published, was 13 cents, and when over 100 miles and out of the state where published, 19 cents a quarter. By the act of 3d March, 1851, these different rates, according to distance, were abolished.
>
> Thus on a weekly newspaper for any distance not exceeding 50 miles, 5 cents per quarter; over 50 miles and not exceeding 300 miles, 10 cents; over 300 miles and not exceeding 1,000 miles, 15 cents; over 1,000 and not exceeding 2,000 miles, 20 cents; over 2,000 and not exceeding 4,000 miles, 30 cents a quarter; and weekly newspapers to the subscribers in the county where published were made free.
>
> By this act the postage, it will be perceived, for any distance not over 1,000 miles was greatly reduced; but owing to the diversity of rates, the too great reduction for the shorter and too great increase in the longer, its modification was at once called for, and this resulted in the present law, by which the quarterly rates on any weekly newspaper or periodical not exceeding 3 ounces in weight sent any distance in the United States is only 6½ cents. On newspapers not exceeding 1½ ounces in weight, when circulated in the county where published, the rate is 1½ cents less, being only 3½ cents; but a weekly newspaper to subscribers in the county where published goes free.
>
> If my recommendation be adopted, the quarterly postage, for instance, on weekly newspapers or periodicals not exceeding 1½ ounces in weight, circulating in the state where published (and in the same proportion for more frequent publications), would be 6½ cents; and when not over 3 ounces in weight, and not published in the United States, 13 cents a quarter; newspapers sent to subscribers living in the county where published will continue to go free.

The recommendation of the Postmaster-General above referred to was as follows:

> In view of the trifling increase of postage on printed matter and the extremely low rates, particularly for newspapers and periodicals, I would recommend that the law be so far changed as to omit the clause, "When the postage on any newspaper or periodical is paid quarterly or yearly in advance one-half only of the regular rates shall be charged," leaving the department to fall back upon the act of 1825, under which quarterly payments in advance on newspapers and periodicals have heretofore always been required.

In his report for 1859 Postmaster-General Holt attacked with great vigor the long-existing practice of permitting newspaper publishers to receive their exchanges in the mail free of postage, and he declared this practice to be an unjustifiable discrimination in favor of a particular class. He also denounced the more recent custom of free postal delivery in the county of publication, as follows:

> The revenue of the office was $7,968,484 07, of which was received from the postage on newspapers and pamphlets $589,352 39.
>
> The act of 1825 authorized every printer of a newspaper to send one paper to each and every other printer of a newspaper in the United States free of postage. And such is the existing law. However slight the support this statute may seem to give to the individual publisher, it imposes in the aggregate a heavy and unjust burden upon the department; and though it is thus twice generous to the publisher who sends and he who receives the paper in exchange, I have ineffectually sought an explanation of the policy indicated by this provision. It seems far more questionable than the franking privilege, since the latter assumes to be exercised on behalf of the public, whereas the exemption secured by the former is undoubtedly in the advancement of a particular interest. The newspapers received by the journalist is, in American parlance, his stock in trade. From their columns he gathers materials for his own, and thus makes the same business use of them as does the merchant of his goods or the manufacturer of the raw material which he proposes to manufacture into fabric. But as the government transports nothing free of charge to the farmer, merchant, or mechanic to enable them to prosecute successfully and economically their different pursuits, why should it do so for the journalist? If the latter can rightfully claim that his newspaper shall thus be delivered to him at the public expense, why may he not also claim that his stationery and type, and indeed everything which enters into the preparation of the sheet he issues as his means of living, be delivered to him on the same terms? It has been alleged, I am aware, that postage on newspaper exchanges would be a tax on the dissemination of knowledge. But so is the postage which the farmer, mechanic, and merchant pay on the newspaper for which they subscribe; yet it is paid by them uncomplainingly. If it should be insisted that the publishers of newspapers, as a class, are in such a condition as to entitle them to demand the aid of the public funds, it may be safely answered that such an assumption is wholly unwarranted. Journalism in the United States rests upon the deepest and broadest foundation, and has here won a career far more brilliant and prosperous than in any other nation in the world. The exceedingly reduced rates at which its issues pass through the mails secure to it advantages enjoyed under no other government. Under the fostering care of the free spirit of the age it has now become an institution of this country, and controls the tides of the restless ocean of public opinion with almost resistless sway. It is the *avant courier* of the genius of our institutions, and is everywhere the advocate of progress and of the highest and noblest feelings of human freedom. Is it not, therefore, to the lowest degree unseemly, if not worse, that in its own interests, and in the furtherance of its own pecuniary gain, it should claim permission to violate habitually a great principle of which it is the standing advocate, and which underlies our whole political system—the principle of equal rights to all and especial privileges to none? If, however, from the grandeur and beneficence of its mission, the press is to be exempted from the operation of this wholesome democratic doctrine, and is to be subsidized to the extent of its postage to the government, then undeniably such a subsidy should be contributed from the general treasury instead of being imposed, as at present, upon the revenues of the post-office department, which under all circumstances should be deemed inviolable. Into the same category, but for more cogent reasons, must follow that class of weekly papers which the statute of 1852 requires shall be delivered free of postage to all subscribers residing within the limits of the county in which they are published. This requirement is less sound on the score of principle than the discrimination in favor of the press in the matter of newspaper exchanges. There may be something in the characteristics of the latter, ennobling as it is as an organ of the intellect and heart of the millions of freemen, which may induce many to grant to it especial and distinguished immunities; but why a citizen who chooses to reside on one side of a county line shall be exempt from the postage on his newspaper, when his neighbor on

the other side of the line is obliged to pay on the same paper, surpasses my comprehension. There would be more reason for exempting letters from charge while circulating through the mails within the county in which they are written, because, being much lighter than newspapers, their transportation burdens the department less. Could contractors be found sufficiently public-spirited to transport this class of newspapers without compensation, then indeed gratuitous delivery might be claimed of the department as a reasonable duty. But precisely the same rate of compensation is demanded to pay for this as for every other postal service, and hence this privilege is in fact a donation of so much of the postal revenues as the service costs.

Postmaster-General Montgomery Blair, in his annual report dated December 2, 1861, thus referred to certain abuses of the postal service by publishers, and recommended a new legal definition of the meaning of the word "newspaper":

Abuses of the postal law.

By existing law, section 16 of the act approved March 3, 1845, "newspapers" are declared to embrace printed matter issued by the press and published monthly, and are entitled to the same privilege of free exchange and low rates of postage as daily and weekly newspapers enjoy. It is ascertained that this classification is abused by the publication of monthly issues of printed matter, chiefly designed as advertising circulars from exchanges, for the proprietor, and are often sent gratuitously.

I recommend that the definition of a newspaper as given by that act be amended by the substitution of the words, "Published at short stated intervals of no more than one week," for the words, "Published at short stated intervals of no more than one month." And also that the privilege of free exchange of publications be limited to newspapers thus defined, and to religious, literary, and educational periodicals published not less frequently than once a month.

It is found that considerable fraud is perpetrated on the revenues of the department by publishers of newspapers, who include, mingled with the packages sent to their regular subscribers, numbers of issues which are not regularly sent to their subscribers, and which are therefore subject to pass without postage.

To remedy this evil, I recommend that discretion be given to the head of this department to exclude temporarily from the mails any newspaper or periodical whose proprietor or agents shall send any of their issues without prepayment of postage to other than *bona fide* subscribers, or otherwise that an express penalty be imposed for such act.

During Mr. Blair's administration of the post-office department there occurred several events in connection with the relations of that department to the newspaper press of which no mention is made in the official reports of the department, but which nevertheless have a most important bearing upon this investigation. They recall the excitement created under the administration of Andrew Jackson, in reference to the transmission of "incendiary newspapers" through the mail. The circumstances surrounding the exercise of federal authority to exclude certain publications from the mails in 1861 and in subsequent years were widely different from those existing in 1835, owing to the actual existence of a state of war. On the 16th of August, 1861, the grand jury of the city of New York "presented" certain newspapers published in that city to the circuit court of the United States, on the ground that they contained treasonable utterances calculated to aid and comfort the enemy. This presentment read as follows:

Federal suppression of newspapers during the civil war.

*To the circuit court of the United States for the southern district of New York:*

The grand inquest of the United States of America for the southern district of New York beg leave to present the following facts to the court, and ask its advice thereon:

There are certain newspapers within this district which are in the frequent practice of encouraging the rebels now in arms against the federal government by expressing sympathy and agreement with them, the duty of acceding to their demands, and dissatisfaction with the employment of force to overcome them. These papers are the New York daily and weekly *Journal of Commerce*, the daily and weekly *News*, the daily and weekly *Day Book*, the *Freeman's Journal*, all published in the city of New York, and the daily and weekly *Eagle*, published in the city of Brooklyn. The first named of these has just published a list of newspapers in the free states opposed to what it calls "*the present unholy war*"—a war in defense of our country and its institutions and our most sacred rights, and carried on solely for the restoration of the authority of the government.

The grand jury are aware that free governments allow liberty of speech and of the press to its utmost limit. If a person in a fortress or an army were to preach to the soldiers submission to the enemy he would be treated as an offender. Would he be more culpable than the citizen who, in the midst of the most formidable conspiracy and rebellion, tells the conspirators and rebels that they are right, encourages them to persevere in resistance, and condemns the effort of loyal citizens to overcome and punish them as an "unholy war"? If the utterance of such language in the streets or through the press is not a crime, then there is a great defect in our laws or they were not made for such an emergency.

The conduct of these disloyal presses is of course condemned and abhorred by all loyal men, but the grand jury will be glad to learn from the court that it is also subject to indictment and condign punishment.

CHARLES GOULD, *Foreman.*

On the strength of this action of the grand jury the following order was promulgated from Washington:

Post-Office Department, *August* 22, 1861.

Sir: The Postmaster-General directs that from and after your receipt of this letter none of the newspapers published in New York city which were lately presented by the grand jury as dangerous, from their disloyalty, shall be forwarded in the mails.

I am, respectfully, your obedient servant,

T. B. TROTT, *Chief Clerk.*

William B. Taylor,
*Postmaster of New York City.*

The postmaster of New York also received orders from Washington in August, 1861, that no more copies of certain papers in or near New York should be sent through the mails. (*a*)

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*a* In addition to the post-office department, the war department and department of justice used their authority for the suppression of sundry newspapers, or of particular issues thereof, which published matter adjudged to be treasonable.

By an order issued from the war department at Washington, newspapers publishing military intelligence, however obtained and by

In his annual report for 1865 the Postmaster-General announced that—

New stamps have been adopted of the denomination of 5, 10, and 25 cents for prepaying postage of packages of newspapers forwarded by the publishers or news dealers under the authority of law, whereby a revenue will be secured hitherto lost by the department.

Postmaster-General Creswell recommends the existing law.

In his annual report dated November 15, 1869, Postmaster-General Creswell detailed some of the objectionable features of the then existing postal laws with reference to the transmission of newspapers, and substantially recommended the features of the law as it now stands:

The department is defrauded out of a large amount of postage on newspapers by parties who, while professing to be sending out papers from known offices of publication to regular and *bona fide* subscribers, are in fact loading the mails with specimen papers and mere business circulars disguised in the form of newspapers. The act of March 3, 1863, and the regulations made in pursuance thereof, require that all such matter, if sworn from the mailing office, shall be sent to the office of

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whatever means received, not authorized by the official authority, were excluded thereafter from receiving intelligence by telegraph or transmitting their papers by railroad. The following is a record of some of the newspaper suppressions by federal authority:

August 15, 1861, at Saint Louis, Provost Marshal McKinstry suppressed the publication of the *War Bulletin* and the *Missourian.*

August 26, 1861, a company of federal troops took possession of the *Northwest Democrat,* published at Savannah, Missouri. The *Democrat* boldly carried at the head of its columns the name of Jefferson Davis for President and of Claiborne F. Jackson for Vice-President.

On the arrival of the New York train at Philadelphia on the morning of August 22, 1861, Marshal Millward and his officers examined all the bundles of papers and seized every copy of the New York *Daily News.* The sale of this paper was suppressed in that city. Marshal Millward also seized all the bundles of the *Daily News* at the express offices for the West and South, including over 1,000 copies for Louisville and nearly 500 copies for Baltimore, Washington, Alexandria, and Annapolis.

In Philadelphia, Pennsylvania, August 23, 1861, United States Marshal Millward proceeded to the office of the *Christian Observer,* in Fourth street below Chestnut, and took all the type, paper, and other appurtenances of the place. He also closed up the office, and warned the persons conducting the *Observer* that on any attempt to revive the publication they would be dealt with according to law.

The *Stark County* (Ohio) *Democrat,* Canton, was destroyed by federal troops August 24, 1861.

The *Jeffersonian,* West Chester, Pennsylvania, was suspended by Deputy United States Marshal Schuyler, August 24, 1861.

The *True American,* Trenton, New Jersey, suspended August, 1861, giving as its reason for the act that the national authorities had virtually interdicted the publication of every paper that did not support the government and administration.

February 17, 1862, the *Mississippi,* the *Organ Democrat,* at Los Angeles, and *California Star* were suppressed from the mails on the ground that they had been used for the purpose of overthrowing the government and giving aid and comfort to the enemy then at war against the United States.

The New Orleans *Bee* was suppressed May 16, 1862, for publishing an elaborate though covert argument in favor of the cotton-burning mob. Publication resumed May 30.

The New Orleans *Delta* was suppressed May 16, 1862, for discussing the cotton question in a manner which violated the terms of the proclamation of May 1, taken possession of, and published by United States authorities.

The New Orleans *Crescent* was suppressed May 13, 1862, by order of General Butler.

Edmund Ellis, publisher of the *Boone County* (Missouri) *Standard,* was tried March 31, 1862, before a military commission at Columbus, Missouri, on two charges: First. The publication of information for the benefit of the enemy, and encouraging resistance to the government and laws of the United States; second. Violation of the laws of war by publication, within the lines of the troops of the United States, in a public newspaper, of articles and information intended and designed to comfort the enemy and invite persons to rebellion against the United States. One of the criminal publications was styled "Letters from the Army"; another, "Root, Abe, or Die;" a third, "News from General Price."

The commission found the prisoner guilty of the charges and specifications, and sentenced him to be placed and kept outside of the lines of the state of Missouri during the war, and that the press, types, furniture, and material of the printing office of the *Boone County Standard* be confiscated and sold for the use of the United States. General Halleck approved the finding and sentence, and directed the printing office to remain in charge of the quartermaster until further orders; that the prisoner be placed outside the state of Missouri, and that if he returned during the war without permission he be arrested and placed in close confinement in the Alton military prison. The proceedings being returned to the war department, they were approved by the Secretary, and an order was issued that the form of procedure should be adopted in like cases by the commanders of all the military departments.

These minor suppressions were followed in 1864 by the government suspension of the New York *World* and the New York *Journal of Commerce,* both of which journals had been deceived into the publication of a forged proclamation of the President calling for more troops. By order of the President the editors and publishers of these journals were imprisoned in Fort La Fayette, and their respective newspaper offices were seized and occupied by military guard and the publication thereof suspended. The occupation and suspension continued for two days and three nights.

The generals commanding the Union armies frequently issued orders relating to the correspondents and the publication of military intelligence. The representatives of the newspaper press held a consultation with General McClellan, by his special invitation, at Washington, August 5, 1861, when it was unanimously decided that the following suggestions from him be transmitted to the editors of all the newspapers in all the loyal states and the District of Columbia:

1. That all such editors be required to refrain from publishing, either as editorial or as correspondence, any description, from any point of view, of any matter that might furnish aid and comfort to the enemy.

2. That they be also requested and earnestly solicited to signify to their correspondents here and elsewhere their approval of the foregoing suggestion, and to comply with it in spirit and letter.

It was resolved that the government be respectfully requested to afford the representatives of the press facilities for obtaining and immediately transmitting all information suitable for publication, particularly as touching engagements with the enemy.

General Rosecrans issued the following card to the press, dated Clarksburg, Virginia, August 20, 1861:

"The general commanding the army of occupation in western Virginia and the department of Ohio invites the aid of the press to prevent the enemy from learning through it the position, strength, and movements of the troops under his command. Such information is of the greatest service to the enemy, and deprives the commander of our own forces of all the advantages which arise from the secrecy of concentration and surprise. These advantages are constantly enjoyed by the rebels, whose press never betrays them."

General McClellan sent the following dispatch to the war department in 1862:

"I find some of the newspapers publish letters from their correspondents with this army giving important information concerning delivery, with the editor's order, at newspaper rates, but letter rates shall be charged by way of fine for fraud, and shall be collected at the office of delivery. If not paid for and delivered, it often happens that no other disposition of the matter can be made than to return it to the mailing office for the prosecution of the offender. The double transfer thus incurred is frequently attended with no result except that the matter is left in the office and ultimately sold for waste paper. For this mischief there is but one adequate remedy, and that is to require prepayment on all printed matter.

A due regard to the convenience of the publishers of newspapers would require that postage on newspapers should be charged according to the weight of the packages. To accomplish this reform a considerable reduction of present rates might be conceded by the department. To make the remedy of prepayment complete it would be necessary furthermore to confer ample power on postmasters at mailing offices to open and inspect suspicious packages of newspapers, and to impose upon them, if found to be vitiated by fraud, full letter postage, to be paid invariably in advance. This summary proceeding should not relieve the offender from liability to the imposition of the fine already provided for by law.

In his next annual report Postmaster-General Creswell more elaborately outlined his plan for the collection of newspaper postage as follows:

The prepayment of newspaper postage.

In my report for 1869 I had the honor to suggest a plan for the prepayment of postage on newspapers and other matter of the second class by weight of packages rather than by the present system, which requires the manipulation of each particular paper and allows the payment of postage either at the mailing office or at the office of delivery.

A careful revision of the subject confirms me in the opinion that the postage on all such matter should be collected in advance at the mailing office. Collections are now made with great difficulty, and there is no provision whatever by which dishonesty or negligence can be dealt with. No stamps are used for the payment of such postage, and the department is compelled to accept in full satisfaction whatever sums of money postmasters choose to charge against themselves. So execrably bad is this system that postmasters of high standing have assumed that no more than one-third of the postage probably charged on newspapers is accounted for and paid over.

Furthermore, disputes are continually arising between postmasters and publishers as to whether the issues they transmit come within the meaning of the term newspaper, and as to the number of their *bona fide* subscribers.

In the hope of contributing to a more faithful collection of postage, of a more prompt and efficient transmission of newspapers, and save the labor in post-offices to the general advantage of the department and the publishers and their patrons, I respectfully submit the following plan for prepayment of second-class matter and urge its adoption:

Let the publishers, or their business managers or agents, at the beginning of every quarter state under oath that after diligent inquiry they are satisfied that they will send in the mails to regular subscribers during the coming quarter no more than —— copies of the newspaper known as the —— (giving the number of copies and name of newspaper), and let them be further required to pay in advance the postage prescribed by law, taking therefor duplicate receipts, one of which shall be transmitted to the post-office department; and to afford reasonable opportunity for an increase of circulation during the quarter, let the oath taken at the beginning of the next quarter embrace all the additional copies for the last one, as well as the number to be sent during the then commencing quarter. On the other hand, let the postmasters be required to return, within two weeks after the beginning of every quarter, regular lists of all newspapers addressed to regular subscribers and dispatched in the mails from their respective offices, stating the number of copies of each newspaper and the average weight per paper, the number of issues per quarter, and the amount of money paid as postage therefor.

Payment having been made in advance for the quarter, no stamp or manipulation would be needed, but when received into the office every paper answering to the description given in the receipt would be treated as paid. The papers of persons subscribing after quarter day would be forwarded immediately and paid for at the next quarter. So marked would be the improvement in the collections under this plan that I believe the department could safely consent, in case of its adoption, to the reduction of newspaper rates to 40 per cent. of the present postage. At a reduced rate I am satisfied the department would realize more revenue than now. I also believe that so great would be the saving of labor to newspaper proprietors in the preparation of their papers for the mail, and so decided their gain from the swifter dispatch and freedom from mistakes in transmission and delivery, that they would find the new plan more advantageous to them than the present one. A similar plan could be adopted for magazines and periodicals of the second class.

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our movements, position of troops, etc., in positive violation of your orders. As it is impossible for me to ascertain with certainty who these anonymous writers are, I beg to suggest that an order be published holding the editors responsible for its infraction."

The frequent transmission of false intelligence and the betrayal of the movements of the Army of the Potomac by publication of injudicious correspondence of an anonymous character made it necessary for General Hooker, in May, 1863, to issue general orders requiring all newspaper correspondents to publish their communications over their own signatures.

The vicissitudes of the southern press during the civil war were necessarily of an extreme character, and the historian who supplies the chapter in the history of American journalism which details the experiences of newspaper publishers in the southern states from 1861 to 1865 will add interesting details now almost wholly lacking. Many of the oldest and best newspapers of the South disappeared, and have not since been revived. Others continued their issues, even when reduced to the extremity of printing brief news statements on the back of common wall-paper. Rev. Henry Cotton relates the following episode, which illustrates the experience of a number of southern newspapers:

"A confederate states newspaper, originally called the *Memphis Appeal*, has been repeatedly compelled, by the fortune of war, to change its place of publication. On each occasion it has added the name of the new place to its title. This, when last heard of, was the Memphis-Hernando-Grenada-Vicksburg-Jackson-Atlanta-Griffin *Appeal*."

In many of the southern states exceptions were made in favor of newspaper editors in the conscriptions. The governor and executive council of South Carolina adopted the following resolution, March 18, 1863:

"*Resolved*, That the editors and owners of newspapers in this state be informed that if any of their employés shall fall under the conscription the adjutant and inspector-general will be instructed to withhold from confederate service such of said conscripts as the editor or owner of such newspaper shall declare by affidavit to be absolutely necessary to carry on their respective establishments, and that the work cannot be done by workmen within their command or otherwise exempt: *Provided*, The number withheld shall not exceed seven for the Charleston daily papers, five for the Columbia daily papers, and two for each country paper: *And provided*, The conscripts withheld from confederate service shall be subject to be detailed to such local and special duty as may not seriously interfere with the business of their respective offices."

The Virginia legislature enacted a law exempting newspaper men from military duty. The bill exempted "one editor of each newspaper now being published in the state, and such employés as the editor or proprietor may certify on honor to be indispensable for conducting the publication of the newspaper, so long as the same is regularly published at least once a week".

The postal law of 1874.

These suggestions were embodied in the law by an act of Congress approved June 23, 1874; and after nearly three-quarters of a century of unequal, unsatisfactory, and illogical regulation of the subject the government of the United States finally put in operation a system of newspaper postage which is believed to be as rational in its theory and as satisfactory in its operation as any in existence in the world. Under this system newspaper postage is paid by weight, without reference to the distance carried, and is paid uniformly in advance at the office of publication. The government thus receives compensation for every pound of newspaper mail it transmits, and the burden of the cost of transmission is thrown upon the publisher, instead of the subscriber. In his report for 1874 Postmaster-General Marshall Jewell thus detailed the features of the new law with reference to newspaper postage:

Postmaster-General Jewell on the law of 1874.

By an act of Congress approved June 23, 1874, it is required that on and after the 1st day of January, 1875, postage on newspapers, periodicals, and publications mailed from a known office of publication or news agencies, and addressed to regular subscribers or news agents, shall be charged at the rate of 2 cents per pound if issued weekly or oftener, and at 3 cents per pound if issued less frequently than once a week. The act provides that the matter shall be weighed in bulk, and prepaid with adhesive stamps, to be especially devised for the purpose. The manner of applying the stamps is left discretionary with the department, and a system, which it is hoped will work satisfactorily, has been devised for carrying the law into effect. It is expected that the revenues of the department from the postage on printed matter will be increased by the enforcement of this act, notwithstanding the rates are cheaper than before, as now the postage will be prepaid, while heretofore much loss has been occasioned to the department on account of the non-collection of postage at the point of delivery.

In his next annual report, dated November 15, 1875, Mr. Jewell gave the following account of the satisfactory working of the new law:

The working of the law of 1874.

The act of June 23, 1874, requiring prepayment in stamps of postage on newspapers and periodical publications mailed from known offices of publication or news agents, and addressed to regular subscribers or news agents, went into effect on the 1st of January, 1875, and from present indications it will realize about $1,000,000 for the first calendar year. This is not a material variation from the average results of the old law, though dur'ng the last year in which this law was in operation the amount was increased by the payment of postage on newspapers circulating within the county where published—a requirement which was discontinued at the end of one year.

While, therefore, there has been no increase in the aggregate receipts, there must be a large net gain in the saving of commission on collections allowed by the old law, as under the present law the great bulk of postage is paid at the large offices, whose salaries are not affected by this item. Under the old law there was no check to insure the collections at the office of destination, and the consequence was that much matter went unpaid to its destination that under the present more equitable mode of universal collections have made up for the reductions in the rate.

The new system is working so admirably, and has given such general satisfaction, that no change is deemed necessary. Full information as to the manner of executing the law, with more specific statements of its results, will be found in the accompanying report of the Third Assistant Postmaster-General.

The report of the Third Assistant Postmaster-General to his chief in 1875 gave further details of the methods adopted by the department for the carrying out of the provisions of the law, as follows:

Method of executing the law of 1874.

On the 1st day of January, 1875, the new law requiring prepayment of postage by stamps on all newspapers and periodicals sent from a known office of publication to regular subscribers through the mails went into operation.

The system inaugurated to carry the law into effect was perfected by you in October, 1874, and has been found by experience to be admirably adapted to the purpose for which it was devised. No complaints of abuse on the part of publishers or postmasters have been received at this office during the nine months that have elapsed since the law went into effect. Indeed, it has worked so well in all its details, and has given such general satisfaction, that the idea of returning to the old system or materially modifying the new one should not be entertained.

Previous to the time when this law began to operate no stamps were required for the payment of postage on newspapers sent to regular subscribers, as the postage was collected in money quarterly at the office of delivery. Last year there were 3,500 post-offices at which newspaper postage was collected, while under the present true system of the absolute prepayment of all postages the whole amount is collected at about 3,400 offices, the latter representing the places in the United States at which newspapers and periodicals are mailed.

The papers for subscribers living outside the county in which they are published are made up in bulk at the publication office, carted to the post-office, and there weighed. The postage is computed on the whole issue, the proper amount in stamps is handed to the postmaster, who gives the publisher a receipt as evidence of payment, and on the stubs of the receipt book he affixes a cancellation stamp which corresponds in value with the sum mentioned in the receipt. Thus one transaction is all that is required in paying the postage upon a single issue of any regular edition. The stubs, with their canceled stamps, are kept in the post-office as vouchers for the postage paid. In no case are the stamps affixed to the papers or packages which pass through the mails. These stamps are twenty-four in number. The denominations are: 2, 3, 4, 6, 8, 9, 10, 12, 24, 36, 48, 60, 72, 84, and 96 cents, $1 92, $3, $6, $9, $12, $24, $36, $48, and $60. These denominations were found to be necessary, in order that payment might be made on any given quantity, from one pound to one ton, at both the two and three cent rate, with the use of not to exceed five stamps in any transaction.

The report of the Third Assistant Postmaster-General for the year 1876 shows that the issue of newspaper and periodical stamps for the previous year was 1,290,347, valued at $945,254 75. There was a decrease of $12,956 24, or 4.50 per cent., in ordinary newspaper wrappers, and $171,138 75, or 20.49 per cent., in official postage stamps.

The following is from the annual report of Hon. D. M. Key, Postmaster-General, dated November 9, 1877:

Revenues from newspaper postage.

Under the present system of collecting postage on newspapers and periodical publications mailed to regular subscribers from the office of publication there has been collected during the year on this class of matter the sum of $1,024,719 16, derived from 40,865,246 pounds, at 2 cents per pound, and 6,913,808 pounds, at 3 cents per pound. The increase in the whole amount collected over that for the preceding year was $10,564 89, or 1.04 per cent.

### The report of Hon. A. D. Hazen, Third Assistant Postmaster-General, for the same year, says:

The system of collecting postage in advance still exhibits its advantages over the system formerly in operation. Over fourteen thousand quarterly returns, covering collections of this particular class of postage, have been made during the year by postmasters of 3,576 offices, which returns, after being carefully audited, have been entered upon the books of the division. The amount of this postage is as follows:

| | |
|---|---|
| On 40,865,246 pounds of matter, at 2 cents per pound | $817,304 92 |
| On 6,913,808 pounds of matter, at 3 cents per pound | 207,414 24 |
| Total | 1,024,719 16 |

This shows an increase over the amount collected during the preceding year of $10,564 89, or 1.04 per cent.

Of the total amount, it will be seen from the subjoined general table that more than half was collected at only six offices:

| Offices. | Pounds of newspaper and periodical matter. | Amount of postage on same. |
|---|---|---|
| New York | 15, 397, 438 | $338, 029 62 |
| Chicago | 3, 653, 202 | 77, 915 88 |
| Boston | 3, 082, 255 | 66, 412 40 |
| Philadelphia | 2, 175, 112 | 52, 643 84 |
| Saint Louis | 2, 093, 503 | 43, 797 72 |
| Cincinnati | 1, 869, 110 | 39, 724 86 |
| | 28, 270, 620 | 618, 524 32 |

### The following extract is from the report of Postmaster-General D. M. Key, November 9, 1878:

The total revenues of the department were $29,277,516 95, of which $1,093,845 were for newspaper and periodical stamps.

Under the act of Congress of June 23, 1874, regarding the prepayment of postage on second-class matter mailed by publishers and news agents, the total amount of postage collected on such matter during the fiscal year was $1,025,180 98, or $817,673 26 on 40,883,663 pounds at 2 cents per pound, and $270,507 72 on 6,916,924 pounds at 3 cents per pound. The increase of the amount of postage collected over that of the preceding fiscal year was $461 82.

* * * * * * * * *

I renew the recommendation made in my last annual report, that suitable provision be made by law to deliver to editors free of customs duties the newspapers and other printed matter received in the mails from foreign countries when dispatched in accordance with the provisions prescribed by the universal postal union convention. The fact that our laws impose customs duties upon newspapers and other printed matter of every kind received from foreign countries causes embarrassment to this department in its relation to the other postal conventions, as well as annoyance and inconvenience to our citizens who subscribe for foreign publications or occasionally receive them from correspondents abroad. The duties chargeable on such publications, even if they could be regularly collected, are too trifling in amount to justify the expense of their collection. Restriction of this character on their free entry and circulation is not only in conflict with the stipulations of the postal conventions of other countries, but places the United States in the unenviable position of being the only country in the world whose laws exact customs duties on publications of this character received in the mails from other countries.

### From the report of Postmaster-General Key, dated November 8, 1879, the following extract is taken:

The total amount of postage collected during the year on periodicals mailed to subscribers from known offices of publication was $1,104,184 67: On 42,958,033 pounds of matter at 2 cents per pound, $859,160 66; on 8,167,467 pounds of matter at 3 cents per pound, $245,024 01.

The increase in the amount of postage collected during the year on this class of matter over the previous year is $79,003 69, which, in view of the reduction in the rate on newspaper and periodical postage, which took effect the 1st of May last, under the act approved March 3, 1879, is a very gratifying increase.

### The following is taken from the report of the same Postmaster-General for 1880:

The weight of newspaper and periodical matter mailed during the year from regular offices of publication or from news agencies was 61,322,629 pounds (30,661 tons), the postage on which was $1,226,452 58. This is an increase of $122,267 91, or 11 per cent. over the amount of postage collected on such matter during the preceding year, and is rather remarkable, considering the reduction made by the act of March 3, 1879, in the rate of postage on periodicals, which reduction went into effect only two months prior to the beginning of the present fiscal year. The number of post-offices at which this class of matter was mailed during the year is 4,423, an increase of 235, or 5.6 per cent., over the number for the preceding year. (*a*)

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*a* In explanation of the excess of towns where second-class mail matter is received over the number of towns discovered by the census where newspapers or periodicals were published Mr. E. J. Dallas writes as follows:

"WASHINGTON, D. C., *November* 26, 1881.

"MY DEAR SIR: Your letter of the 23d instant has been received. The apparent discrepancy between the report of the department and the figures that you have obtained is explainable as follows:

"The department's report includes the number of post-offices at which second-class matter was mailed *at any time during the last fiscal year*, whether by publishers or news agents, the latter having, under the law, the privilege of mailing their matter at pound rates. As newspapers are being established and discontinued constantly, the number of offices at which second-class matter was mailed *at any one time*, for example, when the census was being taken, could not include all the offices at which it has been mailed *during the entire year*. You are also to understand that news agents in many instances are carrying on business within the delivery of small post-offices where newspapers are neither printed nor published, but for the purposes of the department's statistics it is necessary to include those offices in the Postmaster-General's annual report, while they would not naturally belong in yours.

"Very truly, yours,

"E. J. DALLAS."

The following table shows the number of pounds of newspapers and periodicals mailed during the year and the amount of postage collected thereon at ten of the principal post-offices in the United States: (*a*)

| Post-office at— | WEIGHT OF MATTER. | | Postage collected. | Per cent. of total amount collected in the United States. |
|---|---|---|---|---|
| | In pounds. | In tons. | | |
| New York, New York | 17, 326, 455 | 8, 663 | $346, 529 10 | 28. 2 |
| Chicago, Illinois | 5, 775, 760 | 2, 888 | 115, 515 20 | 9. 4 |
| Boston, Massachusetts | 3, 753, 016 | 1, 876 | 75, 060 32 | 6. 1 |
| Philadelphia, Pennsylvania | 3, 169, 614 | 1, 585 | 63, 392 28 | 5. 1 |
| Saint Louis, Missouri | 2, 697, 319 | 1, 348 | 53, 946 38 | 4. 4 |
| Cincinnati, Ohio | 2, 593, 799 | 1, 297 | 51, 875 98 | 4. 2 |
| Augusta, Maine | 2, 216, 901 | 1, 108 | 44, 338 02 | 3. 7 |
| San Francisco, California | 1, 180, 764 | 590 | 23, 615 28 | 2. 0 |
| Louisville, Kentucky | 763, 840 | 382 | 15, 276 80 | 1. 2 |
| Baltimore, Maryland | 592, 546 | 296 | 11, 850 92 | 1. 0 |
| Total | 40, 070, 014 | 20, 033 | 801, 400 28 | 65. 3 |

Count of second-class mail matter.

In the year 1880 the post-office department instituted a count of the mail matter passing through the several post-offices in the several states. This count was supervised by a special committee appointed for that purpose, of which Mr. E. J. Dallas, the superintendent of the dead-letter office, was the efficient chairman. The period covered by this count was sufficiently contemporaneous with the census year to permit of comparison. It showed the following results in respect to newspapers and periodicals:

| States and Territories. | SECOND-CLASS MAIL. | |
|---|---|---|
| | Number of newspapers mailed to subscribers or news agents by publishers and news agents. | Number of magazines and other periodicals mailed to subscribers or news agents by publishers and news agents. |
| Alabama | 4, 037, 332 | 26, 700 |
| Arizona | 838, 136 | 3, 804 |
| Arkansas | 3, 606, 356 | 23, 352 |
| California | 18, 110, 976 | 135, 420 |
| Colorado | 6, 063, 772 | 9, 312 |
| Connecticut | 7, 808, 424 | 124, 716 |
| Dakota | 1, 674, 660 | 1, 692 |
| Delaware | 1, 141, 348 | 19, 260 |
| District of Columbia | 5, 052, 008 | 30, 072 |
| Florida | 1, 141, 452 | 420 |
| Georgia | 15, 355, 288 | 651, 336 |
| Idaho | 374, 556 | 24 |
| Illinois | 87, 128, 444 | 4, 343, 460 |
| Indiana | 20, 490, 080 | 444, 000 |
| Indian territory | 115, 648 | |
| Iowa | 25, 261, 184 | 275, 868 |
| Kansas | 13, 703, 924 | 97, 224 |
| Kentucky | 17, 443, 296 | 100, 656 |
| Louisiana | 6, 645, 132 | 24, 888 |
| Maine | 17, 962, 204 | 1, 627, 380 |
| Maryland | 9, 670, 232 | 193, 512 |
| Massachusetts | 38, 661, 792 | 3, 933, 624 |
| Michigan | 24, 462, 932 | 215, 172 |
| Minnesota | 13, 065, 260 | 145, 524 |
| Mississippi | 3, 334, 604 | 1, 932 |
| Missouri | 46, 128, 784 | 1, 865, 784 |
| Montana | 866, 268 | 2, 652 |
| Nebraska | 8, 974, 524 | 46, 548 |
| Nevada | 1, 383, 512 | 492 |
| New Hampshire | 7, 436, 416 | 198, 936 |
| New Jersey | 6, 403, 280 | 270, 228 |
| New Mexico | 441, 584 | 1, 236 |
| New York | 172, 245, 528 | 9, 060, 780 |
| North Carolina | 6, 235, 372 | 30, 864 |
| Ohio | 72, 125, 560 | 6, 498, 216 |
| Oregon | 4, 035, 096 | 146, 532 |
| Pennsylvania | 71, 535, 464 | 7, 882, 364 |
| Rhode Island | 2, 250, 092 | 50, 868 |
| South Carolina | 4, 367, 480 | 8, 820 |
| Tennessee | 12, 620, 712 | 553, 008 |
| Texas | 12, 066, 756 | 21, 816 |
| Utah | 2, 053, 272 | 22, 944 |
| Vermont | 4, 263, 844 | 223, 284 |
| Virginia | 8, 639, 384 | 361, 056 |
| Washington | 530, 816 | 636 |
| West Virginia | 3, 762, 980 | 6, 948 |
| Wisconsin | 20, 163, 520 | 460, 632 |
| Wyoming | 176, 956 | 180 |
| Miscellaneous | 146, 224 | 36 |
| Railway mail service | 29, 536 | 4, 584 |
| Total | 812, 032, 000 | 40, 148, 792 |

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*a* The annual report of Postmaster-General James for 1881 supplies the following statistics for the subsequent year:

"The total amount of postage collected during the year on newspapers and periodicals mailed to regular subscribers from known offices of publication, and from news agencies, at 2 cents per pound, was $1,399,048 64, an increase of $172,596 06, or a little over 14 per cent.

"Of the total amount derived from this source 27.65 per cent. was collected at New York, 10.01 per cent. at Chicago, 5.95 per cent. at Boston, 5.02 per cent. at Philadelphia, 4.65 per cent. at Augusta, Maine, 4.61 per cent. at Saint Louis, 3.96 per cent. at Cincinnati, 1,71 per cent. at San Francisco, 1.53 per cent. at Detroit, 1.29 per cent. at Louisville, 1.25 per cent. at Cleveland, 1.21 per cent. at Milwaukee, 1.02 per cent. at Pittsburgh, 1.01 per cent. at Toledo, and eighty-eight hundredths of one per cent. at Baltimore.

"The 15 offices named collected 71.75 per cent., or nearly three-fourths of the whole amount realized.

"The weight of second-class matter mailed was 69,952,432 pounds, or 34,976 tons. The number of post-offices at which the matter was mailed was 4,821, an increase of 390 over the number for the previous year."

Comparison of count with statistics of the Tenth Census.

The several methods of newspaper carriage.

By comparing these figures with those of the census giving the actual circulation of newspapers and periodicals during the census year we arrive at a definite knowledge of the proportion of the total circulation which is distributed through the agency of the United States mails. We have seen that the actual number of copies annually printed of newspapers and periodicals of all classes is 2,067,848,209. Of this number Mr. Dallas' report shows that 852,180,792, including newspapers and periodicals, were transmitted through the mails, leaving 1,215,667,417 copies to reach their destination through other agencies—the carrier, the express companies, the news agencies, and other miscellaneous methods. The great revolution which time has wrought in the methods of newspaper transmittal is well illustrated by these figures. In the early days of newspapers in this country the mails were the sole reliance of the publishers for transmission outside the city or town of publication. They are still the chief sources of circulation in other countries, although it is worthy of note that a count similar to that instituted by Mr. Dallas in this country was made in Great Britain, covering the same period of time, which showed a total of but 130,518,400 newspapers and periodicals transmitted through the British mails, a smaller number by 721,662,392 pieces than the United States mails carried in the same period of time. The significance of these figures lies in their demonstration of the fact that there is in Great Britain no such universal diffusion of the newspapers and periodicals—the periodicals especially—published in the large cities as exists in the United States. During the census year the practice of starting newspaper trains out of London at 5 a. m. was inaugurated from the four great railway termini of that city. These trains deliver the metropolitan dailies in all the large cities of England before noon, and their circulation has considerably increased in consequence.

## CIRCULATION OUTSIDE THE MAILS.

The press outgrows the post-office.

The development of the railway system has robbed the post-office department of the larger portion of the patronage of the press, (*a*) publishers finding that they can transmit their papers by express to the chief centers not only cheaper, but with greater celerity than the mails can handle them. It follows that at present but a small portion of the daily newspapers of the United States, except those which are sent in exchange for other papers, are transmitted by mail.

The development of the carrier system for the distribution of daily newspapers has of course not particularly interfered with the postal revenues from the press. It is a system of delivery that may be called American in its origin, and the custom of hawking newspapers in the street is almost contemporaneous with their existence on this continent. The early publishers also hawked books and ballads in the same manner, and there were many book-peddlers in the colonial era. To-day a very considerable proportion of the circulation of our daily press, especially in the large cities, is sold in this manner by the newsboys, who buy at wholesale rates from the counting-room. This practice is almost unknown in England even at the present date. (*b*)

The distribution of papers by carrier is sometimes managed directly from the office of publication and sometimes let out by routes to responsible parties. Thus in New York, San Francisco, and other large cities certain well-defined routes are owned by individuals who buy the papers every morning or evening from the publishers and distribute them to their customers by carrier boys.

The organization of news companies.

The American News Company.

Much of the burden and the risk connected with the circulation of newspapers is borne by the news companies. These organizations had their beginnings in the years just previous to the civil war, when the circulation of newspapers was beginning to extend into large volume. The American News Company—or rather its nucleus—was started in New York about 1856 by A. S. Tuttle, and involved the consolidation of several of the largest newsdealing firms of that city. It established its first branch office in Chicago in 1866, called the Western News Company, and to-day it has its branches in every city in the United States. It has revolutionized the methods of newspaper circulation in the United States, performing for the publishers the larger portion of that service formerly done, at the publisher's risk, through the agency of the mails. Under the old system the publishers dealt with many dealers, large and small, direct, necessarily encountering many who were irresponsible. Now the News Company acts as a jobber, purchasing the papers from the publishers and disposing of them to the smaller dealers precisely on the principle of a mercantile commission house. It is one of the developments growing out of the extraordinary increase in the newspaper and periodical circulation of the day.

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[a] The New York *Sun* has published figures of its relative circulation through the different channels which illustrate this fact. On a certain day in the census year its lists showed the copies delivered to news agents out of town, and buying directly of the publishers, to be 14,443; mail copies, 5,221; sold at counting-room, 792; by check to newsboys, 12,237; by ticket to the New York news companies, 101,165.—*The Paper World.*

[b] In Paris at least three-fourths of the entire impression of each paper is sold in the public streets. Probably five-sixths of the New York daily papers are sold in the streets, or at railways or steamboats, by newsboys and news companies. Indeed, it was proved lately, in a case which came into the courts, that out of the aggregate circulation of 11,000 copies of a particular newspaper no fewer than 8,500 were sold in the streets and at news-stands. With the London dailies it is different. The penny papers, it is true, are to be found on sale in the streets and at railroad stations, but not one-fourth of their circulation takes place in this way; while the full-priced papers—the *Times*, the *Advertiser*, and the *Post*—never sell a single copy in the streets, and but comparatively few copies at railway stations or on steamboats.—Grant, II, 421.

## THE EXISTING POSTAL LAWS RELATING TO NEWSPAPERS AND PERIODICALS.

The consideration of this branch of the subject may properly be concluded with a transcript of the existing laws and the regulations of the post-office department bearing in any way upon the subject of the transmission of newspapers and periodicals through the United States mails.

The present laws and regulations regarding the transmission of newspapers and periodicals by mail.

SEC. 184. *Second-class matter.*— Mailable matter of the second class shall embrace all newspapers and other periodical publications which are issued at stated intervals, and as frequently as four times a year, and are within the conditions named in the next succeeding section. (Act March 3, 1879, §10, 20 Stat., p. 359.)

SEC. 185. *Essential characteristics of second-class matter.*—The conditions upon which a publication shall be admitted to the second class are as follows:

First. It must regularly be issued at stated intervals, as frequently as four times a year, and bear a date of issue, and be numbered consecutively.

Second. It must be issued from a known office of publication.

Third. It must be formed of printed paper sheets, without board, cloth, leather, or other substantial binding, such as distinguish printed books for preservation from periodical publications.

Fourth. It must be originated and published for the dissemination of information of a public character, or be devoted to literature, the sciences, arts, or some special industry, and have a legitimate list of subscribers: *Provided, however,* That nothing herein contained shall be so construed as to admit to the second-class rate regular publications designed primarily for advertising purposes, or for free circulation, or for circulation at nominal rates. (Act March 3, 1879, §14, 20 Stat., p. 359.)

SEC. 186. *A known office of publication defined.*—A known office of publication is a public office for the transaction of the business of the periodical, where orders may be received for subscriptions and advertising during the usual business hours. Publications issued without disclosing the office of publication must not be forwarded unless prepaid at the rate of third-class matter.

SEC. 187. *Advertising sheets defined.*—"Regular publications, designed primarily for advertising purposes," within the intendment of section 185, are defined to be—

First. Those owned and controlled by one or several individuals or business concerns, and conducted as an auxiliary, and essentially for the advancement of the main business or calling of those who own or control them.

Second. Those which, having no genuine or paid-up subscriptions, insert advertisements free, on the condition that the advertiser will pay for any number of papers which are sent to persons whose names are given to the publisher.

Third. Those which do advertising only, and whose columns are filled with long editorial puffs of firms or individuals who buy a certain number of copies for distribution.

Fourth. Pamphlets containing market quotations, and the business cards of various business houses opposite the pages containing such quotations.

SEC. 188. *Decision upon doubtful publications.*—Whenever a postmaster is in doubt as to the character of a publication offered for mailing as second-class matter, he will submit a copy of the same to the First Assistant Postmaster-General, and accompany it with a statement of such facts as he may be in possession of respecting the publication, and the reasons for his inability to decide as to its character. The First Assistant Postmaster-General will also decide any appeal from the decision of a postmaster by publishers whose publications have been excluded from the second class by the action of the postmaster.

SEC. 189. *Postmaster's record of second-class publications.*—Postmasters must keep a record of all the publications of the second class mailed at their post-offices, and submit a duplicate thereof to the office of the Third Assistant Postmaster-General, and must report on the first day of every month any changes made therein.

SEC. 190. *Postage on second-class matter.*—Publications of the second class, except as provided in section 239, when sent by the publisher thereof, and from the office of publication, including sample copies, or when sent from a news agency to actual subscribers thereto, or to other news agents, shall be entitled to transmission through the mails at 2 cents a pound, or fraction thereof, such postage to be prepaid, as now provided by law. (Act of March 3, 1879, §11, 20 Stat., p. 359.) (See section 192.)

SEC. 191. *Weighing of second-class matter.*—Periodical publications, on their receipt at the post-office of mailing, shall be weighed in bulk, and postage paid thereon by a special adhesive stamp, to be devised and furnished by the Postmaster-General, which shall be affixed to such matter, or to the sack containing the same, or upon a memorandum of such mailing, or otherwise, as the Postmaster-General may, from time to time, provide by regulations. (Act of June 23, 1874, § 6, 18 Stat., p. 233.)

SEC. 192. *Manner of prepaying second-class matter.*—Publishers and news agents must tender their newspapers and periodicals intended to be sent through the mails at the post-office of mailing, so that they may be weighed in bulk. The postage thereon must then be prepaid, according to the weight of the matter to be mailed, by special adhesive stamps, known as newspaper and periodical stamps, which are furnished by the department to postmasters for that purpose. Unbound back numbers of a regular second-class publication may be sent at the rate of 2 cents per pound. (See section 159.)

SEC. 193. *"Regular subscribers" defined.*—A regular subscriber is a person who has actually paid, or undertaken to pay, a subscription price for a newspaper, magazine, or other periodical, or for whom such payment has been made, or undertaken to be made, by some other person. But in the latter case such payment must have been made or undertaken with the consent or at the request of the person to whom such newspaper, magazine, or periodical is sent. Consent is to be implied in the absence of objection by the party to whom the publication is sent.

SEC. 194. *Evidence of subscription list may be required.*—If a postmaster has reason to doubt that a publication offered for mailing as second-class matter has a legitimate list of subscribers, he may require the publisher thereof to satisfy him that it has, before permitting such publication to be mailed at the rates prescribed in section 190.

SEC. 195. *Sample copies at second-class rates.*—By section 185 subscribership is made one of the tests of the *bona fide* character of a publication. A publication having no legitimate list of subscribers cannot be admitted to the second class, except as provided in section 196. When once determined to be entitled to transmission as second-class matter, the distinction in favor of subscribership in the circulation of second-class matter, which was made necessary by former laws, is by section 190 abandoned, and sample copies of second-class publications may, when sent from an office of publication or a news agency, be forwarded in the mails at the same rates as to subscribers, to wit, at 2 cents per pound, or fraction thereof.

SEC. 196. *Admission of new publications to second-class rates.*—A temporary permit, in writing, shall be granted by a postmaster to a publication when the first issue of the same shall be presented, accompanied by an affidavit from the publisher thereof that the publication is published for the purposes named in section 185, unless the postmaster shall be satisfied from internal evidence furnished by the publication itself that it comes within the proviso of that section. When such temporary permit shall be granted, the publication shall be entitled to pass in the mails at the rate of 2 cents per pound, or fraction thereof. Such temporary permit shall be revoked by the postmaster in case the publication shall have so changed its character as to make it no longer within the conditions named in section 185. A duplicate of such temporary permit shall be forwarded to the First Assistant Postmaster-General whenever issued.

Sec. 197. *Penalty for submitting false evidence as to a publication.*—Any person who shall submit, or cause to be submitted (for transportation in the mails), any false evidence to the postmaster relative to the character of his publication shall be deemed guilty of a misdemeanor, and upon conviction thereof in any court of competent jurisdiction shall, for every such offense, be punished by a fine of not less than one hundred dollars nor more than five hundred dollars. (Act of March 3, 1879, §13, 20 Stat., p. 359.)

Sec. 198. *Postmasters to report the submission of false evidence.*—Whenever a postmaster is of opinion that a publisher has submitted to him any false statements respecting the character of his publication, either as to its office of publication, or as to its list of subscribers, or as to any other fact which the postmaster may have deemed it his duty to ascertain in order to determine whether the publication was entitled to admission to the second class, he should report the case, with all the evidence in his possession, to the First Assistant Postmaster-General, and await his instructions.

Sec. 199. *Entry of second-class publications.*—After a publication has been determined to be of the second class, the publisher thereof may, if he desire, formally enter the same at the post-office where mailed, and print upon each copy thereof the words, "Entered at the post-office at ——— as second-class matter." Publications so entered, and having printed upon each copy the words of entry, may be exchanged at second-class rates with other second-class publications and may be regularly sent at second-class rates, as complimentary, to customers or business agents of the publication, and to other persons solely in the interest of the publication itself, or of its publishers or employés as such. The formal entry will consist in a written notification of the publisher's desire to the postmaster, who will forward a copy of such entry to the First Assistant Postmaster-General. The unauthorized printing by a publisher of the words of entry herein prescribed, or their equivalent, will render him liable to the penalty prescribed in section 197. Postmasters should take pains to call the attention of publishers to this section and invite them to enter their publications as herein set forth.

Sec. 200. News agents applying for second-class rates must make and file with the postmaster at their post-office of mailing a statement signed by them showing the names of the periodicals which they thus mail, the post-offices respectively to which they are directed, and the number of such subscribers to each, with the dates to which their respective subscriptions extend. On all packages of second-class matter mailed by news agents to newsdealers the word "newsdealer" must form part of the address.

Sec. 201. *Evidence required of news agents.*—In order to enable news agents to transmit matter of the second class at pound rates which is not published within the delivery of the post-office of mailing they must furnish evidence that the periodical so offered has been inspected and admitted to the second class by the postmaster at the post-office of publication. The most satisfactory evidence of such inspection and approval will be when, in some conspicuous portion of its title page or cover, the periodical bears the printed words of entry prescribed in section 199.

Sec. 202. *News agents defined.*—No person is a news agent within the contemplation of the law by virtue of his acting simply as a local or traveling agent for a publication. He must be engaged in business as a newsdealer or bookseller in order to be entitled to send newspapers and periodicals at the pound rates.

Sec. 203. *Sample copies defined.*—Sample copies of publications of the second class, which are entitled to transmission through the mails at two cents a pound, are defined to be copies sent to persons not subscribers, for the purpose either of inducing them to subscribe for or to advertise in the publication, or to agents, or to persons desiring to become agents, or whom the publisher may wish to induce to act as agents, to be used by them in procuring subscriptions and advertising. Any number of copies of any number of different editions of a second-class publication may be sent at any one time as sample copies. The primary design of a publisher in sending out sample copies is to increase the subscription list and advertising patronage of his publication, and the law permits him to send such copies at the most favored rates, in the expectation that the correspondence resulting therefrom, and the increased circulation of the publication to regular subscribers, will augment the postal revenues. (See section 195.)

Sec. 204. *Extra numbers not sample copies.*—Publishers will not be permitted, however, to use the exceptional advantages given to them by the law so as to defraud the postal department by mailing as sample copies extra numbers of their publications ordered by advertisers, or by campaign committees, or by other persons, to be sent to specified addresses, and apparently intended, from the nature of the contents or of marked portions thereof, to serve the business, political, or personal interests of the person or persons ordering the same. Such copies are third-class matter, and must be prepaid by stamps at the rate of one cent for each two ounces or fractional part thereof.

Sec. 205. *Sample copies to be mailed separately.*—Sample copies of second-class publications should be put up in single wrappers, and each package addressed to a person or firm should be plainly marked, in printing or writing, "sample copy."

Sec. 206. *Supplements admitted as second-class matter.*—Publishers of matter of the second class may, without subjecting it to extra postage, fold within their regular issues a supplement; but in all cases the added matter must be germane to the publication which it supplements; that is to say, matter supplied in order to complete that to which it is added or supplemented, but omitted from the regular issue for want of space, time, or greater convenience, which supplement must in every case be issued with the publication. (Act of March 3, 1879, § 16, 20 Stat., p. 359.)

Sec. 207. *Definition of supplements.*—A supplement is held to be matter proper to be inserted in the publication to which it is added, but not inserted for want of space, or want of time, or because it is more convenient regarding space or time, or either, that it should be printed on a separate sheet. It is not indispensable or necessary that the sheet should be printed at the office of the publication to which it is intended to be a supplement; but if printed there or elsewhere, to be considered or treated as a supplement, it must be printed with the intention and purpose only of supplying an integral portion of the publication to which it professes to be a supplement, and not for another distinct and separate use. It should have direct relation to the publication supplemented, so that without it the publication supplemented would be incomplete.

Sec. 208. *Hand-bills and posters not supplements.*—The two preceding sections cannot be construed to admit "hand-bills" or "posters" as supplements. Hand-bills and posters are subject to the rate of postage of one cent for each two ounces or fraction thereof; and when such matter is inclosed in a newspaper and sent to regular subscribers it subjects the package to postage at the higher rate of one cent for each two ounces. Should the package reach the post-office of delivery without any evidence of prepayment, double the prepaid rate must be charged.

Sec. 209. *Examination of second-class matter.*—Matter of the second class may be examined at the [post] office of mailing, and if found to contain matter which is subject to a higher rate of postage, such matter shall be charged with postage at the rate to which the inclosed matter is subject: *Provided*, That nothing herein contained shall be so construed as to prohibit the insertion in periodicals of advertisements attached permanently to the same. (Act of March 3, 1879, § 12, 20 Stat., p. 359.)

SEC. 210. *Prohibited advertisements in second-class matter.*—Advertisements in the form of separate sheets in the body of periodical publications, which are inserted for convenience, and for the purpose of being removed and put to separate use, are not "attached permanently" to such periodical within the meaning of the preceding section, and when so inserted will subject the periodicals in which they are found to the rate of one cent for each two ounces, or fraction thereof; but this must not be held to apply to bills, receipts, and orders for subscription to such periodicals, which are permitted by the proviso to section 233.

SEC. 211. *Detention of suspected second-class matter.*—When the postmaster at the post-office of mailing shall have reason to believe that any publisher or news agent has violated the provisions of section 209 by depositing third-class matter in any post-office, for transmission through the mails as matter of the second class, he may, at his discretion, retain the suspected matter, notifying the publisher or news agent at once of his action, and report the facts to the Postmaster-General. If such third-class matter shall by inadvertence reach its destination, the postmaster at the post-office of destination must collect the postage due thereon as prescribed by law.

SEC. 212. *Foreign publications admitted as second-class matter.*—Foreign newspapers and other periodicals of the same general character as those admitted to the second class in the United States may, under the direction of the Postmaster-General, on application of the publishers thereof or their agents, be transmitted through the mails at the same rates as if published in the United States. Nothing in this act shall be so construed as to allow the transmission through the mails of any publication which violates any copyright granted by the United States. (Act of March 3, 1879, §15, 20 Stat., p. 359.)

SEC. 213. *Examination of foreign publications.*—Agents of foreign publications, who may desire to secure the benefits of the second-class rates of postage for the transmission of such publications in the domestic mails, should make application to the postmaster at the post-office where they desire the same to be mailed, and if the postmaster is of opinion, after an examination of the publications submitted, that they are in their essential features similar to domestic publications transmitted in the mails at the second-class rates, he will, upon their complying with the provisions of section 200 and filing an affidavit that the publications submitted come within the first and second conditions of section 185, and that they have a legitimate list of subscribers in the country where they are published, admit them to the mails on the same terms as domestic publications.

SEC. 236. *Manner of presenting second-class matter for mailing.*—In mailing publications of the second class they should in all cases be properly dried, folded, and addressed. It is certainly no part of the duty of a postmaster or his assistants to fold newspapers so that they can be placed in the boxes, &c., for delivery; and in case a publisher persists in sending them without being properly folded, after being notified to put them up so that they can be promptly assorted and delivered, the postmaster would be justified in not distributing them with the regular mail.

SEC. 239. *Free county publications.*—Publications of the second class, one copy to each actual subscriber residing in the county where the same are printed, in whole or in part, and published, shall go free through the mails; but the same shall not be delivered at letter-carrier offices, or distributed by carriers, unless postage is paid thereon at the rate prescribed in section [190]: *Provided,* That the rate of postage on newspapers (excepting weeklies) and periodicals not exceeding two ounces in weight when the same are deposited in a letter-carrier office for delivery by its carriers shall be uniform at one cent each; periodicals weighing more than two ounces shall be subject, when delivered by such carriers, to a postage of two cents each, and these rates shall be prepaid by stamps affixed. (Act of March 3, 1879, §25, 20 Stat., p. 361.)

SEC. 240. *Postage on second-class matter at free-delivery post-offices.*—Mailable matter of the second class deposited in a letter-carrier post-office for local delivery shall be delivered through boxes or the general delivery on prepayment of postage at the rate of two cents per pound, but when delivered by carriers the following rates must be prepaid by postage stamps affixed: On newspapers (except weeklies), one cent each without regard to weight; on periodicals not exceeding two ounces in weight, one cent each; on periodicals exceeding two ounces in weight, two cents each. The rate on weekly newspapers of the second class deposited by the publisher in a letter-carrier post-office for local delivery is two cents per pound, whether the same are delivered by carriers or through boxes or the general delivery.

SEC. 241. *Second-class matter at free-delivery offices, how separated.*—Second-class matter for city delivery, where the carrier system is established, should be separately made up at the office of publication—that for delivery by the carriers of a post-office being put in one package or bundle, each article of mail matter therein properly stamped, and that for delivery through the boxes of the post-office by itself. If the separation is not made at the office of publication, each paper or periodical not properly stamped must be placed in the boxes or at the general delivery for delivery therefrom.

SEC. 242. *Free county publications must be mailed by themselves.*—When a publisher of a newspaper sends in the mails a package of his papers, a portion intended for subscribers residing within the county in which the paper is printed (in whole or in part) and published, and the remainder intended for subscribers residing in another county, he must pay postage on the entire package at the pound rates. The publisher should make two packages, one for the subscribers residing in the county and one for those out of the county, the former to go free under section 239.

SEC. 243. *Publications with offices in two counties free in neither.*—No publication of the second class claiming more than one office of publication in different counties is entitled to pass in the mails free in either county unless the publisher elect which office he will regard as his office of publication. In that event the publication shall go free in that county only. The postmaster at the post-office thus selected should notify the postmaster at the other post-office of such selection. The provisions of this section are not applicable, however, to publications claiming or having more than one office of publication which do not claim free county circulation.

SEC. 244. *Sample copies of free county publications subject to postage.*—Nothing in the act of March 3, 1879, can be so construed as to permit "sample copies" of any publication to be mailed free in the county where the same is printed or published; they must be prepaid at the rate of two cents for each pound.

## NEWSPAPER FILES.

The census file of newspapers and periodicals.

At the suggestion of the Superintendent, a request was sent with the press schedules to the publishers of the newspapers of every class for a specimen copy of the journal, for which a franked wrapper was inclosed, with a view to making a complete collection of the issues of the periodical press of the census year for permanent preservation in the Congressional Library. A very general response was made to this request, and all publications not found in the file at the conclusion of the inquiry were again sent for, and were, with hardly an exception, received. The publishers were asked to send the issue of their publication nearest in date to July 4, 1880, and, with some exceptions among journals received in response to the last request, the file represents the press of the United States as it stood on the national anniversary in the census year. The specimen journals, as they were received, were checked and filed, with respect to newspapers, alphabetically by towns and cities of publication in the several states, and as the file for each state was completed the papers were deposited in portfolios, and the collection passed into the custody of the Librarian of Congress.

The periodical press, including the magazines, trade and professional journals, etc., was arranged in groups, the law journals, the medical journals, the scientific journals, the literary journals, etc., each forming a group by themselves, and each arranged by states.

A similar effort was made at the census of 1850 to form a file of the newspaper press of the United States as it then existed. (*a*) The Superintendent of that Census, in his report, spoke of this effort as follows:

> An effort was made to secure at least one copy of every journal published in the United States in 1850, and the assistant marshals were intrusted with the matter. It has been attended to but partially, and the papers obtained fall very far short of the actual number returned by name. This is to be regretted, as such a file, complete in every respect, properly bound and placed away in the Library of Congress, would be a great national curiosity, and be of great interest to the future antiquarian.

No such criticism can be made respecting the file of the American press which the Tenth Census contributes to the literary archives of the nation. It is felt that all the value assigned by Superintendent De Bow, and much more, attaches to this file. It conveys a much more vivid picture of the actual character, typographical, literary, mechanical, intellectual, and moral, of the press of to-day than can be conveyed by a report, and supplies a more complete understanding of the immense development of the press than can be pictured by cold statistics. It admits of ready comparison between the press of all the states and the journals of all classes and descriptions. In comparison with a similar file, made ten or twenty years hence, it will offer a more exact standard for measuring the degree and the nature of the progress of the intervening years than any figures can afford.

**The importance of preserving newspaper files.**

In this connection, it is proper to add that there has been, and still continues to be, in every American state a failure to appreciate the importance of preserving files of the newspapers of each locality. The newspaper in itself is of necessity a matter of transient interest. It appears, it serves its purpose, it is superseded by another of later date, and ceases to be regarded as of importance or value; but there is no issue of the humblest paper in all the land in which there does not appear something which will some time prove of real historic value. The newspaper, of necessity, bears an intimate relation to the official history of the corporation in which it is published. Whether or not it be designated as the repository of the official proceedings of the corporate authorities, it nevertheless contains them, and thus becomes a method of record which, in point of regularity and fullness, is unsurpassed. The historians of the colonial era find no better clew to the feeling, the events, and the character of those times, or of the personages who figured in them, than is contained in the files of the newspapers then published, and it is their constant source of grievance and annoyance that they are not only few in number and difficult of access, but are far from complete. Even in later days files of newspapers which in their time were repositories of the current history of important localities, and which exercised a marked influence upon public opinion, are few in number and imperfectly preserved. Hundreds of newspapers have been born, have lived a brief space, and chronicled their share of history, yet no trace of them remains anywhere. Such files as we now possess of the journals of the past are due almost entirely to private appreciation of their value as the sources out of which history is to be wrought. They are in the possession of historical societies and private individuals, and are prized among the choicest of their collections. All told, they do not represent one tithe of the actual publications which have emanated from the American press. I can learn of no town, city, or county which makes it one of the duties of its officers to preserve files of the newspaper press of the locality, and there is no state which keeps a regular file of the newspapers printed within its limits and regularly supplying the most complete record of its history attainable. (*b*) Not even the newspapers themselves are as careful in the matter of files as pride and self-

**The official preservation of newspaper files.**

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*a* The first known attempt to make a file of American newspapers was that of the late Joel Munsell, of Albany, New York—a gentleman who did as much as any man who ever lived in this country to advance and promote the art of typography and to preserve its annals—in 1828. The papers in Mr. Munsell's files were generally single specimens, the first issues, where they could be obtained, or copies that contained something of more than ordinary interest. Taken as a whole, the collection satisfactorily illustrated the character and condition of the American press at the time. It was bound in 100 volumes, which are now deposited in the New York state library.

*b* The Maine legislature, at its session in 1849, directed the clerks of the county courts to purchase, bind, and preserve, for the use and at the expense of the county, a copy of the newspapers published therein, not to exceed three in number, commencing with the year 1849, and giving preference to those papers abounding in historical and other information valuable to the public.—Munsell's *Typographical Miscellany*.

While no one library, however large and comprehensive, has either the space or the means to accumulate a tithe of the periodicals that swarm from a productive press, there are valid reasons why more attention should be paid by librarians to the careful preservation of a wise selection of all this current literature. The modern newspaper and other periodical publications afford the truest, the fullest, and on the whole the most impartial image of the age we live in that can be derived from any single source. Taken together, they afford the richest material for the historian or the student of politics, of society, of literature, and of civilization in its various aspects. What precious memorials of the day even the advertisements and brief paragraphs of the newspapers of a century ago afford us! While in a field so vast it is impossible for any one library to be more than a gleaner, no such institution can afford to neglect the collection and preservation of at least some of the more important newspapers from year to year. A public library is not for one generation only, but it is for all time. Opportunities once neglected of securing the current periodicals of any age in continuous and complete form seldom or never occur. The principle of selection will, of course, vary in different libraries and localities. While the safest general rule is to secure the best and most representative of all the journals, reviews, and magazines within the limits of the fund which can be devoted to that purpose, there is another principle which should largely guide the selection. In each locality it should be one leading object of the interest would seem to require. There are many of the long established newspapers which have no complete files of their publication. The accident of fire frequently destroys the file accumulations of years, and as a rule they cannot be duplicated, and the frequent changes in the proprietorship of newspapers is apt to lead to a break in the files. All these contingencies serve to emphasize the importance of the suggestion that the local and the state authorities of the United States should take the steps necessary for permanently and completely preserving the newspaper records of their several sections.

## CONCLUSION.

I have now concluded this report on the past history and development and the present condition and statistics of the newspaper and periodical press of the United States.

Conclusion.

The review of a progress so remarkable, and in some respects so unique as this has proved to be, might be accompanied by some attempt to estimate the influence of the newspaper press upon the commerce, the society, the politics, the morals, the education, and the happiness of the people. I have preferred, however, to leave deductions of that character to others, who may find herein the materials upon which to found them. The American press has been the recipient of much eulogy, and much condemnation as well, at the hands of many whose words are entitled to respectful consideration. To both those who eulogize and those who condemn it must present itself, in the light of the statistics which form the basis of this report, as a factor in our civilization which is unsurpassed by any other in the energy, the enterprise, and the success of those who are engaged in its conduct. The earnings of the newspaper press represent a large portion of the wealth which the census of 1880 reveals in the United States. The men and women employed in it, both mechanically and professionally, are no mean proportion of our citizenship, and their rate of earnings is not inferior to that of any class of laborers, either mechanical or professional. The rate of increase, both in the number and the circulation of the newspapers, is perhaps the most remarkable of any revealed in the Tenth Census. The relations of the press to the public, in the character of a servitor and assistant, are sufficiently indicated, not

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principal library to gather within its walls the fullest representation possible of the literature relating to its own state and neighborhood. In every city and large town the local journals and other periodicals should form an indispensable part of a public library collection. Where the means are wanting to purchase these, the proprietors will frequently furnish them free of expense for public use; but no occasion should be lost of securing, immediately on its issue from the press, every publication, large or small, which relates to the local history or interests of the place where the library is maintained. This collection should embrace not only newspapers, magazines, etc., but a complete collection of all casual pamphlets, reports of municipal governments, with their subdivisions, reports of charitable or benevolent societies, schools, etc., and even the prospectuses, bulletins, catalogues, etc., of real-estate agents and tradesmen. Every library should have its scrap-books (or series of them) for preserving the political broadsides and fugitive pieces of the day which in any way reflect or illustrate the spirit of the times or the condition of the people. These unconsidered trifles, commonly swept out and thrown away as worthless, if carefully preserved and handed down to the future, will be found to form precious memorials of a bygone age.

While the files of the journals of any period furnish unquestionably the best instruments for the history of that epoch, it is lamentable to reflect that so little care has ever been taken to preserve a fair representation of those of any age. The destiny of nearly all newspapers is swift destruction; and even those which are preserved commonly survive in a provokingly fragmentary state. The obvious causes of the rapid disappearance of periodical literature are its great volume, necessarily increasing with every year the difficulty of lodging the files of any long period in our narrow apartments, and the continual demand for paper for the uses of trade. To these must be added the great cost of binding files of journals, increasing in the direct ratio of the size of the volumes. As so formidable an expense can be incurred by very few private subscribers to periodicals, it is so much the more important that the public libraries should not neglect a duty which they owe to their generation as well as to those that are to follow. These poor journals of to-day, which everybody is ready to stigmatize as trash not worth the room to store or the money to bind, are the very materials which the man of the future will search for with eagerness, and for some of which he will be ready to pay their weight in gold. These representatives of the commercial, industrial, inventive, social, literary, political, moral, and religious life of the times should be preserved and handed down to posterity with sedulous care. No historian or other writer on any subject who would write conscientiously or with full information can afford to neglect this fruitful mine of the journals, where his richest materials are frequently to be found.

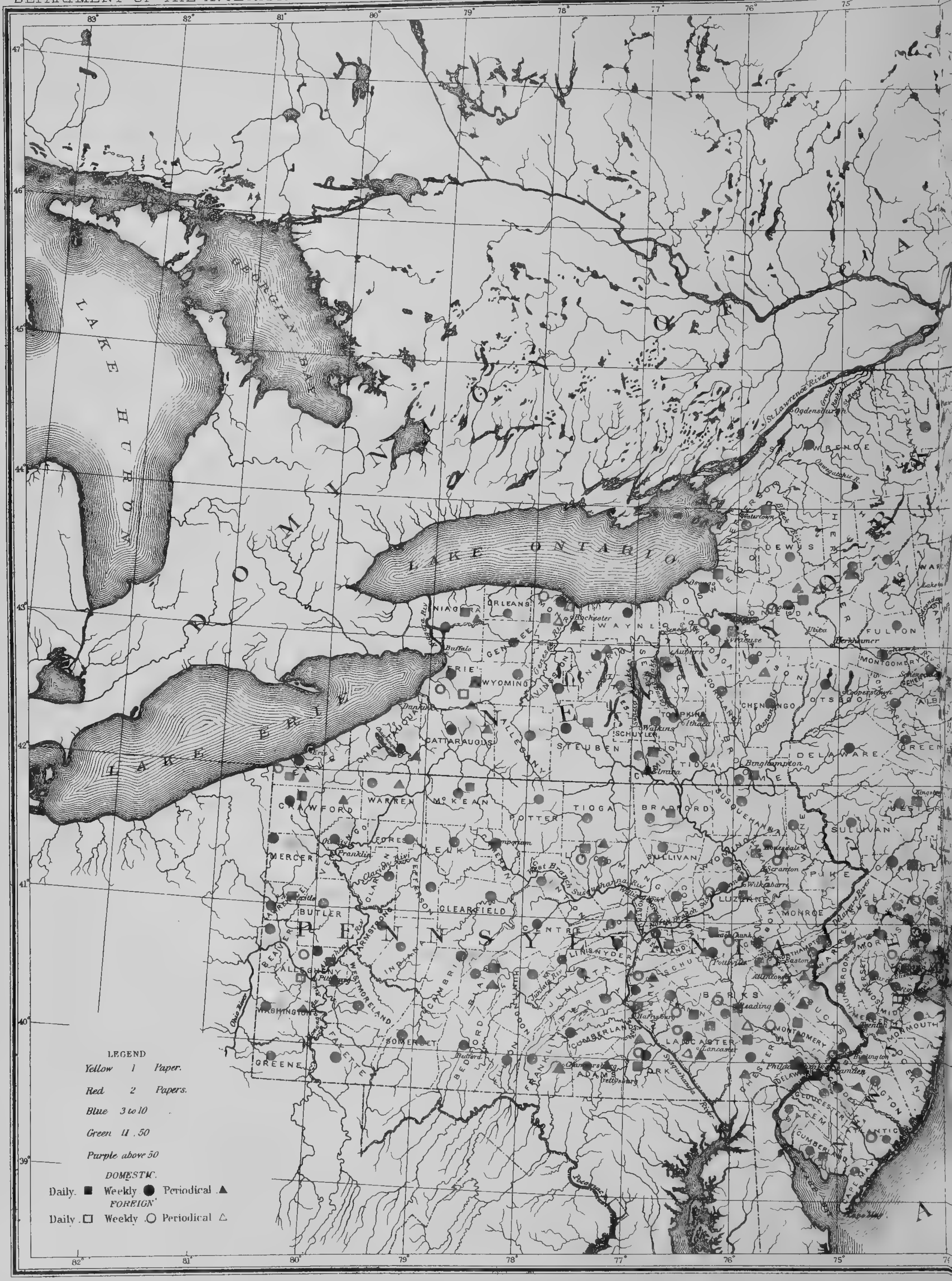
The life-long devotion of a late American collector, Peter Force, of Washington, to the same historical spirit resulted in amassing a large and rich library of manuscripts, newspapers, books, pamphlets, maps, broadsides, etc., mainly illustrative of American history. This invaluable collection, which no amount of money could have reassembled, was fortunately not permitted to be scattered, but was secured during the lifetime of the possessor for the Library of the United States.

In the absence of a great library of journals, or of that universal library which every nation should possess, it becomes the more important to assemble in the various local libraries all those ephemeral publications which, if not thus preserved contemporaneously with their issue, will disappear utterly and elude the search of future historical inquirers. And that library which shall the most sedulously gather and preserve such fugitive memorials of the life of the people among which it is situated will be found to have best subserved its purpose to the succeeding generations of men.

Not less important than the preservation of newspapers is that of reviews and magazines. In fact, the latter are almost universally reckoned as far more important than the more fugitive literature of the daily and weekly press. Though inferior to the journals as historical and statistical materials, reviews and magazines supply the largest fund of discussion upon such topics of scientific, social, literary, and religious interest as occupy the public mind during the time in which they appear. More and more the best thought of the times gets reflected in the pages of this portion of the periodical press. No investigator in any department can afford to overlook the rich stores contributed to thought in reviews and magazines. These articles are commonly more condensed and full of matter than the average books of the period. While every library, therefore, should possess for the current use and ultimate reference of its readers a selection of the best, as large as its means will permit, a great and comprehensive library, in order to be representative of the national literature, should possess them all.—Hon. A. R. Spofford, Librarian of Congress.

only by the official connection which newspapers bear to state, municipal, and other public corporations, but by the quickness and the accuracy with which they supply private individuals with the information upon which their own private concerns are dependent; and their value as conservators of historical material is put beyond dispute by the records of history itself. Their potency as an educating and informing medium is conceded by the preachers, teachers, politicians, and philanthropists who seek their agency as affording a wider method of intercommuniation than any other agency of civilization. As all these multiform public functions come to be more widely understood by both public and publishers to reside in the press, its tone and character and influence cannot fail to improve and increase in a degree that shall correspond more nearly than now with its numerical and material increase of the American press. Its development has been traced through three distinct eras of progress in the history of this country, each succeeding era indicating extraordinary advancement over the one just previous. Nevertheless, the newspaper press of the United States must still be described as in the formative state. It has but reached the point where its possibilities are within the grasp of realization. In the future its progress promises to be rapid and upon a constantly broadening basis. No field of American industry and energy, combined with American intelligence and the national spirit, opens to those who embrace it more glorious opportunities.

DEPARTMENT OF THE INTERIOR



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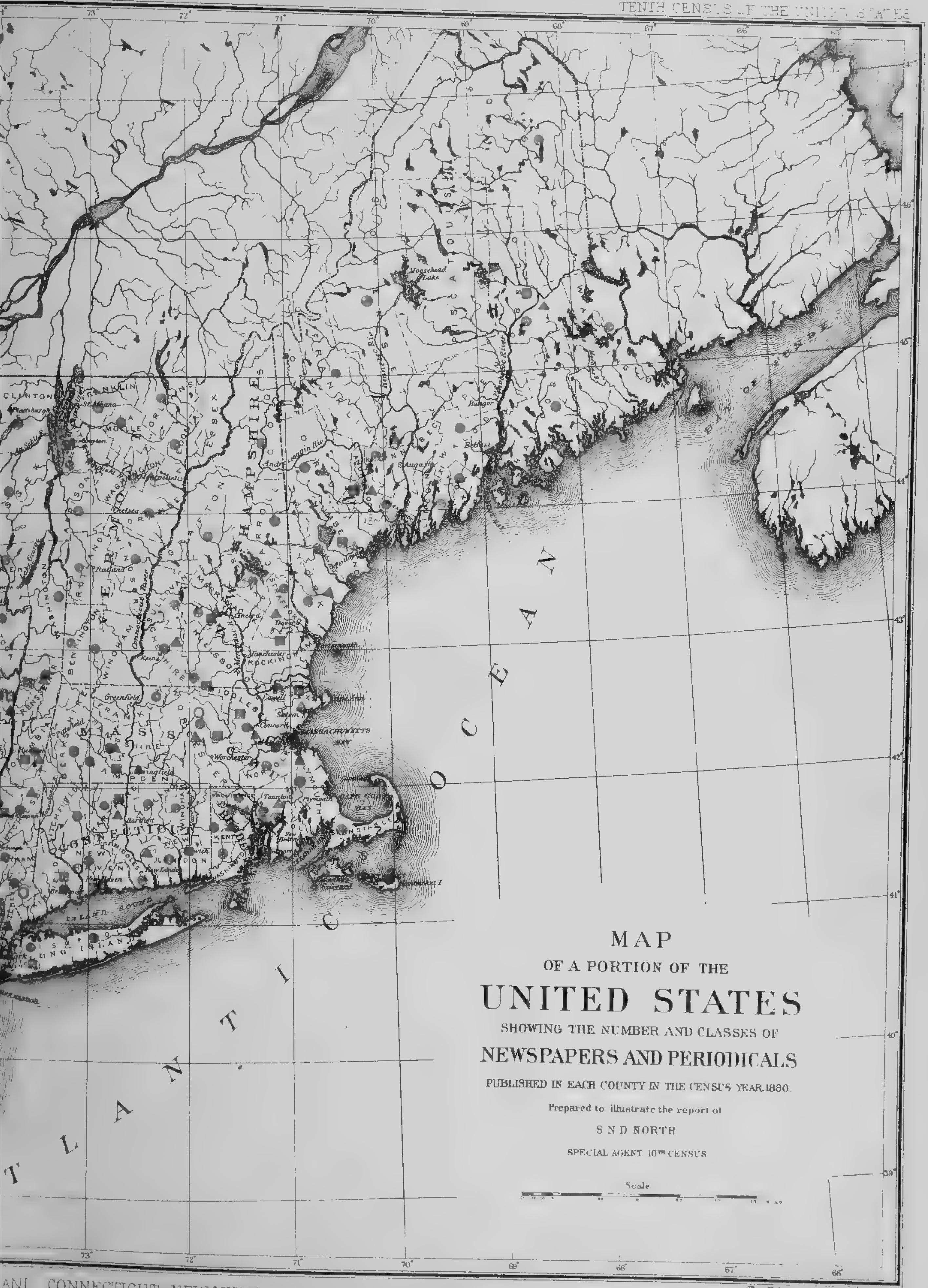


# MAP
## OF A PORTION OF THE
# UNITED STATES
## SHOWING THE NUMBER AND CLASSES OF
# NEWSPAPERS AND PERIODICALS
## PUBLISHED IN EACH COUNTY IN THE CENSUS YEAR 1880.

Prepared to illustrate the report of

S N D NORTH

SPECIAL AGENT 10TH CENSUS

Scale

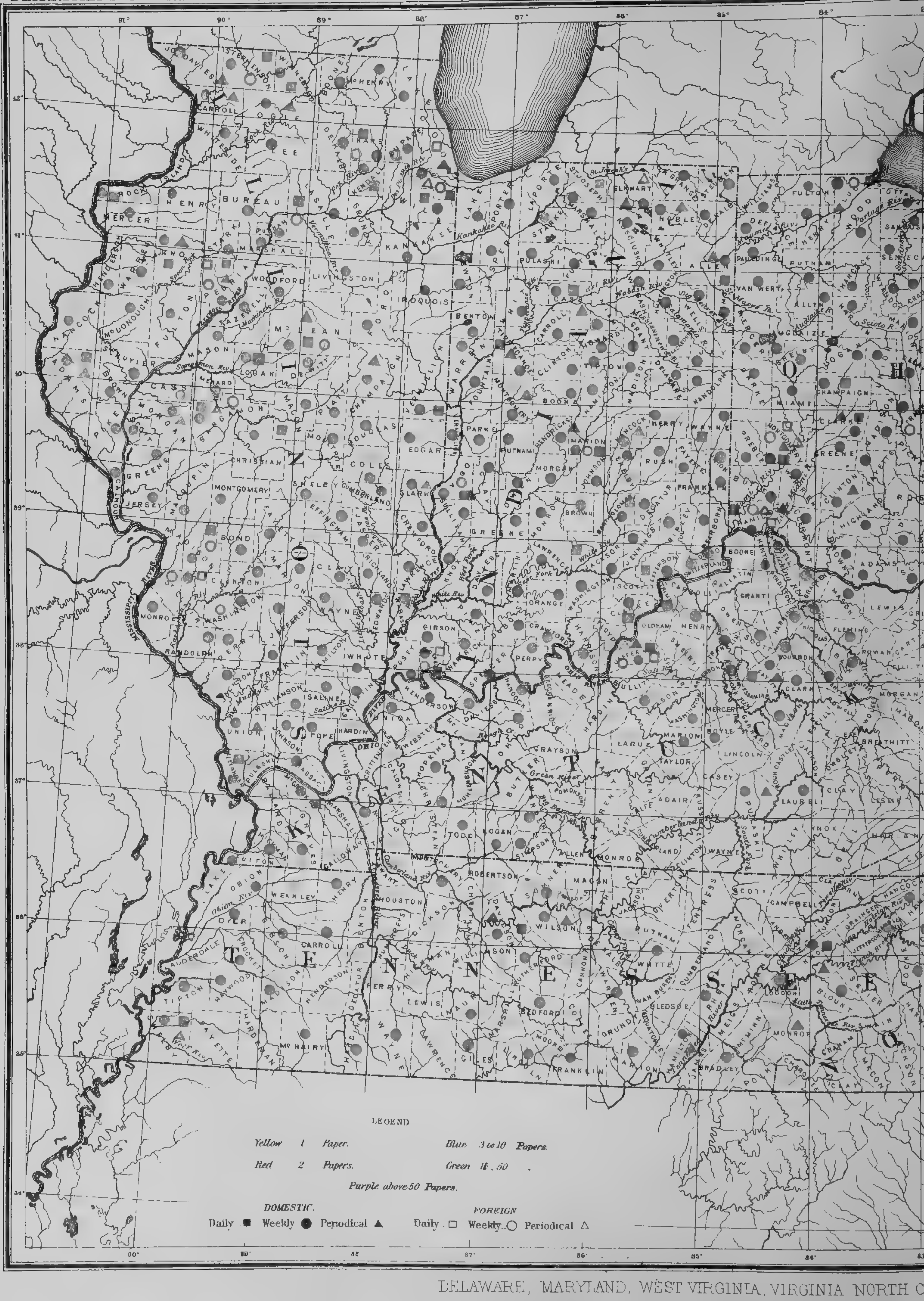
ANI CONNECTICUT NEW YORK, NEW JERSEY, PENNSYLVANIA

The Heliotype Printing Co Boston

# 2

DEPARTMENT OF THE INTERIOR

Sheet



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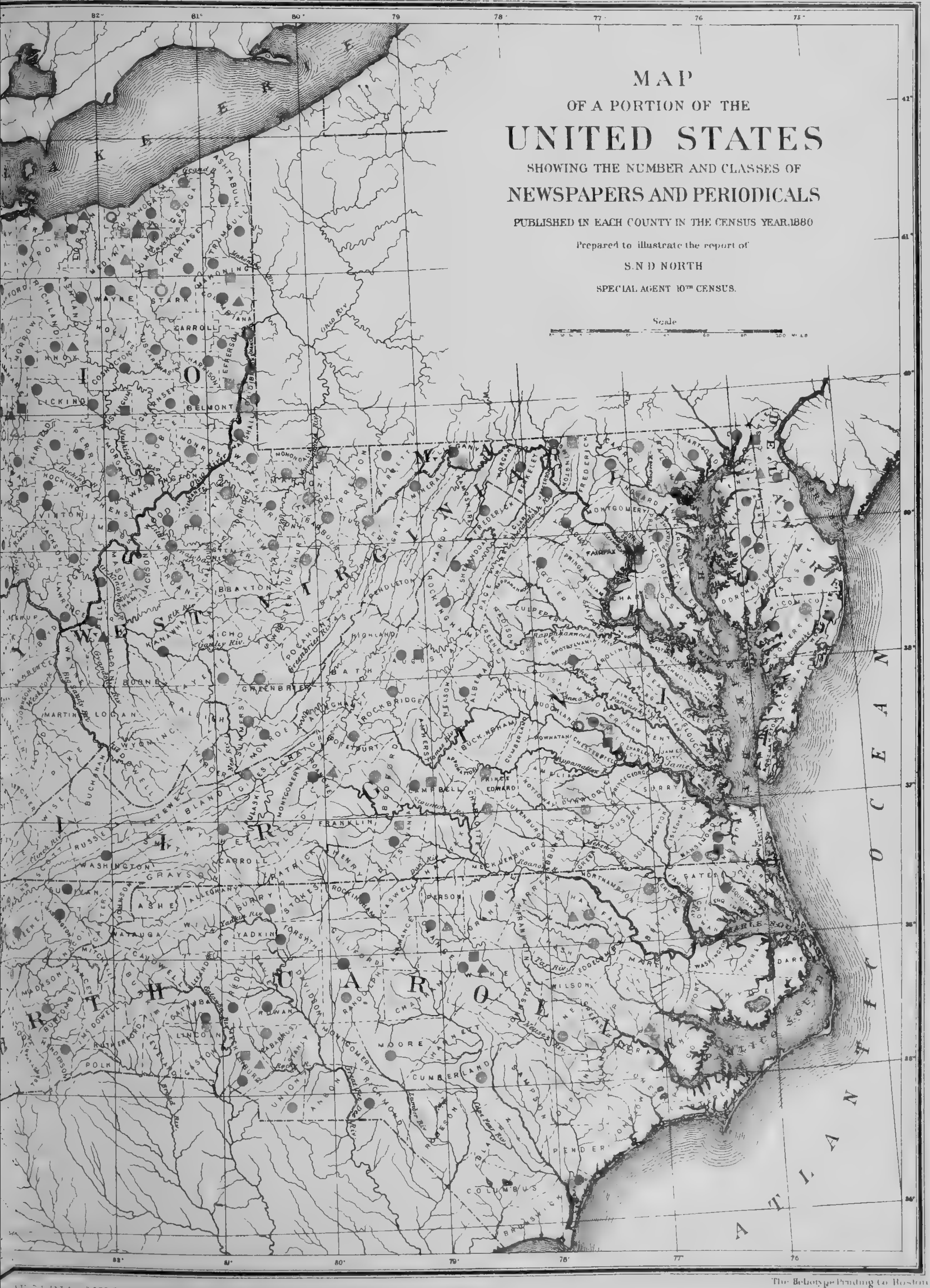

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SPECIAL AGENT 10TH CENSUS.

The Heliotype Printing Co. Boston

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DEPARTMENT OF THE INTERIOR

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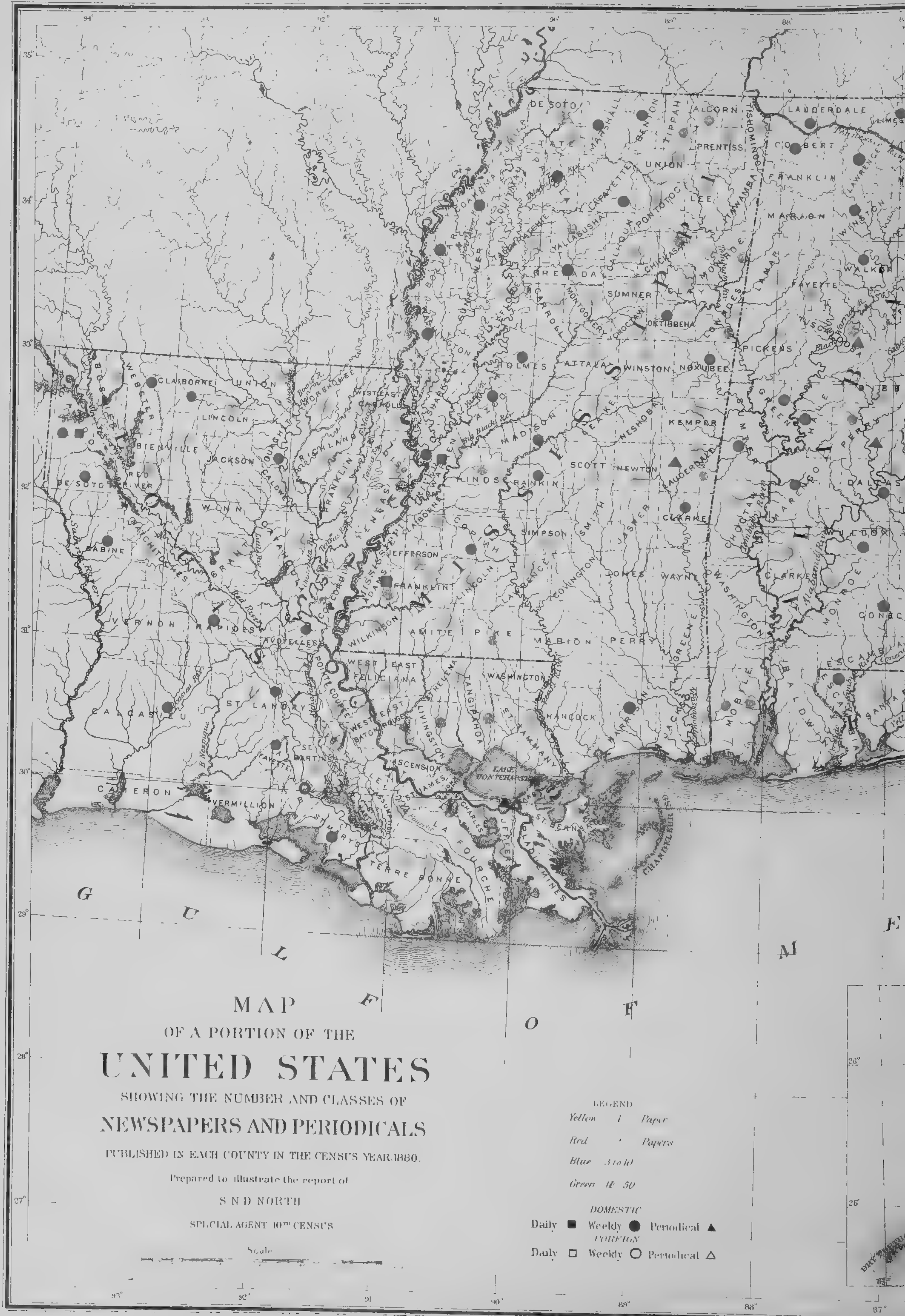


MAP

OF A PORTION OF THE

UNITED STATES

SHOWING THE NUMBER AND CLASSES OF

NEWSPAPERS AND PERIODICALS

PUBLISHED IN EACH COUNTY IN THE CENSUS YEAR 1880.

Prepared to illustrate the report of

S N D NORTH

SPECIAL AGENT 10TH CENSUS

LEGEND

*Yellow 1 Paper*

*Red 2 Papers*

*Blue 3 to 10*

*Green 10 50*

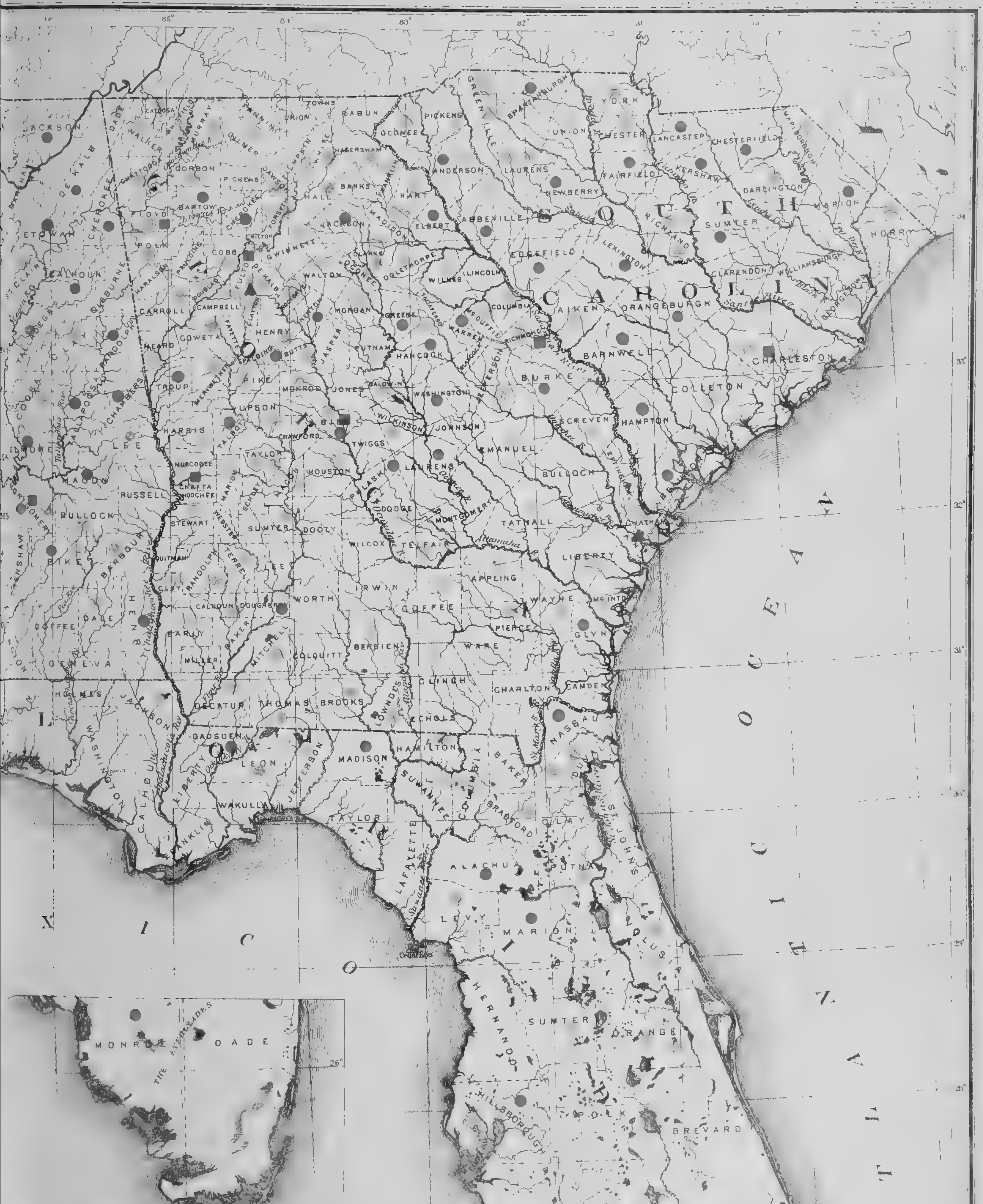
*DOMESTIC*

Daily ■ Weekly ● Periodical ▲

*FOREIGN*

Daily □ Weekly ○ Periodical △

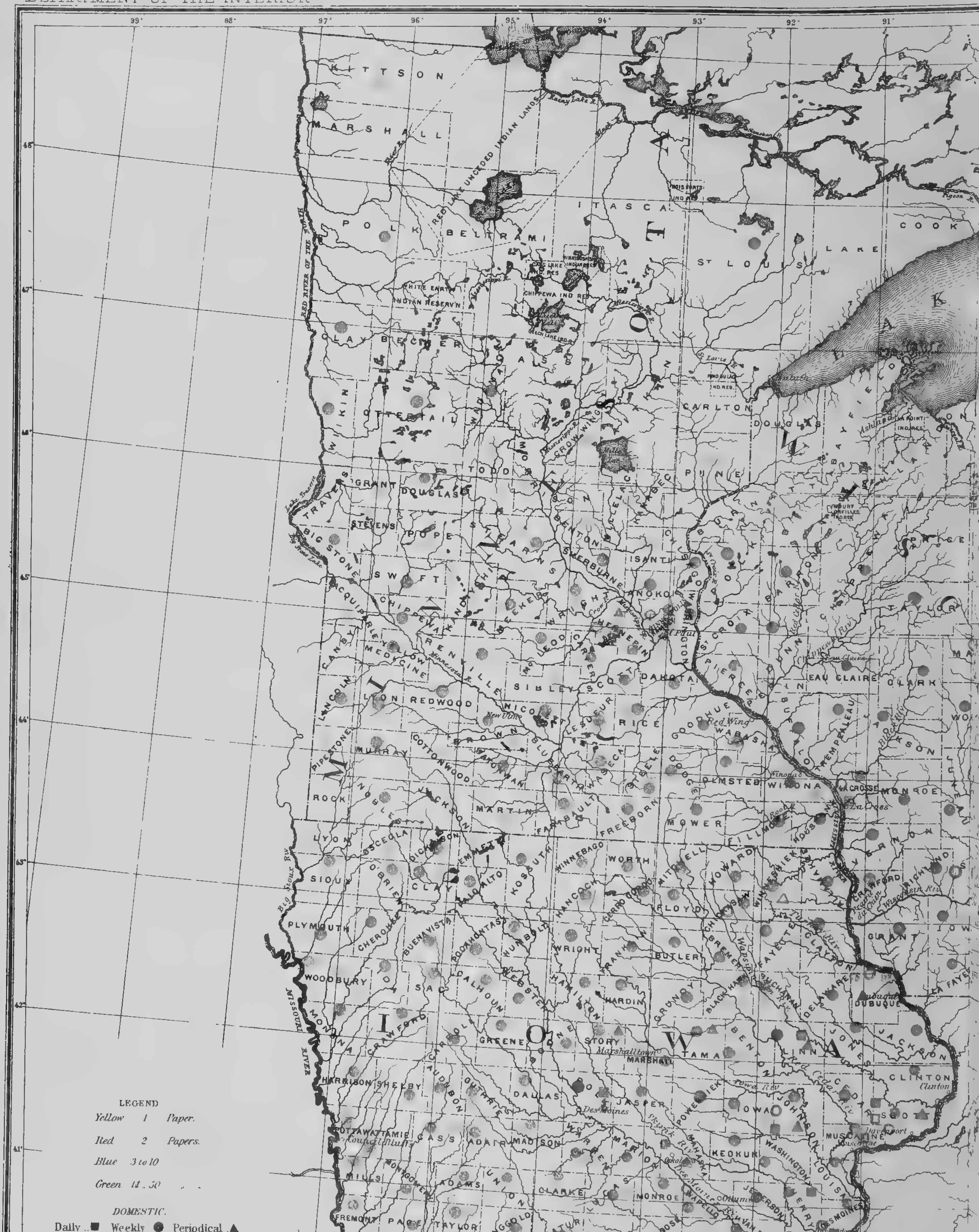
3.



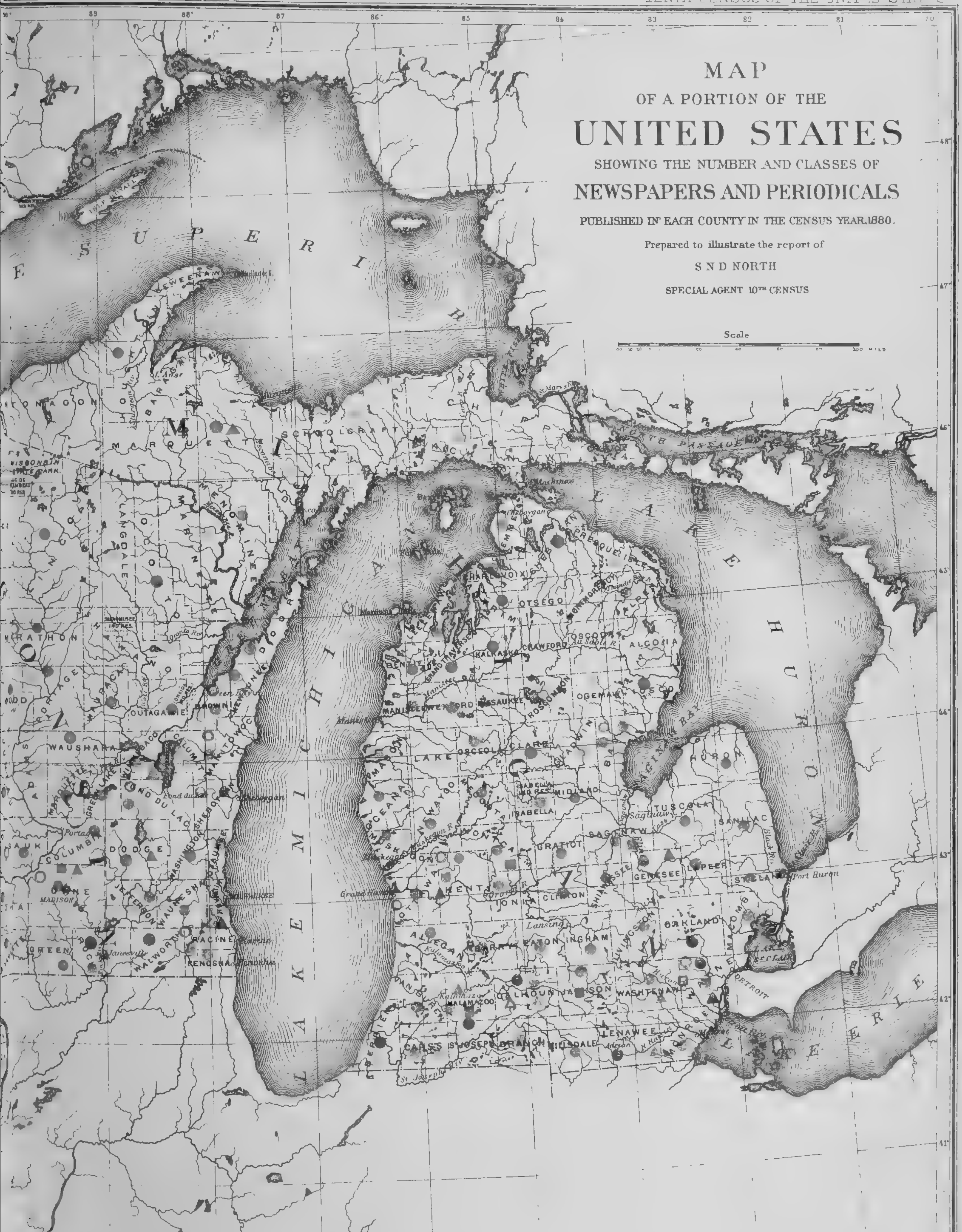
The Heliotype Printing Co. Boston.

# 4

DEPARTMENT OF THE INTERIOR



MICHIGAN, WISCONSIN



# MAP

OF A PORTION OF THE

# UNITED STATES

SHOWING THE NUMBER AND CLASSES OF

## NEWSPAPERS AND PERIODICALS

PUBLISHED IN EACH COUNTY IN THE CENSUS YEAR 1880.

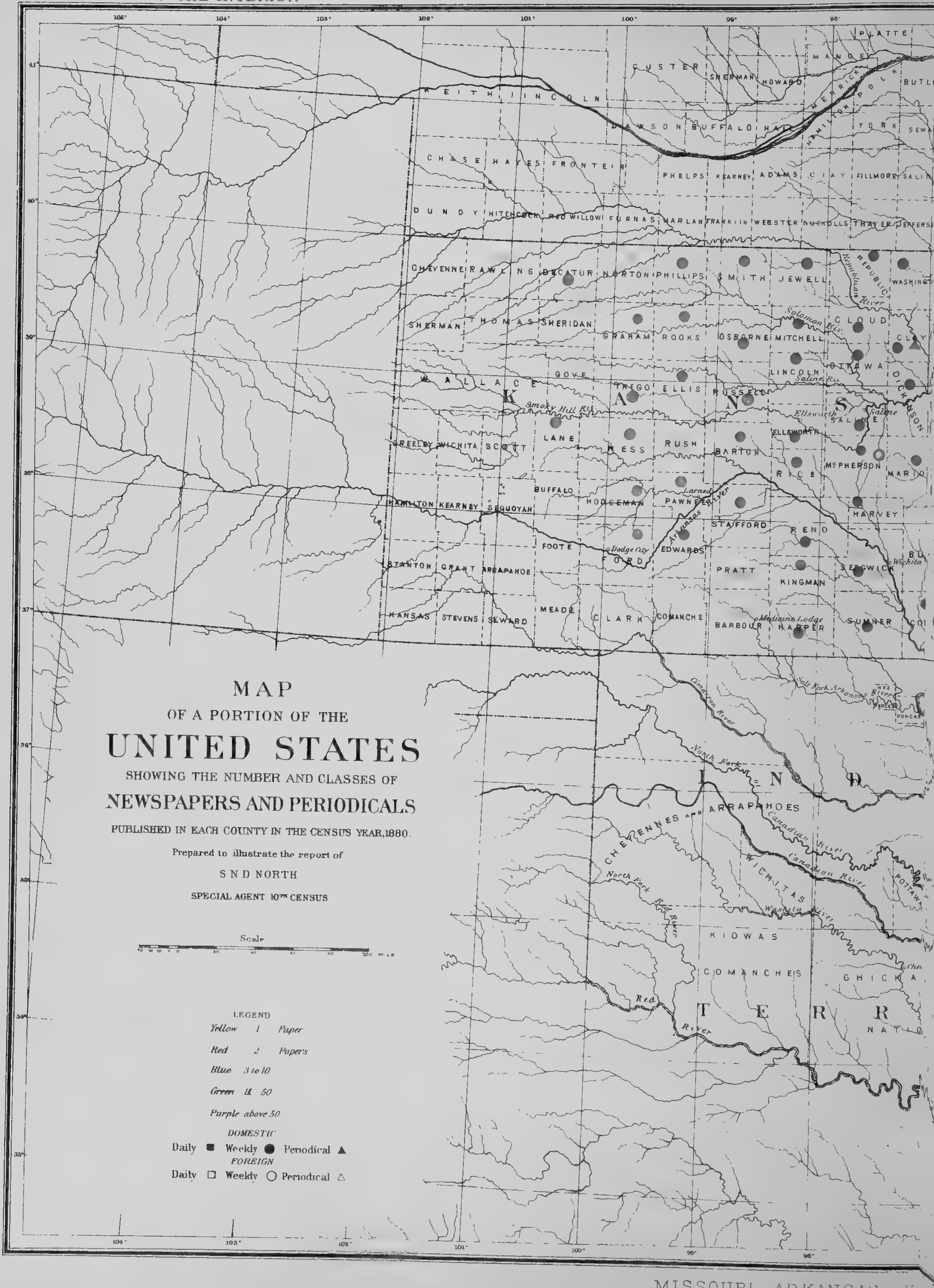
Prepared to illustrate the report of

S N D NORTH

SPECIAL AGENT 10th CENSUS

MINNESOTA IOWA

The Heliotype Printing Co Boston



# MAP
### OF A PORTION OF THE
# UNITED STATES
### SHOWING THE NUMBER AND CLASSES OF
# NEWSPAPERS AND PERIODICALS
### PUBLISHED IN EACH COUNTY IN THE CENSUS YEAR, 1880.

Prepared to illustrate the report of

S N D NORTH

SPECIAL AGENT 10TH CENSUS

Scale

20 10 0 20 40 60 80 100 Miles

LEGEND

| | | |
|---|---|---|
| *Yellow* | *1* | *Paper* |
| *Red* | *2* | *Papers* |
| *Blue* | *3 to 10* | |
| *Green* | *11 50* | |
| *Purple above 50* | | |

*DOMESTIC*

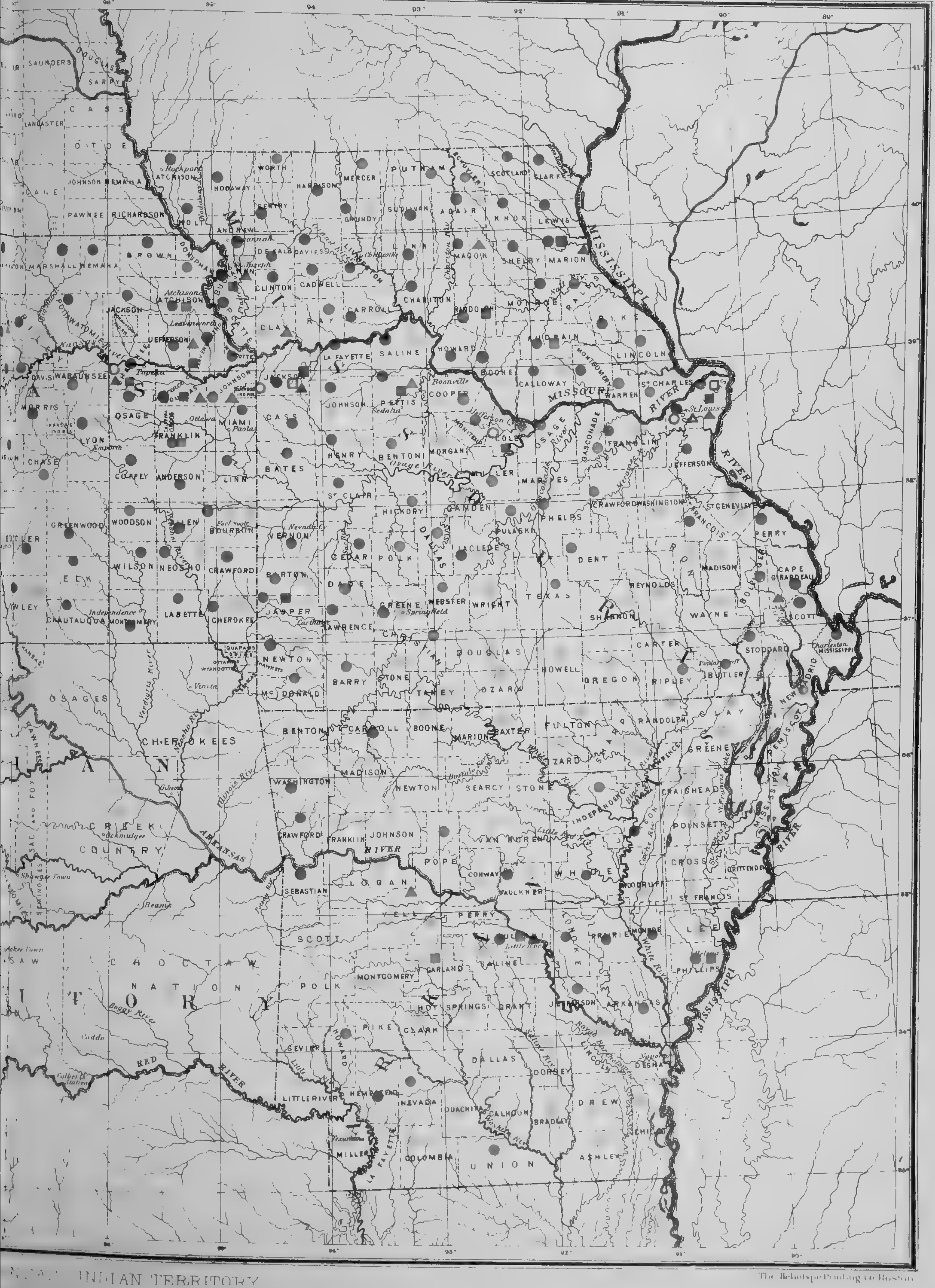
Daily ■ Weekly ● Periodical ▲

*FOREIGN*

Daily ☐ Weekly ○ Periodical △

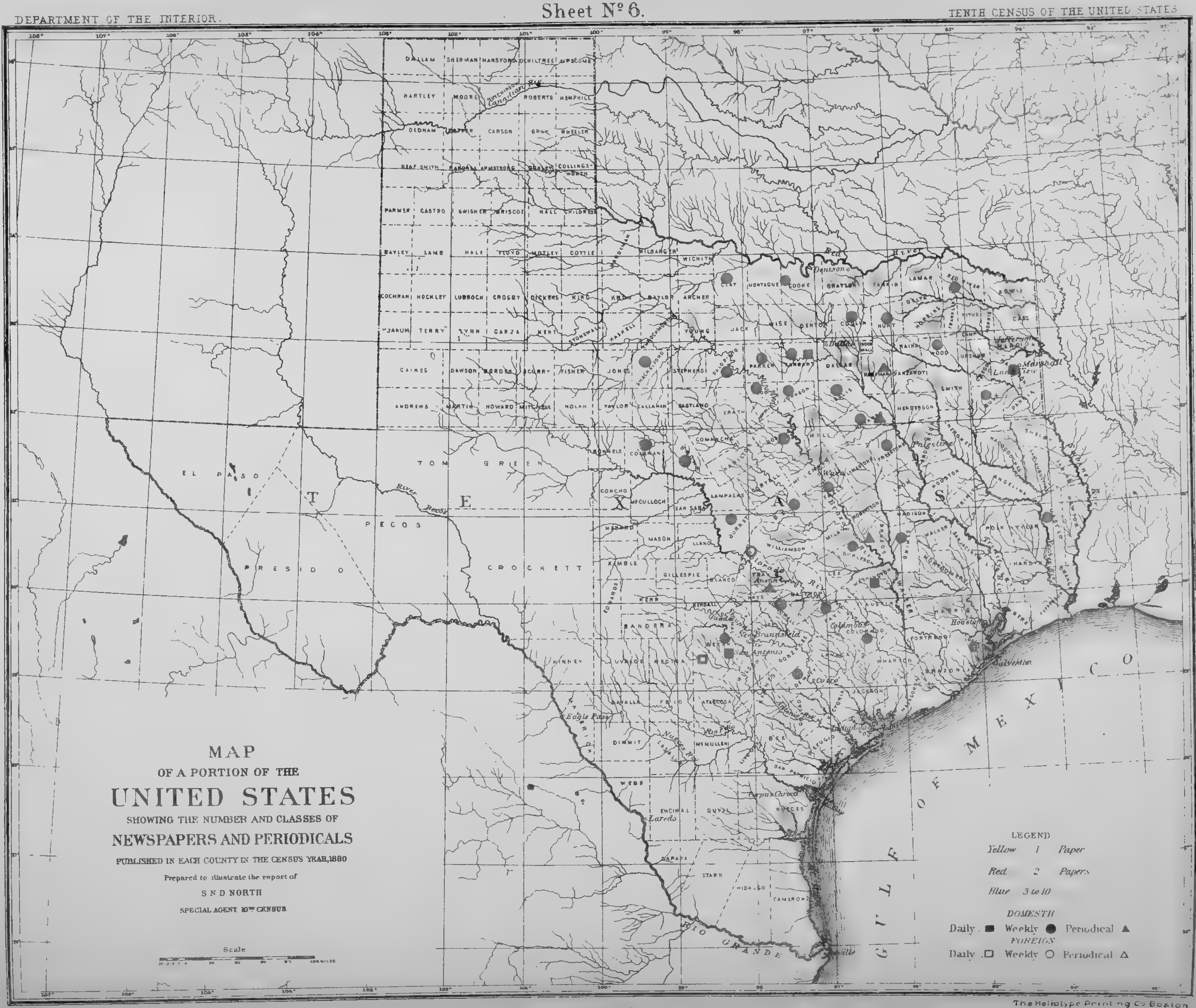
Nº 5.

TENTH CENSUS OF THE UNITED STATES



INDIAN TERRITORY

The Heliotype Printing Co. Boston



# MAP
## OF A PORTION OF THE
# UNITED STATES
## SHOWING THE NUMBER AND CLASSES OF
# NEWSPAPERS AND PERIODICALS
## PUBLISHED IN EACH COUNTY IN THE CENSUS YEAR, 1880

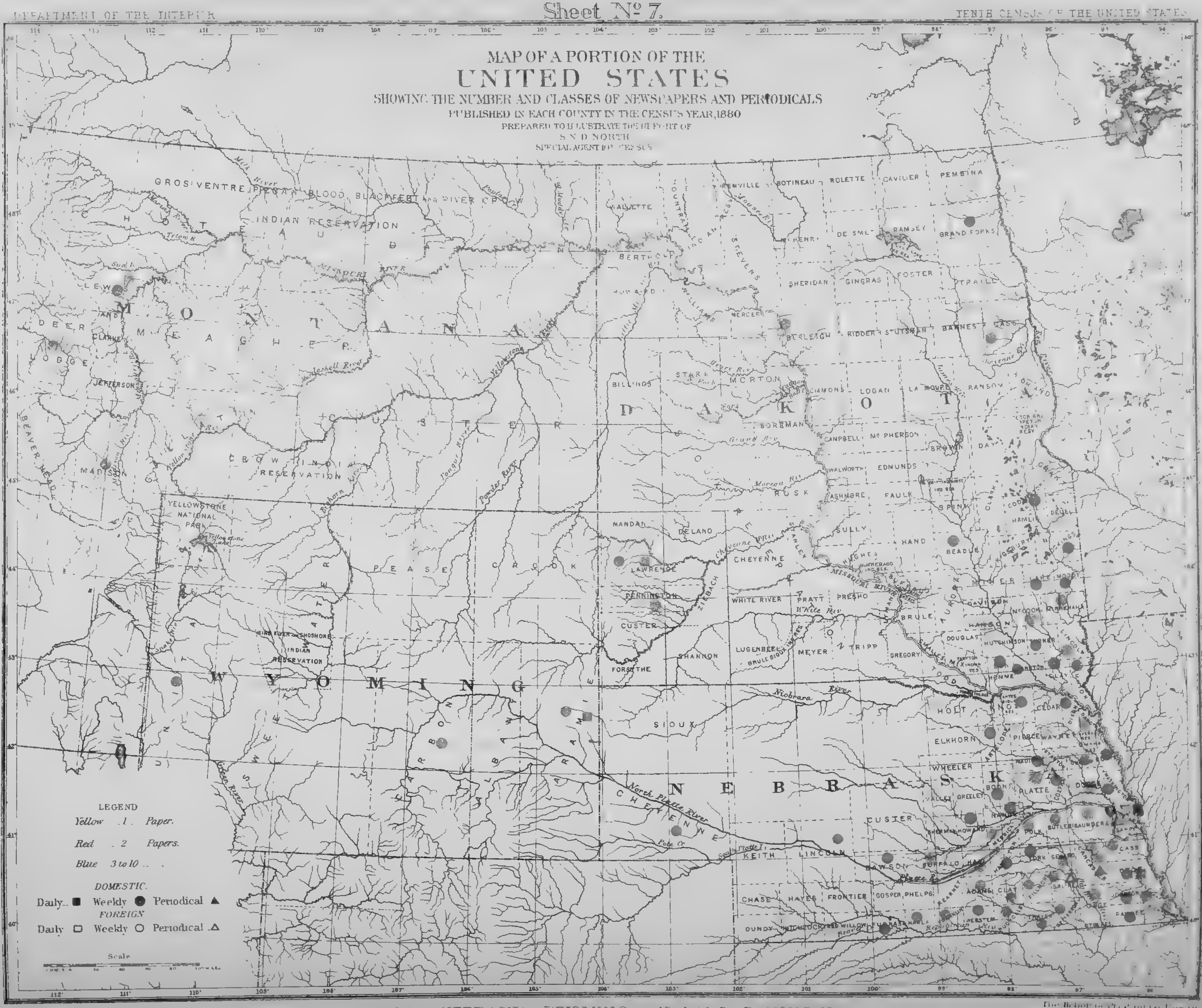
Prepared to illustrate the report of
S N D NORTH
SPECIAL AGENT 10TH CENSUS

Texas

The Heliotype Printing Co Boston

Sheet No. 7.

# MAP OF A PORTION OF THE
# UNITED STATES
## SHOWING THE NUMBER AND CLASSES OF NEWSPAPERS AND PERIODICALS
PUBLISHED IN EACH COUNTY IN THE CENSUS YEAR, 1880
PREPARED TO ILLUSTRATE THE REPORT OF
S. N. D. NORTH
SPECIAL AGENT 10TH CENSUS



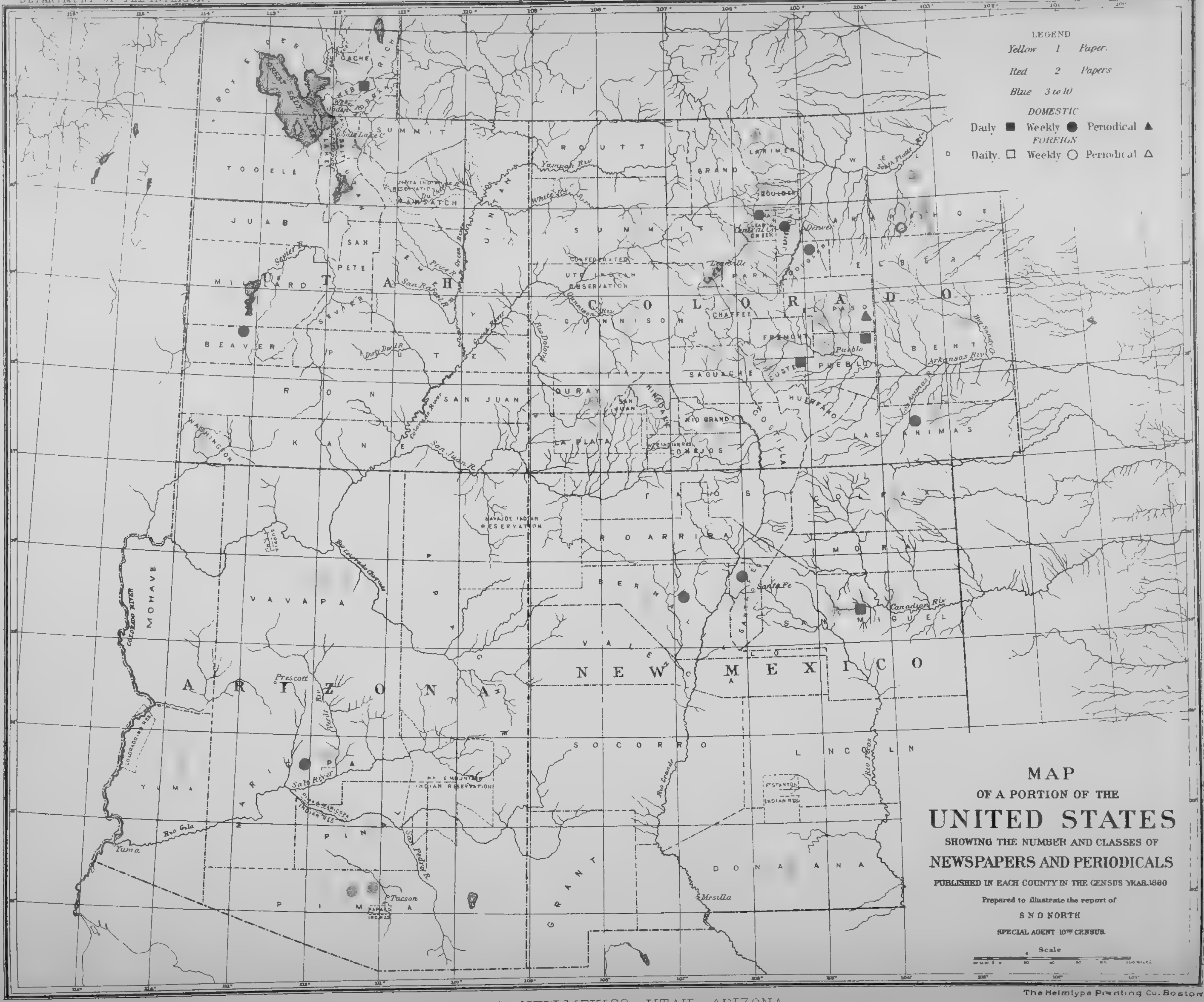
DAKOTA NEBRASKA WYOMING AND PART OF MONTANA

The Heliotype Printing Co. Boston.

DEPARTMENT OF THE INTERIOR

Sheet Nº 8.

TENTH CENSUS OF THE UNITED STATES

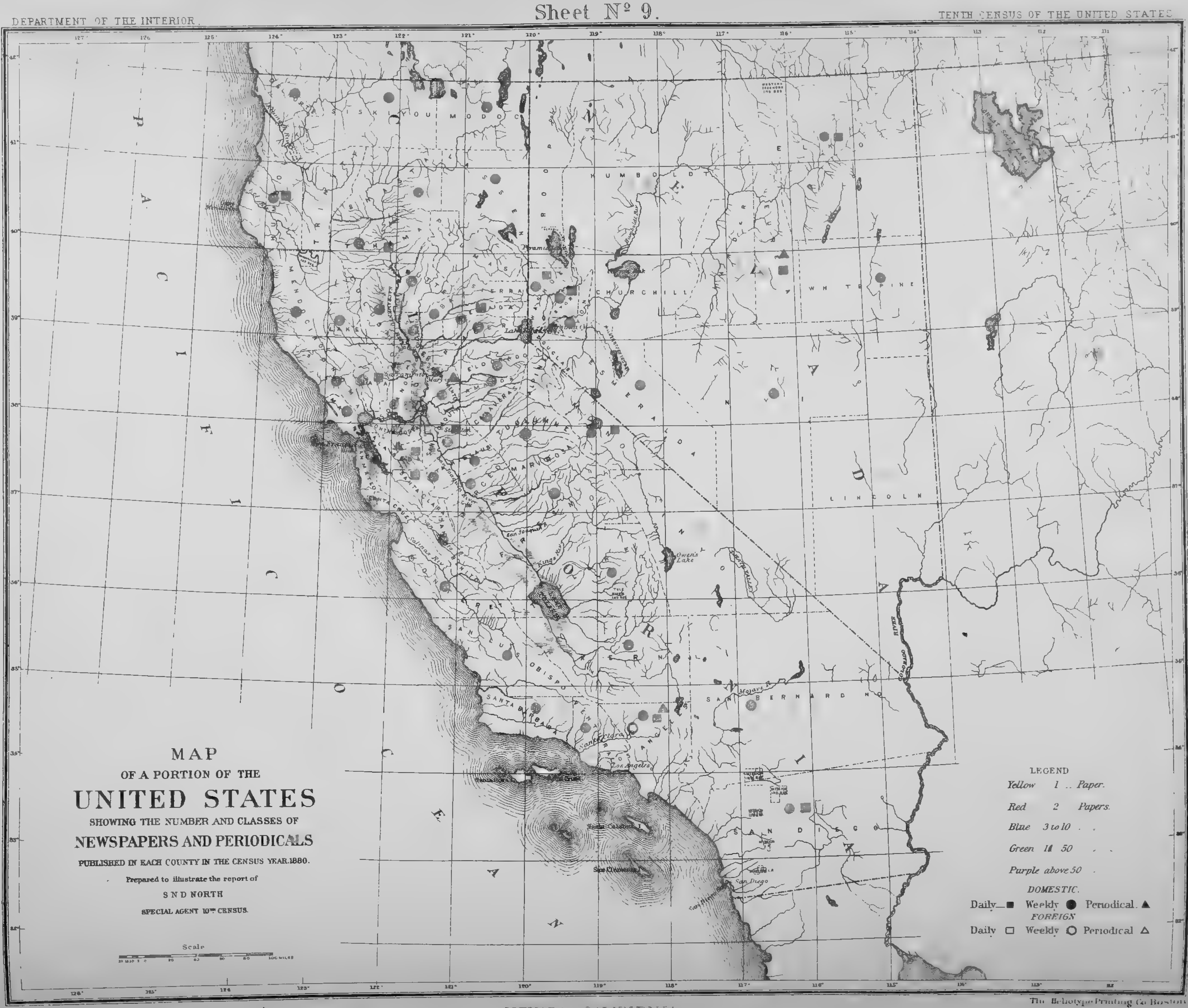


MAP
OF A PORTION OF THE
UNITED STATES
SHOWING THE NUMBER AND CLASSES OF
NEWSPAPERS AND PERIODICALS
PUBLISHED IN EACH COUNTY IN THE CENSUS YEAR 1880
Prepared to illustrate the report of
S N D NORTH
SPECIAL AGENT 10TH CENSUS

The Helmlype Printing Co. Boston

COLORADO, NEW MEXICO, UTAH, ARIZONA

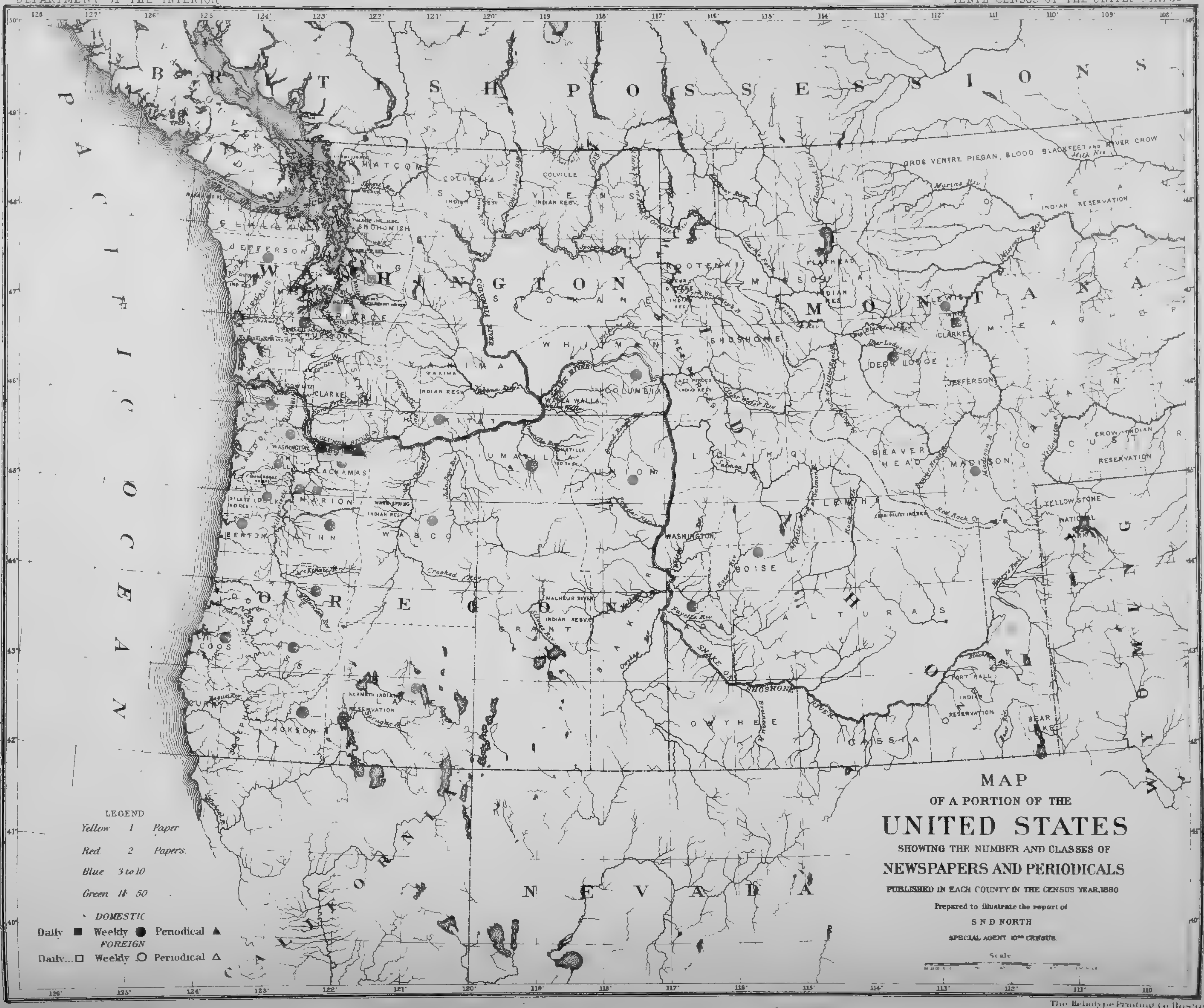
## Sheet No 9.



MAP
OF A PORTION OF THE
UNITED STATES
SHOWING THE NUMBER AND CLASSES OF
NEWSPAPERS AND PERIODICALS
PUBLISHED IN EACH COUNTY IN THE CENSUS YEAR 1880.
Prepared to illustrate the report of
S N D NORTH
SPECIAL AGENT 10TH CENSUS.

NEVADA CALIFORNIA

The Heliotype Printing Co Boston.


MAP
OF A PORTION OF THE
UNITED STATES
SHOWING THE NUMBER AND CLASSES OF
NEWSPAPERS AND PERIODICALS
PUBLISHED IN EACH COUNTY IN THE CENSUS YEAR, 1880
Prepared to illustrate the report of
S N D NORTH
SPECIAL AGENT 10TH CENSUS
Scale
LEGEND
Yellow 1 Paper
Red 2 Papers.
Blue 3 to 10
Green 11 50
DOMESTIC
Daily ■ Weekly ● Periodical ▲
FOREIGN
Daily □ Weekly ○ Periodical △
BRITISH POSSESSIONS
PACIFIC OCEAN
WASHINGTON
OREGON
IDAHO
MONTANA
WYOMING
NEVADA
CALIFORNIA

IDAHO WASHINGTON, OREGON AND PART OF MONTANA

The Heliotype Printing Co Boston

# APPENDIX A.

# STATISTICAL TABLES.

# APPENDIX A.

## SUBJECT-MATTER OF THE STATISTICAL TABLES.

Table I is a statement of the total number of newspapers and periodicals published in the United States during the census year, grouped first by periods of issue, and second by classes or characteristics, and enumerating separately the number published in English and in other languages.

Table II is a statement showing the average and the aggregate circulation per issue of newspapers and periodicals, by states and territories, for daily newspapers, weekly newspapers connected with dailies, weeklies not connected with dailies, and all other than monthlies, and also for monthly publications; showing the aggregate number of copies of the same issued or printed during the census year, and also the average subscription price of daily newspapers, of weekly newspapers connected with dailies, and of all others.

Table III is a further analysis of the circulation per issue of newspapers and periodicals by the volume of individual circulation, classified as before by periods of issue. The entire press of the United States is here arranged in nine groups, indicating, respectively: (1) the number of journals in each state and territory with a circulation of 50,000 copies per issue and over; (2) with a circulation of 25,000 and under 50,000; (3) with a circulation of 15,000 and under 25,000; (4) with a circulation of 10,000 and under 15,000; (5) with a circulation of 5,000 and under 10,000; (6) with a circulation of 3,000 and under 5,000; (7) with a circulation of 1,000 and under 3,000; (8) with a circulation of 500 and under 1,000; and (9) the number of journals having a circulation of less than 500. Each of these nine groups is arranged by periods of issue.

Table IV is an exhibit of the amount paid annually in wages and the total gross value of the annual product, in dollars, of all the newspapers and periodicals published in the United States, by states and territories, with the percentage of total wages paid by daily newspapers, the percentage paid by weekly newspapers and all other periodicals, and the average wages paid by each establishment, shown by dailies and by weeklies and all other periodicals. This table also exhibits the percentage of receipts from advertisements and subscriptions or sales by the dailies, weeklies, and all other periodicals. It also exhibits the number of hands employed, male and female, in the manufacture of newspapers and periodicals, and the number of persons employed in editorial work.

Table V is an exhibit of the average ems of type set per issue by the daily newspapers of the several states and territories, and also by the weekly newspapers and periodicals of all descriptions, followed by the aggregate number of ems per issue set by both classes of publications. These statistics are accompanied by an exhibit of the aggregate number of pounds of type used by all the newspapers and periodicals, the number of presses owned and used in newspaper manufacture, and with the number driven by steam-, water-, and hand-power, respectively. The table concludes with an exhibit of the number of papers printed on the co-operative plan in each of the states and territories.

Table VI is an exhibit of the amount of printing paper consumed by the newspaper and periodical press of the several states and territories in the census year, calculated both in pounds and reams, showing also the average and aggregate amount of paper consumed per issue by the daily, weekly, and the periodical press, and also the aggregate amount consumed by the entire press, in the year, calculated in pounds and reams.

Table VII indicates the total number of daily and weekly newspapers and periodicals, of all periods of issue, which were established and suspended during the course of the census year. It also shows the number of consolidations or *mergeres* which are represented in existing newspapers and periodicals, and the number of existing journals of all classes and kinds which were established in the decade between 1870 and 1880, the number established between 1860 and 1870, the number established between 1850 and 1860, and the number established prior to the year 1850.

Table VIII exhibits in complete shape the statistics of the various newspapers and periodicals published in the German language in the United States.

Table IX makes a similar exhibit of the statistics of the newspapers and periodicals published in the Bohemian, Catalan, Chinese, Danish and Scandinavian, French, Dutch, Indian, Irish, Italian, Polish, Portuguese, Spanish, and Welsh languages in the United States.

Table X is an exhibit, by states and territories, of the religious press of the United States, classified by twenty-five denominations and as unsectarian.

Table XI is a comparative exhibit of the leading statistics of the newspaper press of the United States as elicited by the four Federal censuses of 1850, 1860, 1870, and 1880. This table first shows the number of papers of all classes in existence at each census, their aggregate circulation per issue, and the number of copies annually printed. It then presents the same line of statistics upon a division of the newspaper press into classes by periods of issue at the four censuses, the number, the aggregate circulation per issue, and the copies annually printed of dailies, tri-weeklies, semi-weeklies, weeklies, bi-weeklies, semi-monthlies, monthlies, bi-monthlies, and quarterlies for 1850, 1860, 1870, and 1880.

Table XII is a comparison of the number of newspapers and periodicals published, and their aggregate circulation per issue, with the area in square miles and the population of the several states and territories, as shown by the Tenth Census. The areas here given are the land surface in each case. The table exhibits the average number of inhabitants to the aggregate circulation per issue and the average area in square miles for each publication in the several states and territories.

Table XIII is an attempt to localize the American press, by showing, first, the number of counties in each state and territory in which newspapers are published, compared with the actual number of towns; and, second, the number of cities, towns, and villages, in each state and territory, in which one paper is published, the number in which two are published, the number in which three are published, the number in which four are published, and the number in which five or more papers or periodicals are published.

Table XIV is a statement showing the language and number of daily, weekly, and all other newspapers and periodicals published in the several states and territories in the United States during the census year.

Table XV and last is an exhibit of the press statistics of the cities of Baltimore, Boston, Chicago, Cincinnati, Louisville, New Orleans, New York, Philadelphia, Saint Louis, and San Francisco, being the ten cities in which the press, both newspaper and periodical, had attained its most remarkable development in the census year.

## TABLE I.—TOTAL NUMBER OF NEWSPAPERS AND PERIODICALS PUBLISHED IN THE

| | STATES AND TERRITORIES. | Total number of periodicals. | PERIODS OF ISSUE. Number published daily. Morning. | Number published daily. Evening. | Number published daily. Total. | Number published weekly. Connected with dailies, and included in column 7. | Number published weekly. Total. | Number published semi-weekly. Connected with dailies, and included in column 9. | Number published semi-weekly. Total. | Number published tri-weekly. Connected with dailies, and included in column 11. | Number published tri-weekly. Total. | Number published bi-weekly. | Number published monthly. | Number published semi-monthly. | Number published tri-monthly. | Number published bi-monthly. | Number published quarterly. | Number published semi-annually. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| | The United States | 11,314 | 438 | 533 | 971 | 804 | 8,633 | 41 | 133 | 41 | 73 | 40 | 1,167 | 160 | 2 | 13 | 116 | 6 |
| 1 | Alabama | 125 | 3 | 3 | 6 | 5 | 109 | ..... | ..... | ..... | 1 | ..... | 7 | 2 | ..... | ..... | ..... | ..... |
| 2 | Arizona | 17 | 3 | 3 | 6 | 5 | 11 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 3 | Arkansas | 117 | 2 | 4 | 6 | 5 | 104 | ..... | 1 | ..... | ..... | ..... | 2 | 4 | ..... | ..... | ..... | ..... |
| 4 | California | 361 | 30 | 28 | 58 | 38 | 250 | 2 | 11 | ..... | 2 | ..... | 32 | *a* 6 | ..... | ..... | 2 | ..... |
| 5 | Colorado | 87 | 12 | 7 | 19 | 17 | 63 | ..... | 1 | ..... | ..... | ..... | 4 | ..... | ..... | ..... | ..... | ..... |
| 6 | Connecticut | 139 | 7 | 10 | 17 | 17 | 99 | 1 | 2 | ..... | ..... | ..... | 15 | 2 | 1 | 1 | 2 | ..... |
| 7 | Dakota | 67 | 4 | 5 | 9 | 4 | 57 | ..... | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 8 | Delaware | 26 | 2 | 3 | 5 | 3 | 20 | ..... | ..... | ..... | ..... | ..... | 1 | ..... | ..... | ..... | ..... | ..... |
| 9 | District of Columbia | 44 | 3 | 2 | 5 | 3 | 23 | ..... | ..... | ..... | ..... | ..... | 15 | ..... | ..... | ..... | 1 | ..... |
| 10 | Florida | 45 | 3 | ..... | 3 | 3 | 40 | ..... | 2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 11 | Georgia | 200 | 11 | 5 | 16 | 14 | 163 | 2 | 3 | 2 | 4 | ..... | 11 | 3 | ..... | ..... | ..... | ..... |
| 12 | Idaho | 10 | ..... | ..... | ..... | ..... | 7 | ..... | 2 | ..... | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 13 | Illinois | 1,017 | 30 | 44 | 74 | 66 | 758 | 4 | 17 | 5 | 6 | 3 | 118 | 18 | 1 | ..... | 21 | 1 |
| 14 | Indiana | 467 | 12 | 28 | 40 | 43 | 390 | ..... | 1 | 1 | 3 | 1 | 27 | 5 | ..... | ..... | ..... | ..... |
| 15 | Indian territory | 3 | ..... | ..... | ..... | ..... | 3 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 16 | Iowa | 569 | 12 | 18 | 30 | 29 | 500 | 1 | 3 | 1 | 1 | 2 | 31 | 1 | ..... | ..... | 1 | ..... |
| 17 | Kansas | 347 | 8 | 12 | 20 | 17 | 310 | ..... | 1 | ..... | ..... | ..... | 15 | 1 | ..... | ..... | ..... | ..... |
| 18 | Kentucky | 205 | 7 | 4 | 11 | 14 | 160 | 2 | 7 | ..... | 2 | ..... | 23 | 2 | ..... | ..... | ..... | ..... |
| 19 | Louisiana | 112 | 8 | 5 | 13 | 9 | 94 | ..... | 1 | ..... | 1 | 1 | 2 | ..... | ..... | ..... | ..... | ..... |
| 20 | Maine | 123 | 4 | 8 | 12 | 8 | 90 | ..... | ..... | 1 | 1 | 1 | 18 | ..... | ..... | ..... | 1 | ..... |
| 21 | Maryland | 143 | 10 | 5 | 15 | 15 | 111 | ..... | ..... | ..... | ..... | ..... | 12 | 4 | ..... | ..... | 1 | ..... |
| 22 | Massachusetts | 427 | 16 | 23 | 39 | 28 | 279 | 5 | 13 | ..... | 1 | 7 | 80 | 1 | ..... | ..... | 7 | ..... |
| 23 | Michigan | 464 | 13 | 20 | 33 | 28 | 397 | ..... | 3 | 2 | 3 | 2 | 19 | 4 | ..... | 1 | 1 | 1 |
| 24 | Minnesota | 223 | 4 | 6 | 10 | 9 | 205 | ..... | ..... | 1 | 1 | ..... | 6 | 1 | ..... | ..... | ..... | ..... |
| 25 | Mississippi | 123 | 3 | 2 | 5 | 4 | 109 | ..... | 1 | ..... | 5 | ..... | 3 | ..... | ..... | ..... | ..... | ..... |
| 26 | Missouri | 530 | 22 | 21 | 43 | 40 | 415 | 1 | 2 | 7 | 8 | 1 | 50 | 8 | ..... | 2 | 1 | ..... |
| 27 | Montana | 18 | 4 | ..... | 4 | 3 | 14 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 28 | Nebraska | 189 | 5 | 10 | 15 | 11 | 165 | ..... | 1 | ..... | ..... | ..... | 7 | 1 | ..... | ..... | ..... | ..... |
| 29 | Nevada | 37 | 5 | 9 | 14 | 6 | 22 | ..... | ..... | ..... | ..... | ..... | 1 | ..... | ..... | ..... | ..... | ..... |
| 30 | New Hampshire | 87 | 2 | 8 | 10 | 9 | 66 | ..... | ..... | ..... | ..... | 1 | 7 | 3 | ..... | ..... | ..... | ..... |
| 31 | New Jersey | 215 | 8 | 19 | 27 | 17 | 163 | ..... | 6 | ..... | 1 | 2 | 13 | ..... | ..... | 1 | 2 | ..... |
| 32 | New Mexico | 18 | 2 | 1 | 3 | 4 | 15 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 33 | New York | 1,411 | 46 | 69 | 115 | 104 | 892 | 12 | 24 | 2 | 5 | 10 | 282 | 35 | ..... | 5 | 40 | 3 |
| 34 | North Carolina | 142 | 7 | 6 | 13 | 7 | 113 | ..... | 3 | ..... | 2 | ..... | 7 | 4 | ..... | ..... | ..... | ..... |
| 35 | Ohio | 774 | 22 | 34 | 56 | 53 | 584 | 1 | 4 | 6 | 8 | 3 | 90 | 18 | ..... | ..... | 11 | ..... |
| 36 | Oregon | 74 | 4 | 3 | 7 | 6 | 59 | ..... | ..... | ..... | ..... | ..... | 6 | 1 | ..... | ..... | 1 | ..... |
| 37 | Pennsylvania | 973 | 42 | 56 | 98 | 69 | 674 | 1 | 3 | 2 | 4 | 1 | 159 | 16 | ..... | 1 | 16 | 1 |
| 38 | Rhode Island | 44 | 2 | 6 | 8 | 5 | 31 | ..... | 1 | ..... | ..... | 1 | 3 | ..... | ..... | ..... | ..... | ..... |
| 39 | South Carolina | 81 | 3 | 1 | 4 | 5 | 69 | ..... | 1 | 2 | 3 | ..... | 3 | ..... | ..... | ..... | 1 | ..... |
| 40 | Tennessee | 193 | 7 | 5 | 12 | 10 | 154 | 1 | 2 | ..... | ..... | ..... | 16 | 6 | ..... | 1 | 2 | ..... |
| 41 | Texas | 280 | 14 | 16 | 30 | 27 | 231 | ..... | 2 | ..... | 1 | ..... | 14 | 2 | ..... | ..... | ..... | ..... |
| 42 | Utah | 22 | 2 | 3 | 5 | 3 | 8 | 3 | 4 | ..... | ..... | ..... | 4 | 1 | ..... | ..... | ..... | ..... |
| 43 | Vermont | 82 | 2 | 3 | 5 | 3 | 72 | ..... | ..... | ..... | ..... | ..... | 3 | 1 | ..... | ..... | 1 | ..... |
| 44 | Virginia | 194 | 15 | 5 | 20 | 13 | 124 | 3 | 6 | 5 | 5 | ..... | 33 | 2 | ..... | 1 | 3 | ..... |
| 45 | Washington | 29 | 4 | ..... | 4 | 3 | 23 | ..... | ..... | ..... | ..... | ..... | 2 | ..... | ..... | ..... | ..... | ..... |
| 46 | West Virginia | 109 | 2 | ..... | 2 | 2 | 96 | 1 | 2 | 1 | 1 | 1 | 6 | ..... | ..... | ..... | 1 | ..... |
| 47 | Wisconsin | 340 | 9 | 12 | 21 | 18 | 283 | 1 | 2 | 3 | 3 | 3 | 20 | 8 | ..... | ..... | ..... | ..... |
| 48 | Wyoming | 11 | 2 | 1 | 3 | 2 | 8 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |

*a* Including one connected with a daily.

## UNITED STATES DURING THE CENSUS YEAR, BY PERIODS OF ISSUE AND CLASS.

| CHARACTER OF PUBLICATIONS. | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number devoted to news, politics, and family reading. | Number devoted to religion. | Number devoted to agriculture, horticulture, etc. | Number devoted to commerce and trade. | Number devoted to finance. | Number devoted to insurance and railroads. | Number devoted to general literature, including magazines. | Number devoted to medicine and surgery. | Number devoted to law. | Number devoted to science and mechanics, including mining journals. | Number devoted to free-masonry, odd-fellowship, temperance, etc. | Number devoted to education, including college and school publications. | Number of children's periodicals, including Sunday-school papers. | Number devoted to society, art, music, and fashion. | Number of miscellaneous. | Number illustrated and included in preceding columns. | Number Sunday newspapers, and included in preceding columns. | | Number published in English. | Number published in other languages. | |
| | | | | | | | | | | | | | | | | Connected with dailies, and included in column 36. | Total. | | | |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | |
| 8,863 | 553 | 173 | 284 | 25 | 54 | 189 | 114 | 45 | 68 | 149 | 248 | 217 | 72 | 260 | 481 | 113 | 252 | 10,515 | 799 | |
| 114 | 5 | 2 | | | | | | 1 | | | 3 | | | | | 2 | 2 | 125 | | 1 |
| 17 | | | | | | | | | | | | | | | | | 1 | 16 | 1 | 2 |
| 106 | 5 | 2 | | | | 1 | 1 | | 1 | | | | | 1 | 4 | | 1 | 116 | 1 | 3 |
| 270 | 12 | 7 | 17 | 8 | 2 | 4 | 3 | 3 | 3 | 7 | 6 | | 3 | 16 | 15 | 5 | 8 | 328 | 33 | 4 |
| 78 | 2 | 1 | 1 | | | | | | 2 | 1 | 1 | | | 1 | 1 | | 1 | 84 | 3 | 5 |
| 110 | 3 | 4 | | | | 2 | 1 | | 1 | 5 | 11 | | | 2 | 3 | 2 | 5 | 134 | 5 | 6 |
| 67 | | | | | | | | | | | | | | | | | | 65 | 2 | 7 |
| 24 | 1 | | | | | | | | | | 1 | | | | | | 1 | 25 | 1 | 8 |
| 20 | | | 2 | | | 2 | 1 | 2 | 1 | 3 | 2 | | | 11 | | 2 | 6 | 41 | 3 | 9 |
| 41 | | 2 | 1 | | | 1 | | | | | | | | | | | | 45 | | 10 |
| 177 | 7 | 4 | | | | 2 | 3 | | | 1 | | 5 | 1 | | 4 | 1 | 7 | 199 | 1 | 11 |
| 10 | | | | | | | | | | | | | | | | | | 10 | | 12 |
| 736 | 49 | 15 | 55 | 1 | 10 | 9 | 8 | 5 | 5 | 13 | 19 | 47 | 7 | 38 | 55 | 7 | 13 | 920 | 97 | 13 |
| 422 | 13 | 7 | 2 | | 1 | | 2 | | 2 | 6 | 9 | | | 3 | 5 | 7 | 12 | 435 | 32 | 14 |
| 3 | | | | | | | | | | | | | | | | | | 1 | 2 | 15 |
| 519 | 15 | 4 | | | | 2 | | 1 | 1 | 7 | 15 | | 1 | 4 | 3 | 1 | 1 | 523 | 46 | 16 |
| 322 | 4 | 5 | | | | 2 | 1 | | | 3 | 3 | 1 | | 6 | 2 | | 2 | 334 | 13 | 17 |
| 162 | 13 | 6 | 4 | | | 3 | 4 | | | 2 | 5 | 5 | | 1 | 6 | 3 | 4 | 194 | 11 | 18 |
| 96 | 7 | 1 | 1 | | | | 1 | | | 1 | 1 | | | 4 | | 1 | 4 | 93 | 19 | 19 |
| 91 | 9 | 4 | 1 | | | 8 | | | 2 | 2 | 3 | | | 3 | 11 | | 2 | 123 | | 20 |
| 105 | 10 | 5 | 3 | | 2 | 3 | 2 | 1 | 1 | 3 | 4 | | | 4 | 3 | 6 | 7 | 134 | 9 | 21 |
| 281 | 30 | 6 | 14 | 1 | 4 | 30 | 2 | 2 | 5 | 6 | 15 | 14 | 10 | 17 | 36 | 3 | 6 | 422 | 5 | 22 |
| 413 | 11 | 5 | 3 | | | 1 | 7 | | 2 | 5 | 9 | 2 | 3 | 3 | 13 | 3 | 9 | 430 | 25 | 23 |
| 207 | 3 | 3 | 2 | | | | | | | 2 | 2 | 1 | | 3 | 3 | 4 | 4 | 202 | 21 | 24 |
| 115 | 4 | 3 | | | | | | | | | 1 | | | | 2 | | | 123 | | 25 |
| 425 | 28 | 7 | 14 | | 3 | 5 | 8 | 3 | 2 | 9 | 11 | | 2 | 13 | 12 | 8 | 9 | 494 | 36 | 26 |
| 17 | | 1 | | | | | | | | | | | | | | | 1 | 18 | | 27 |
| 178 | 2 | 3 | 1 | | | 2 | | | | | 2 | 1 | | | 2 | | | 175 | 14 | 28 |
| 35 | | | | | | | | | 2 | | | | | | | | | 37 | | 29 |
| 74 | 3 | 1 | | | | 5 | | | | 1 | 1 | 1 | 1 | | 4 | | | 87 | | 30 |
| 194 | 3 | 1 | 2 | | | 3 | 1 | 1 | 1 | 4 | 4 | | | 1 | 4 | 2 | 3 | 196 | 19 | 31 |
| 17 | 1 | | | | | | | | | | | | | | | | | 14 | 4 | 32 |
| 816 | 97 | 29 | 98 | 12 | 15 | 77 | 38 | 6 | 28 | 16 | 35 | 39 | 28 | 77 | 180 | 22 | 50 | 1,280 | 131 | 33 |
| 118 | 12 | 4 | | | 2 | 2 | 1 | | | 2 | 1 | | | | 1 | | | 142 | | 34 |
| 576 | 57 | 12 | 21 | | 3 | 2 | 11 | 4 | 4 | 12 | 19 | 37 | 7 | 9 | 32 | 11 | 26 | 683 | 91 | 35 |
| 60 | 5 | 1 | 1 | | 1 | 2 | 1 | | | | 2 | | | 1 | 2 | 1 | 4 | 72 | 2 | 36 |
| 675 | 75 | 13 | 29 | 3 | 9 | 18 | 13 | 13 | 3 | 15 | 23 | 50 | 5 | 20 | 57 | 11 | 30 | 884 | 89 | 37 |
| 39 | | | | | | | | | | 3 | 2 | | | | | 2 | 4 | 42 | 2 | 38 |
| 68 | 10 | | | | | | | | | 2 | 1 | | | | | 1 | 2 | 80 | 1 | 39 |
| 147 | 14 | | 3 | | 1 | 5 | 3 | | | 4 | 9 | 6 | | 1 | 4 | | 2 | 192 | 1 | 40 |
| 254 | 14 | 2 | 2 | | | 2 | | 1 | | 2 | 1 | | 1 | 1 | 3 | 3 | 5 | 261 | 19 | 41 |
| 15 | 4 | 1 | | | | | | | | | | 1 | | 1 | 1 | | | 22 | | 42 |
| 74 | 3 | 2 | | | | 1 | | | | | 2 | | | | | | 2 | 82 | | 43 |
| 135 | 11 | 6 | 2 | | 1 | 2 | 2 | 2 | 1 | 4 | 15 | 6 | 2 | 5 | 6 | 2 | 4 | 189 | 5 | 44 |
| 28 | 1 | | | | | | | | | | | | | | | | | 29 | | 45 |
| 100 | 3 | | | | | 1 | | | | 1 | 2 | | | 2 | | | 2 | 107 | 2 | 46 |
| 301 | 7 | 4 | 5 | | | 2 | | | 1 | 7 | 8 | 1 | 1 | 3 | 7 | 3 | 6 | 287 | 53 | 47 |
| 11 | | | | | | | | | | | | | | | | | | 11 | | 48 |

## TABLE II.—AVERAGE AND AGGREGATE CIRCULATION PER ISSUE OF NEWSPAPERS AND THEIR AVERAGE SUB

| | STATES AND TERRITORIES. | AVERAGE CIRCULATION PER ISSUE. | | | | AGGREGATE CIRCULATION PER ISSUE. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Dailies. | Weeklies connected with dailies. | Weeklies not connected with dailies and all others than monthlies. | Monthlies. | Total of all classes. | Dailies. | Weeklies connected with dailies. | Weeklies not connected with dailies and all others than monthlies. | Monthlies. |
| | The United States | 4, 137 | 5, 317 | 2, 125 | 7, 834 | 31, 779, 686 | 3, 566, 395 | 3, 961, 057 | 15, 962, 353 | 8, 139, 881 |
| 1 | Alabama | 1, 932 | 2, 530 | 808 | 1, 175 | 93, 073 | 9, 660 | 10, 120 | 66, 243 | 7, 050 |
| 2 | Arizona | 720 | 1, 525 | 770 | ........ | 13, 550 | 3, 600 | 6, 100 | 3, 850 | ........ |
| 3 | Arkansas | 1, 006 | 1, 900 | 1, 039 | 500 | 103, 501 | 5, 030 | 7, 600 | 90, 371 | 500 |
| 4 | California | 3, 288 | 2, 907 | 1, 344 | 3, 064 | 640, 026 | 157, 814 | 104, 637 | 279, 535 | 98, 040 |
| 5 | Colorado | 1, 884 | 1, 726 | 821 | 2, 475 | 95, 744 | 26, 375 | 24, 170 | 35, 299 | 9, 900 |
| 6 | Connecticut | 2, 968 | 3, 653 | 1, 229 | 2, 583 | 237, 660 | 47, 490 | 62, 100 | 97, 070 | 31, 000 |
| 7 | Dakota | 562 | 850 | 593 | ........ | 36, 943 | 4, 500 | 3, 400 | 29, 043 | ........ |
| 8 | Delaware | 3, 950 | 1, 667 | 789 | 1, 000 | 34, 425 | 15, 800 | 5, 000 | 12, 625 | 1, 000 |
| 9 | District of Columbia | 9, 125 | 5, 000 | 5, 327 | 4, 747 | 213, 923 | 36, 500 | 5, 000 | 101, 212 | 71, 211 |
| 10 | Florida | 1, 300 | 725 | 685 | ........ | 27, 332 | 2, 600 | 1, 450 | 23, 282 | ........ |
| 11 | Georgia | 2, 141 | 3, 332 | 830 | 3, 706 | [a] 269, 066 | 27, 830 | 39, 990 | 117, 896 | 33, 350 |
| 12 | Idaho | ........ | ........ | 628 | ........ | 5, 650 | ........ | ........ | 5, 650 | ........ |
| 13 | Illinois | 3, 955 | 7, 008 | 1, 802 | 4, 463 | [b] 2, 421, 275 | 270, 923 | 455, 527 | 1, 193, 179 | 401, 646 |
| 14 | Indiana | 1, 913 | 2, 228 | 1, 351 | 2, 410 | 661, 111 | 72, 698 | 89, 140 | 439, 023 | 60, 250 |
| 15 | Indian territory | ........ | ........ | 2, 030 | ........ | 4, 060 | ........ | ........ | 4, 060 | ........ |
| 16 | Iowa | 1, 479 | 3, 643 | 837 | 1, 990 | 547, 340 | 38, 455 | 94, 706 | 362, 439 | 51, 740 |
| 17 | Kansas | 1, 528 | 2, 554 | 762 | 1, 871 | 280, 729 | 21, 396 | 43, 424 | 189, 717 | 26, 192 |
| 18 | Kentucky | 3, 045 | 5, 292 | 1, 970 | 1, 272 | 397, 564 | 33, 492 | 68, 800 | 266, 017 | 29, 255 |
| 19 | Louisiana | 3, 460 | 3, 831 | 822 | 475 | 131, 630 | 38, 065 | 26, 820 | 65, 795 | 950 |
| 20 | Maine | 1, 894 | 3, 906 | 1, 731 | 60, 953 | 1, 214, 460 | 18, 940 | 31, 250 | 128, 070 | 1, 036, 200 |
| 21 | Maryland | 9, 472 | 8, 627 | 1, 445 | 1, 976 | 414, 693 | 132, 613 | 129, 400 | 132, 920 | 19, 760 |
| 22 | Massachusetts | 7, 789 | 8, 238 | 3, 622 | 7, 870 | 2, 012, 929 | 280, 399 | 230, 654 | 927, 338 | 574, 538 |
| 23 | Michigan | 2, 167 | 5, 403 | 1, 071 | 1, 958 | 620, 974 | 62, 839 | 145, 883 | 378, 959 | 33, 293 |
| 24 | Minnesota | 3, 562 | 8, 645 | 593 | 5, 030 | 222, 074 | 28, 493 | 60, 514 | 107, 917 | 25, 150 |
| 25 | Mississippi | 840 | 962 | 753 | 2, 033 | 87, 904 | 4, 200 | 3, 850 | 73, 754 | 6, 100 |
| 26 | Missouri | 3, 228 | 6, 674 | 1, 222 | 3, 418 | 965, 285 | 122, 660 | 253, 608 | 435, 217 | 153, 800 |
| 27 | Montana | 304 | 1, 380 | 1, 753 | ........ | 20, 827 | 912 | 4, 140 | 15, 775 | ........ |
| 28 | Nebraska | 1, 553 | 2, 450 | 648 | 2, 173 | 154, 570 | 18, 630 | 26, 950 | 95, 950 | 13, 040 |
| 29 | Nevada | 1, 225 | 767 | 457 | 500 | 27, 745 | 17, 155 | 4, 600 | 5, 490 | 500 |
| 30 | New Hampshire | 907 | 4, 801 | 1, 656 | 5, 614 | 185, 968 | 9, 070 | 43, 212 | 94, 386 | 39, 300 |
| 31 | New Jersey | 2, 116 | 1, 790 | 1, 078 | 1, 811 | 249, 478 | 50, 776 | 25, 058 | 157, 344 | 16, 300 |
| 32 | New Mexico | 667 | 377 | 461 | ........ | 6, 355 | 2, 000 | 1, 130 | 3, 225 | ........ |
| 33 | New York | 9, 059 | 9, 989 | 5, 398 | 11, 040 | 9, 374, 134 | 996, 561 | 928, 966 | 4, 545, 080 | 2, 903, 527 |
| 34 | North Carolina | 793 | 1, 698 | 823 | 1, 125 | 105, 501 | 7, 934 | 8, 490 | 82, 327 | 6, 750 |
| 35 | Ohio | 4, 507 | 8, 762 | 3, 429 | 7, 880 | 3, 093, 931 | 216, 336 | 420, 566 | 1, 834, 498 | 622, 531 |
| 36 | Oregon | 1, 581 | 3, 004 | 899 | 2, 555 | 85, 786 | 11, 070 | 18, 024 | 41, 362 | 15, 330 |
| 37 | Pennsylvania | 6, 285 | 5, 228 | 4, 183 | 10, 926 | 5, 031, 061 | 578, 227 | 345, 076 | 2, 501, 685 | 1, 606, 073 |
| 38 | Rhode Island | 5, 175 | 2, 216 | 1, 809 | 1, 013 | 97, 121 | 41, 402 | 11, 082 | 41, 597 | 3, 040 |
| 39 | South Carolina | 1, 937 | 1, 380 | 873 | 555 | 69, 902 | 7, 750 | 6, 900 | 54, 142 | 1, 110 |
| 40 | Tennessee | 3, 099 | 3, 971 | 1, 524 | 2, 385 | 293, 288 | 30, 995 | 35, 740 | 202, 703 | 23, 850 |
| 41 | Texas | 1, 262 | 2, 219 | 740 | 5, 504 | 263, 289 | 30, 297 | 55, 489 | 127, 963 | 49, 540 |
| 42 | Utah | 1, 987 | 3, 233 | 1, 550 | 1, 525 | 36, 175 | 7, 950 | 9, 700 | 13, 950 | 4, 575 |
| 43 | Vermont | 1, 050 | 3, 000 | 1, 310 | 17, 167 | 130, 192 | 4, 200 | 9, 000 | 65, 492 | 51, 500 |
| 44 | Virginia | 1, 892 | 1, 681 | 1, 129 | 2, 363 | 256, 471 | 32, 172 | 20, 172 | 133, 225 | 70, 902 |
| 45 | Washington | 367 | 1, 181 | 637 | ........ | 16, 751 | 1, 100 | 3, 544 | 12, 107 | ........ |
| 46 | West Virginia | 2, 050 | 3, 200 | 768 | 961 | 85, 958 | 4, 100 | 6, 400 | 70, 652 | 4, 806 |
| 47 | Wisconsin | 1, 856 | 4, 492 | 1, 148 | 1, 814 | 436, 576 | 33, 400 | 71, 875 | 295, 019 | 36, 282 |
| 48 | Wyoming | 662 | 900 | 475 | ........ | 5, 686 | 1, 986 | 1, 800 | 1, 900 | ........ |

[a] Includes 1 weekly, 1 semi-monthly, and 1 monthly (Sunday-school papers), not separately reported, having a circulation of 50,000, and copies annually printed 600,000.

[b] Includes 4 weeklies, 13 monthlies, and 12 quarterlies (Sunday-school papers), not separately reported, having a circulation of 100,000, and copies annually printed 6,000,000.

## PERIODICALS, BY STATES AND TERRITORIES, PUBLISHED IN THE UNITED STATES, WITH SCRIPTION PRICE.

| AGGREGATE NUMBER OF COPIES PRINTED IN CENSUS YEAR. | | | | | AVERAGE SUBSCRIPTION PRICE. | | | |
|---|---|---|---|---|---|---|---|---|
| Total for all classes. | Dailies. | Weeklies connected with dailies. | Weeklies not connected with dailies and all others than monthlies. | Monthlies. | Dailies. | Weeklies connected with dailies. | All others. | |
| 2, 067, 848, 209 | 1, 100, 607, 219 | 202, 244, 024 | 663, 543, 866 | 94, 853, 100 | $7 27 | $2 06 | $1 77 | |
| 6, 778, 544 | 2, 994, 600 | 485, 840 | 3, 225, 404 | 72, 700 | 10 00 | 1 62 | 1 70 | 1 |
| 1, 413, 600 | 938, 000 | 292, 000 | 183, 600 | | 8 83 | 4 60 | 4 60 | 2 |
| 4, 990, 595 | 1, 452, 800 | 395, 800 | 3, 140, 495 | 1, 500 | 9 92 | 1 80 | 1 62 | 3 |
| 72, 861, 836 | 50, 593, 910 | 7, 245, 700 | 13, 993, 646 | 1, 028, 580 | 9 09 | 2 94 | 3 12 | 4 |
| 8, 877, 831 | 7, 083, 875 | 1, 045, 240 | 619, 816 | 128, 900 | 9 56 | 2 56 | 2 15 | 5 |
| 20, 366, 449 | 12, 068, 500 | 3, 254, 640 | 4, 677, 549 | 365, 760 | 7 09 | 1 76 | 1 60 | 6 |
| 2, 739, 014 | | 148, 200 | 2, 590, 814 | | 11 71 | 3 00 | 2 04 | 7 |
| 5, 172, 998 | 4, 246, 490 | 259, 200 | 655, 308 | 12, 000 | 3 50 | 1 67 | 1 43 | 8 |
| 15, 874, 432 | 11, 105, 000 | 250, 000 | 3, 653, 936 | 865, 496 | 6 00 | 2 00 | 1 59 | 9 |
| 2, 086, 644 | 744, 000 | 75, 800 | 1, 266, 844 | | 7 33 | 1 67 | 1 82 | 10 |
| *a* 20, 994, 549 | 11, 145, 560 | 2, 094, 280 | 6, 886, 809 | 267, 900 | 7 27 | 1 62 | 1 73 | 11 |
| 367, 600 | | | 367, 600 | | | | 5 45 | 12 |
| *b* 174, 696, 505 | 82, 271, 568 | 23, 389, 255 | 58, 322, 572 | 4, 713, 110 | 6 61 | 1 60 | 1 63 | 13 |
| 44, 908, 191 | 24, 007, 100 | 4, 401, 060 | 15, 758, 631 | 741, 400 | 6 56 | 1 48 | 1 45 | 14 |
| 210, 200 | | | 210, 200 | | | | 1 33 | 15 |
| 35, 747, 302 | 11, 313, 035 | 4, 869, 012 | 18, 879, 155 | 686, 100 | 8 33 | 1 60 | 1 58 | 16 |
| 18, 589, 223 | 6, 398, 307 | 2, 306, 636 | 9, 516, 880 | 367, 400 | 6 81 | 1 46 | 1 54 | 17 |
| 25, 332, 423 | 9, 852, 160 | 3, 513, 120 | 11, 617, 243 | 349, 900 | 7 71 | 1 77 | 1 73 | 18 |
| 15, 602, 320 | 10, 201, 900 | 1, 116, 840 | 4, 272, 980 | 10, 600 | 10 69 | 2 11 | 3 44 | 19 |
| 25, 661, 345 | 5, 315, 360 | 1, 619, 600 | 6, 289, 285 | 12, 437, 100 | 6 60 | 1 99 | 1 50 | 20 |
| 50, 115, 182 | 37, 422, 600 | 6, 318, 100 | 6, 138, 332 | 236, 150 | 5 55 | 1 22 | 1 58 | 21 |
| 149, 319, 973 | 87, 154, 551 | 9, 108, 248 | 46, 665, 318 | 6, 391, 856 | 6 32 | 1 38 | 1 89 | 22 |
| 46, 659, 470 | 20, 110, 482 | 7. 538, 100 | 18, 616, 488 | 394, 400 | 6 30 | 1 45 | 1 49 | 23 |
| 18, 097, 781 | 9, 493, 750 | 1, 618, 708 | 6, 692, 423 | 292, 900 | 8 15 | 1 31 | 1 76 | 24 |
| 5, 293, 418 | 1, 306, 500 | 195, 400 | 3, 721, 818 | 69, 700 | 7 40 | 1 62 | 2 09 | 25 |
| 79, 265, 309 | 41, 678, 917 | 13, 177, 576 | 22, 550, 938 | 1, 857, 878 | 7 72 | 1 31 | 1 55 | 26 |
| 1, 280, 480 | 264, 600 | 215, 280 | 800, 600 | | 17 50 | 5 00 | 4 50 | 27 |
| 11, 717, 103 | 5, 417, 816 | 1, 472, 380 | 4, 607, 627 | 219, 280 | 7 86 | 1 64 | 1 69 | 28 |
| 5, 820, 575 | 5, 348, 025 | 241, 200 | 228, 850 | 2, 500 | 10 21 | 3 34 | 3 41 | 29 |
| 9, 635, 410 | 2, 824, 950 | 2, 246, 424 | 4, 074, 106 | 489, 930 | 5 60 | 1 40 | 1 30 | 30 |
| 22, 150, 095 | 11, 887, 510 | 2, 286, 434 | 7, 828, 451 | 147, 700 | 5 25 | 1 71 | 1 64 | 31 |
| 838, 860 | 617, 000 | 108, 400 | 113, 460 | | 10 00 | 3 50 | 2 61 | 32 |
| 577, 755, 819 | 309, 461, 658 | 48, 141, 113 | 187, 116, 678 | 33, 036, 370 | 7 14 | 1 75 | 2 04 | 33 |
| 6, 819, 382 | 2, 337, 528 | 438, 240 | 3, 954, 114 | 89, 500 | 4 58 | 1 53 | 1 67 | 34 |
| 152, 579, 380 | 67, 478, 961 | 21, 901, 858 | 55, 801, 393 | 7, 397, 168 | 7 23 | 1 61 | 1 56 | 35 |
| 8, 578, 213 | 5, 788, 940 | 904, 200 | 1, 695, 253 | 189, 820 | 6 86 | 2 50 | 3 21 | 36 |
| 297, 559, 892 | 182, 410, 996 | 17, 498, 312 | 78, 472, 237 | 19, 178, 347 | 5 57 | 1 71 | 1 54 | 37 |
| 14, 496, 498 | 11, 261, 116 | 965, 688 | 2, 234, 144 | 35, 550 | 5 50 | 2 10 | 2 07 | 38 |
| 5, 774, 415 | 2, 433, 600 | 549, 200 | 2, 778, 895 | 12, 720 | 7 75 | 1 90 | 1 94 | 39 |
| 18, 293, 872 | 8, 728, 850 | 1, 856, 480 | 7, 444, 292 | 264, 250 | 7 38 | 1 15 | 1 42 | 40 |
| 19, 883, 792 | 9, 756, 534 | 2, 776, 428 | 6, 745, 330 | 605, 500 | 9 51 | 2 06 | 1 86 | 41 |
| 3, 867, 500 | 2, 429, 600 | 416, 400 | 990, 200 | 31, 300 | 10 30 | 2 83 | 3 04 | 42 |
| 5, 681, 464 | 1, 317, 000 | 411, 000 | 3, 360, 464 | 593, 000 | 6 80 | 2 00 | 1 71 | 43 |
| 18, 422, 845 | 10, 042, 260 | 1, 048, 644 | 6, 523, 566 | 808, 375 | 5 33 | 1 52 | 1 66 | 44 |
| 1, 062, 103 | 326, 000 | 180, 288 | 555, 815 | | 11 34 | 2 67 | 2 82 | 45 |
| 4, 903, 466 | 1, 277, 200 | 332, 600 | 3, 244, 566 | 49, 100 | 8 00 | 1 50 | 1 55 | 46 |
| 27, 901, 051 | 9, 682, 450 | 3, 441, 500 | 14, 365, 741 | 411, 360 | 8 53 | 1 76 | 1 73 | 47 |
| 803, 260 | 615, 660 | 93, 600 | 94, 000 | | 10 00 | 2 50 | 3 00 | 48 |

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*a* Includes 1 weekly, 1 semi-monthly, and 1 monthly (Sunday-school papers), not separately reported, having a circulation of 50,000, and copies annually printed 000,000.

*b* Includes 4 weeklies, 18 monthlies, and 12 quarterlies (Sunday-school papers), not separately reported, having a circulation of 100,000, and copies annually printed 6,000,000.

## TABLE III.—STATEMENT OF THE CIRCULATION OF NEWSPAPERS AND

| | STATES AND TERRITORIES. | Total. | CIRCULATION PER ISSUE. | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 50,000 and over. (a) | | | | | | | | | | | 25,000 and less than 50,000. | | | | | | | | | | |
| | | | Dailies. | Weeklies. | Semi-weeklies. | Tri-weeklies. | Bi-weeklies. | Monthlies. | Semi-monthlies. | Tri-monthlies. | Bi-monthlies. | Quarterlies. | Semi-annuals. | Dailies. | Weeklies. | Semi-weeklies. | Tri-weeklies. | Bi-weeklies. | Monthlies. | Semi-monthlies. | Tri-monthlies. | Bi-monthlies. | Quarterlies. | Semi-annuals. |
| | United States | 11,314 | 7 | 30 | .... | .... | .... | 31 | 7 | .... | .... | 6 | .... | 18 | 49 | .... | .... | .... | 29 | 3 | .... | 1 | 2 | .... |
| 1 | Alabama | 125 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 2 | Arizona | 17 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 3 | Arkansas | 117 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 4 | California | 361 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 2 | 1 | .... | .... | .... | 1 | .... | .... | .... | .... | .... |
| 5 | Colorado | 87 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 6 | Connecticut | 139 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 7 | Dakota | 67 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 8 | Delaware | 26 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 9 | District of Columbia | 44 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1 | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 10 | Florida | 45 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 11 | Georgia | [b] 200 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 12 | Idaho | 10 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 13 | Illinois | [c] 1,017 | .... | 2 | .... | .... | .... | .... | .... | .... | .... | .... | .... | 3 | 5 | .... | .... | .... | 2 | .... | .... | .... | .... | .... |
| 14 | Indiana | 467 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 15 | Indian territory | 3 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 16 | Iowa | 569 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 17 | Kansas | 347 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 18 | Kentucky | 205 | .... | .... | .... | .... | .... | .... | 1 | .... | .... | .... | .... | .... | 1 | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 19 | Louisiana | 112 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 20 | Maine | 123 | .... | .... | .... | .... | .... | 5 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 21 | Maryland | 143 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1 | 3 | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 22 | Massachusetts | 427 | 1 | 3 | .... | .... | .... | 2 | .... | .... | .... | .... | .... | 1 | 4 | .... | .... | .... | 4 | .... | .... | .... | .... | .... |
| 23 | Michigan | 464 | .... | 1 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1 | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 24 | Minnesota | 223 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 25 | Mississippi | 123 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 26 | Missouri | 530 | .... | 1 | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1 | 3 | .... | .... | .... | 1 | .... | .... | .... | .... | .... |
| 27 | Montana | 18 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 28 | Nebraska | 189 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 29 | Nevada | 37 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 30 | New Hampshire | 87 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 31 | New Jersey | 215 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 32 | New Mexico | 18 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 33 | New York | 1,411 | 4 | 18 | .... | .... | .... | 15 | 1 | .... | .... | 2 | .... | 7 | 17 | .... | .... | .... | 11 | .... | .... | 1 | 1 | .... |
| 34 | North Carolina | 142 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 35 | Ohio | 774 | .... | 2 | .... | .... | .... | 2 | 3 | .... | .... | 1 | .... | 1 | 5 | .... | .... | .... | 1 | 2 | .... | .... | .... | .... |
| 36 | Oregon | 74 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 37 | Pennsylvania | 973 | 2 | 3 | .... | .... | .... | 6 | 2 | .... | .... | 3 | .... | 2 | 7 | .... | .... | .... | 8 | 1 | .... | .... | 1 | .... |
| 38 | Rhode Island | 44 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 39 | South Carolina | 81 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 40 | Tennessee | 193 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1 | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 41 | Texas | 280 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1 | .... | .... | .... | .... | .... |
| 42 | Utah | 22 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 43 | Vermont | 82 | .... | .... | .... | .... | .... | 1 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 44 | Virginia | 194 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 45 | Washington | 29 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 46 | West Virginia | 109 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 47 | Wisconsin | 340 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 48 | Wyoming | 11 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |

[a] Included in this classification are 34 journals whose circulation exceeds 100,000, divided, according to periods of issue, as follows: Dailies 3, weeklies 11, monthlies 15, semi-monthlies 1, quarterlies 4. Of these, Maine has 4 monthlies; Massachusetts, 1 weekly; New York, 3 dailies, 7 weeklies, 6 monthlies, 1 quarterly; Ohio, 1 monthly, 1 quarterly; Pennsylvania, 3 weeklies, 4 monthlies, 1 semi-monthly, 2 quarterlies.

[b] Included in grand total and not separately reported: Weekly 1, monthly 1, semi-monthly 1.

[c] Included in grand total and not separately reported: Weeklies 4, monthlies 13, quarterlies 12.

## PERIODICALS PUBLISHED IN THE UNITED STATES, BY PERIODS OF ISSUE.

| CIRCULATION PER ISSUE—continued. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15,000 and less than 25,000. | | | | | | | | | | | 10,000 and less than 15,000. | | | | | | | | | | | 5,000 and less than 10,000. | | | | | | | | | | | |
| Dailies. | Weeklies. | Semi-weeklies. | Tri-weeklies. | Bi-weeklies. | Monthlies. | Semi-monthlies. | Tri-monthlies. | Bi-monthlies. | Quarterlies. | Semi-annuals. | Dailies. | Weeklies. | Semi-weeklies. | Tri-weeklies. | Bi-weeklies. | Monthlies. | Semi-monthlies. | Tri-monthlies. | Bi-monthlies. | Quarterlies. | Semi-annuals. | Dailies. | Weeklies. | Semi-weeklies. | Tri-weeklies. | Bi-weeklies. | Monthlies. | Semi-monthlies. | Tri-monthlies. | Bi-monthlies. | Quarterlies. | Semi-annuals. | |
| 25 | 75 | 2 | .... | .... | 40 | 7 | .... | .... | 3 | ... | 34 | 85 | 4 | .... | 1 | 67 | 7 | .... | 1 | 5 | 1 | 72 | 270 | 8 | 1 | 1 | 150 | 18 | .... | 1 | 15 | 1 | |
| | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | 1 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 |
| | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 |
| | 2 | | | | | | | | | | 1 | 2 | 1 | | | | | | | | | 1 | 4 | | 1 | | 5 | | | | | | 4 |
| | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | 1 | | | | | | 5 |
| | | | | | | | | | | | | | | | | 1 | | | | | | 3 | 6 | | | | 1 | | | | | | 6 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 7 |
| | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | 8 |
| 1 | 2 | | | | 1 | | | | | | 1 | | | | | 1 | | | | | | 1 | 3 | | | | 6 | | | | | | 9 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 |
| | 1 | | | | | | | | | | | 2 | | | | | | | | | | 1 | 4 | | | | 1 | | | | | | 11 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 12 |
| 4 | 18 | | | | 2 | | | | | | 1 | 11 | | | | 6 | | | | | | 2 | 31 | 2 | | | 21 | 4 | | | 3 | | 13 |
| | 2 | | | | | | | | | | 1 | 1 | | | | 1 | | | | | | 2 | 4 | | | | 4 | | | | | | 14 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 15 |
| | 1 | | | | | | | | | | | 1 | | | | 1 | | | | | | | 3 | | | | 3 | | | | | | 16 |
| | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | 2 | | | | | | 17 |
| | 1 | | | | | | | | | | 1 | | | | | | | | | | | 1 | 8 | | | | 1 | | | | | | 18 |
| | | | | | | | | | | | | | | | | | | | | | | 5 | 3 | 1 | | | | | | | | | 19 |
| | 1 | | | | | | | | | | | 2 | | | | | | | | | | | 4 | | | | | | | | | | 20 |
| 3 | 2 | | | | | | | | | | 1 | | | | | | | | | | | 3 | 4 | | | | 1 | | | | | | 21 |
| 5 | 8 | | | | 6 | | | | | | 4 | 5 | | | | 8 | | | | 1 | | 1 | 21 | 3 | | | 17 | | | | 1 | | 22 |
| 1 | | | | | | | | | | | | 2 | | | | | | | | 1 | | 2 | 10 | | | | 2 | 1 | | | | | 23 |
| | | | | | 1 | | | | | | 1 | 1 | | | | | | | | | | | 1 | | | | | | | | | | 24 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | 25 |
| 1 | 3 | | | | 1 | | | | | | 1 | 4 | | | | 3 | 1 | | | | | 4 | 13 | | | | 4 | 1 | | | | | 26 |
| | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | 27 |
| | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | | | | | | 28 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 29 |
| | | | | | 1 | | | | | | | 2 | | | | 1 | 2 | | | | | | 2 | | | | | | | | | | 30 |
| | | | | | | | | | | | | | | | | | | | | 1 | | 2 | 3 | | | | 1 | | | | | | 31 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 32 |
| 4 | 23 | 2 | | | 18 | 2 | | | 1 | | 5 | 22 | 1 | | 1 | 24 | 3 | | 1 | 1 | 1 | 15 | 60 | 2 | | | 41 | 5 | | 1 | 5 | 1 | 33 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 34 |
| 2 | 9 | | | | | 1 | | | 1 | | 5 | 8 | | | | 10 | | | | | | 6 | 27 | | | 1 | 12 | 4 | | | 3 | | 35 |
| | | | | | | | | | | | | | | | | 1 | | | | | | 1 | 2 | | | | | | | | | | 36 |
| 3 | 6 | | | | 9 | 1 | | | 1 | | 12 | 13 | 1 | | | 8 | 1 | | | 1 | | 11 | 33 | | | | 20 | 2 | | | 3 | | 37 |
| 1 | | | | | | | | | | | | | | | | | | | | | | 2 | 3 | | | | | | | | | | 38 |
| | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | 39 |
| | | | | | 1 | | | | | | | 5 | 1 | | | | | | | | | 2 | 3 | | | | | | | | | | 40 |
| | | | | | | | | | | | | 1 | | | | | | | | | | 1 | 4 | | | | | | | | | | 41 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 42 |
| | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | 43 |
| | | | | | | 1 | | | | | | | | | | 1 | | | | | | 1 | 1 | | | | 5 | | | | | | 44 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 45 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 46 |
| | 1 | | | | | 1 | | | | | | 3 | | | | 1 | | | | | | 1 | 6 | | | | 1 | 1 | | | | | 47 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 48 |

TABLE III.—STATEMENT OF THE CIRCULATION OF NEWSPAPERS AND PERIODICALS

| | STATES AND TERRITORIES. | CIRCULATION PER ISSUE—continued. | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 3,000 and less than 5,000. | | | | | | | | | | | 1,000 and less than 3,000. | | | | | | | | | | |
| | | Dailies. | Weeklies. | Semi-weeklies. | Tri-weeklies. | Bi-weeklies. | Monthlies. | Semi-monthlies. | Tri-monthlies. | Bi-monthlies. | Quarterlies. | Semi-annuals. | Dailies. | Weeklies. | Semi-weeklies. | Tri-weeklies. | Bi-weeklies. | Monthlies. | Semi-monthlies. | Tri-monthlies. | Bi-monthlies. | Quarterlies. | Semi-annuals. |
| | United States | 112 | 373 | 7 | | 4 | 119 | 17 | | 1 | 11 | | 272 | 2,313 | 56 | 27 | 12 | 339 | 51 | 1 | 4 | 30 | 2 |
| 1 | Alabama | 1 | 2 | | | | 1 | | | | | | 3 | 13 | | | | 2 | 2 | | | | |
| 2 | Arizona | | | | | | | | | | | | 1 | 4 | | | | | | | | | |
| 3 | Arkansas | | 2 | | | | | | | | | | 2 | 19 | 1 | | | | | | | | |
| 4 | California | 7 | 14 | | | | 6 | 1 | | | 1 | | 14 | 57 | 2 | | | 13 | 2 | | | | |
| 5 | Colorado | 2 | 2 | | | | | | | | | | 5 | 18 | | | | 1 | | | | | |
| 6 | Connecticut | 6 | 9 | | | | 1 | | | | | | 5 | 39 | 1 | | | 4 | | | 1 | 1 | |
| 7 | Dakota | | | | | | | | | | | | | 7 | | | | | | | | | |
| 8 | Delaware | 2 | | | | | | | | | | | 1 | 5 | | | | 1 | | | | | |
| 9 | District of Columbia | 1 | 2 | | | | 1 | | | | | | | 9 | | | | 5 | | | | 1 | |
| 10 | Florida | | 1 | | | | | | | | | | 1 | 4 | | | | | | | | | |
| 11 | Georgia | 2 | 5 | | | | 1 | | | | | | 7 | 20 | 2 | | | 6 | 1 | | | | |
| 12 | Idaho | | | | | | | | | | | | | 1 | | | | | | | | | |
| 13 | Illinois | 5 | 32 | 2 | | 1 | 9 | 5 | | | 2 | | 18 | 182 | 7 | 3 | | 31 | 6 | 1 | | 2 | 1 |
| 14 | Indiana | 3 | 12 | | | | 3 | | | | | | 16 | 134 | 1 | 1 | 1 | 7 | 3 | | | | |
| 15 | Indian territory | | 1 | | | | | | | | | | | | | | | | | | | | |
| 16 | Iowa | 5 | 10 | | | | 1 | | | | 1 | | 7 | 129 | | | 1 | 9 | 1 | | | | |
| 17 | Kansas | 2 | 7 | | | | 1 | | | | | | 6 | 57 | 1 | | | 5 | 1 | | | | |
| 18 | Kentucky | 2 | 7 | | | | | | | | | | 2 | 48 | 4 | 1 | | 14 | 1 | | | | |
| 19 | Louisiana | 3 | 4 | | | | | | | | | | 1 | 11 | | 1 | 1 | | | | | | |
| 20 | Maine | 2 | 5 | | | | 1 | | | | | | 6 | 33 | | | | 4 | | | | 1 | |
| 21 | Maryland | | 8 | | | | 3 | | | | | | | 33 | | | | 3 | 4 | | | | |
| 22 | Massachusetts | 5 | 22 | | | 1 | 9 | 1 | | | | | 14 | 106 | 9 | | 1 | 14 | | | | 2 | |
| 23 | Michigan | 1 | 7 | | | | 1 | | | | | | 11 | 90 | 2 | 3 | | 9 | 2 | | 1 | | |
| 24 | Minnesota | 3 | 8 | | | | | | | | | | 4 | 36 | | | | 2 | | | | | |
| 25 | Mississippi | | | | | | | | | | | | 1 | 22 | | | | | | | | | |
| 26 | Missouri | 4 | 12 | | | | 5 | 1 | | | | | 5 | 73 | 1 | 6 | 1 | 17 | 1 | | 2 | | |
| 27 | Montana | | 1 | | | | | | | | | | | 6 | | | | | | | | | |
| 28 | Nebraska | 3 | 2 | | | | 3 | | | | | | 2 | 19 | | | | 2 | | | | | |
| 29 | Nevada | 2 | | | | | | | | | | | 3 | 1 | | | | | | | | | |
| 30 | New Hampshire | | 3 | | | | | | | | | | 3 | 30 | | | | 1 | | | | | |
| 31 | New Jersey | 4 | 5 | | | | | | | | | | 9 | 62 | 2 | | | 5 | | | | 1 | |
| 32 | New Mexico | | | | | | | | | | | | 1 | | | | | | | | | | |
| 33 | New York | 12 | 79 | 3 | | 1 | 45 | 6 | | | 4 | | 42 | 291 | 13 | 2 | 5 | 78 | 11 | | | 13 | 1 |
| 34 | North Carolina | | 4 | | | | 1 | | | | | | 4 | 22 | | | | 1 | 2 | | | | |
| 35 | Ohio | 6 | 22 | 1 | | | 12 | 1 | | | | | 16 | 228 | 2 | 4 | | 20 | 4 | | | 3 | |
| 36 | Oregon | | 1 | | | | 1 | | | | | | 2 | 15 | | | | | | | | 1 | |
| 37 | Pennsylvania | 14 | 39 | | | | 9 | | | | 1 | | 30 | 276 | 2 | 3 | 1 | 51 | 6 | | | 2 | |
| 38 | Rhode Island | 3 | 4 | | | | | | | | | | 2 | 8 | | | | 1 | | | | | |
| 39 | South Carolina | | 4 | | | | | | | | | | 1 | 15 | | | | | | | | | |
| 40 | Tennessee | 4 | 5 | | | | | | | 1 | 1 | | 1 | 29 | | | | 4 | 1 | | | | |
| 41 | Texas | 1 | 5 | | | | 1 | | | | | | 6 | 29 | 1 | | | 3 | | | | | |
| 42 | Utah | 2 | 2 | 1 | | | | 1 | | | | | 1 | 1 | 3 | | | 3 | | | | | |
| 43 | Vermont | | 6 | | | | | | | | | | 1 | 23 | | | | 1 | | | | 1 | |
| 44 | Virginia | 1 | 6 | | | | 3 | | | | 1 | | 12 | 35 | 1 | 1 | | 6 | | | | 1 | |
| 45 | Washington | | | | | | | | | | | | | 6 | | | | | | | | | |
| 46 | West Virginia | 1 | 3 | | | | | | | | | | 1 | 16 | | | | 2 | | | | 1 | |
| 47 | Wisconsin | 3 | 10 | | | 1 | 1 | 1 | | | | | 5 | 50 | 1 | 2 | 1 | 5 | 3 | | | | |
| 48 | Wyoming | | | | | | | | | | | | | 1 | | | | | | | | | |

## PUBLISHED IN THE UNITED STATES, BY PERIODS OF ISSUE—Continued.

CIRCULATION PER ISSUE—continued.

| 500 and less than 1,000. | | | | | | | | | | | Number of journals having a circulation less than 500. | | | | | | | | | | | Number of journals suspended, consolidated, and giving no data. | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Dailies. | Weeklies. | Semi-weeklies. | Tri-weeklies. | Bi-weeklies. | Monthlies. | Semi-monthlies. | Tri-monthlies. | Bi-monthlies. | Quarterlies. | Semi-annuals. | Dailies. | Weeklies. | Semi-weeklies. | Tri-weeklies. | Bi-weeklies. | Monthlies. | Semi-monthlies. | Tri-monthlies. | Bi-monthlies. | Quarterlies. | Semi-annuals. | Dailies. | Weeklies. | Semi-weeklies. | Tri-weeklies. | Bi-weeklies. | Monthlies. | Semi-monthlies. | Tri-monthlies. | Bi-monthlies. | Quarterlies. | |
| 232 | 3,283 | 35 | 28 | 12 | 145 | 29 | 1 | 3 | 13 | 1 | 86 | 1,216 | 12 | 12 | 10 | 120 | 15 | .... | 2 | 16 | 1 | 113 | 934 | 9 | 5 | .... | 113 | 5 | .... | .... | 3 | |
| 1 | 51 | | | | 2 | | | | | | | 27 | | 1 | | 1 | | | | | | 1 | 15 | | | | 1 | | | | | 1 |
| 3 | 5 | | | | | | | | | | 1 | | | | | | | | | | | 1 | 2 | | | | | | | | | 2 |
| 1 | 37 | | | | 1 | | | | | | 2 | 29 | | | | | 2 | | | | | 1 | 17 | | | | 1 | 1 | | | | 3 |
| 11 | 94 | 6 | 1 | | 6 | 2 | | | | | 12 | 45 | 1 | | | 1 | 1 | | | 1 | | 10 | 31 | 1 | | | | | | | | 4 |
| 4 | 32 | 1 | | | 1 | | | | | | 1 | 3 | | | | 1 | | | | | | 5 | 8 | | | | | | | | | 5 |
| 1 | 28 | | | | 1 | 2 | 1 | | | | 1 | 6 | 1 | | | 4 | | | | 1 | | 1 | 11 | | | | 3 | | | | | 6 |
| 7 | 27 | | | | | | | | | | | 19 | | | | | | | | | | 2 | 4 | 1 | | | | | | | | 7 |
| | 11 | | | | | | | | | | | 3 | | | | | | | | | | 1 | 1 | | | | | | | | | 8 |
| | 2 | | | | 1 | | | | | | | | | | | | | | | | | 1 | 4 | | | | | | | | | 9 |
| 1 | 18 | 2 | | | | | | | | | | 10 | | | | | | | | | | 1 | 7 | | | | | | | | | 10 |
| 4 | 84 | 1 | 3 | | 1 | 1 | | | | | | 84 | | | | | | | | | | 2 | 22 | | 1 | | 1 | | | | | 11 |
| | 5 | 1 | 1 | | | | | | | | | 1 | | | | | | | | | | | | 1 | | | | | | | | 12 |
| 30 | 291 | 4 | 1 | 2 | 9 | 2 | | | | | 5 | 102 | 2 | 2 | | 10 | 1 | | | 1 | | 6 | 85 | | | | 15 | | | | 1 | 13 |
| 14 | 140 | | 1 | | 4 | 1 | | | | | 2 | 55 | | | | 6 | 1 | | | | | 2 | 36 | | 1 | | 2 | | | | | 14 |
| | 1 | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | 15 |
| 11 | 239 | 2 | | | 2 | | | | | | 3 | 68 | 1 | 1 | 1 | 10 | | | | | | 4 | 49 | | | | 5 | | | | | 16 |
| 6 | 132 | | | | 3 | | | | | | | 64 | | | | 3 | | | | | | 6 | 48 | | | | 1 | | | | | 17 |
| 5 | 61 | 2 | 1 | | 4 | | | | | | | 12 | | | | 4 | | | | | | | 22 | 1 | | | | | | | | 18 |
| 1 | 25 | | | | 1 | | | | | | | 41 | | | | 1 | | | | | | 3 | 10 | | | | | | | | | 19 |
| 2 | 25 | | | | 4 | | | | | | | 10 | | 1 | 1 | 3 | | | | | | 2 | 10 | | | | 1 | | | | | 20 |
| 5 | 39 | | | | 1 | | | | 1 | | 1 | 13 | | | | 2 | | | | | | 1 | 9 | | | | 2 | | | | | 21 |
| 5 | 57 | 1 | | 3 | 7 | | | | 3 | | | 29 | | 1 | 2 | 6 | | | | | | 3 | 24 | | | | 7 | | | | | 22 |
| 8 | 183 | 1 | | 1 | 4 | 1 | | | | 1 | 6 | 69 | | | 1 | 1 | | | | | | 4 | 34 | | | | 2 | | | | | 23 |
| | 72 | | 1 | | 1 | | | | | | | 66 | | | | 1 | 1 | | | | | 2 | 21 | | | | 1 | | | | | 24 |
| 2 | 49 | | 2 | | 2 | | | | | | 2 | 26 | 1 | 1 | | | | | | | | | 12 | | 2 | | | | | | | 25 |
| 8 | 196 | | 2 | | 7 | 2 | | | 1 | | 14 | 64 | | | | 7 | 2 | | | | | 5 | 46 | 1 | | | 5 | | | | | 26 |
| | 3 | | | | | | | | | | 3 | 1 | | | | | | | | | | 1 | 2 | | | | | | | | | 27 |
| 5 | 81 | 1 | | | | 1 | | | | | 2 | 50 | | | | 1 | | | | | | 3 | 11 | | | | 1 | | | | | 28 |
| 8 | 10 | | | | 1 | | | | | | 1 | 7 | | | | | | | | | | | 4 | | | | | | | | | 29 |
| 7 | 19 | | | 1 | 2 | 1 | | | | | | 4 | | | | 2 | | | | | | | 6 | | | | | | | | | 30 |
| 7 | 49 | 2 | 1 | 2 | 1 | | | 1 | | | 2 | 29 | | | | 2 | | | | | | 3 | 15 | 2 | | | 4 | | | | | 31 |
| 2 | 6 | | | | | | | | | | | 3 | | | | | | | | | | | 6 | | | | | | | | | 32 |
| 18 | 245 | 2 | 2 | 2 | 21 | 6 | | 2 | 4 | | 2 | 53 | | | 1 | 10 | | | | 8 | | 6 | 84 | 1 | 1 | | 19 | 1 | | | 1 | 33 |
| 3 | 52 | 2 | | | 2 | 2 | | | | | 2 | 17 | | 2 | | 2 | | | | | | 4 | 18 | 1 | | | 1 | | | | | 34 |
| 5 | 194 | 1 | 3 | 1 | 7 | 2 | | | 2 | | 7 | 47 | | 1 | 1 | 6 | | | | 1 | | 8 | 42 | | | | 11 | 1 | | | | 35 |
| 3 | 27 | | | | 1 | | | | | | 1 | 6 | | | | 3 | | | | | | | 8 | | | | | 1 | | | | 36 |
| 13 | 192 | | 1 | | 25 | 2 | | | | | 4 | 45 | | | | 12 | 1 | | 1 | 3 | 1 | 7 | 60 | | | | 11 | | | | 1 | 37 |
| | 10 | 1 | | | 2 | | | | | | | 1 | | | 1 | | | | | | | | 5 | | | | | | | | | 38 |
| 1 | 32 | 1 | 1 | | 2 | | | | 1 | | 1 | 10 | | 2 | | | | | | | | | 8 | | | | 1 | | | | | 39 |
| 3 | 64 | 1 | | | 1 | 2 | | | 1 | | | 24 | | | | 4 | 2 | | | | | 2 | 23 | | | | 6 | 1 | | | | 40 |
| 11 | 118 | | 1 | | 3 | 2 | | | | | 5 | 35 | 1 | | | 1 | | | | | | 6 | 39 | | | | 5 | | | | | 41 |
| | 3 | | | | | | | | | | 1 | 1 | | | | | | | | | | 1 | 1 | | | | 1 | | | | | 42 |
| 3 | 18 | | | | 1 | | | | | | | 1 | | | | | 1 | | | | | 1 | 23 | | | | | | | | | 43 |
| 2 | 54 | 2 | 4 | | 5 | | | | | | 1 | 17 | 3 | | | 10 | 1 | | 1 | 1 | | 3 | 11 | | | | 3 | | | | | 44 |
| 1 | 10 | | | | | | | | | | 2 | 5 | | | | | | | | | | 1 | 2 | | | | 2 | | | | | 45 |
| | 55 | 1 | 1 | | 2 | | | | | | | 13 | 1 | | 1 | 1 | | | | | | | 9 | | | | 1 | | | | | 46 |
| 8 | 128 | | 1 | | 7 | | | | | | 1 | 59 | 1 | | 1 | 5 | 2 | | | | | 3 | 26 | | | | | | | | | 47 |
| 2 | 3 | | | | | | | | | | 1 | 2 | | | | | | | | | | | 2 | | | | | | | | | 48 |

## TABLE IV.—AMOUNT PAID ANNUALLY IN WAGES AND TOTAL GROSS VALUE OF PRODUCTS OF TOTAL WAGES PAID, RECEIPTS FROM ADVERTISING AND SUBSCRIPTIONS, NUMBER OF

| | STATES AND TERRITORIES. | Amount paid annually in wages. | | | Percentage of total wages paid. | | Average wages to each establishment. | |
|---|---|---|---|---|---|---|---|---|
| | | Total. | Dailies. | Weeklies and all others. | Dailies. | Weeklies and all others. | Dailies. | Weeklies and all others. |
| | The United States | $28, 559, 336 38 | $17, 813, 053 38 | $10, 746, 283 00 | 62. 37 | 37. 63 | $20, 105 03 | $1, 476 75 |
| 1 | Alabama | 110, 083 00 | 52, 300 00 | 57, 783 00 | 47. 51 | 52. 49 | 10, 460 00 | 642 03 |
| 2 | Arizona | 45, 828 00 | 37, 228 00 | 8, 600 00 | 81. 23 | 18. 77 | 6, 204 66 | 1, 720 00 |
| 3 | Arkansas | 119, 048 00 | 63, 500 00 | 55, 548 00 | 53. 34 | 46. 66 | 10, 583 33 | 760 93 |
| 4 | California | 1, 300, 139 86 | 941, 122 36 | 359, 017 50 | 72. 39 | 27. 61 | 18, 822 44 | 1, 813 22 |
| 5 | Colorado | 338, 345 00 | 270, 090 00 | 68, 255 00 | 79. 83 | 20. 17 | 15, 887 64 | 1, 664 75 |
| 6 | Connecticut | 378, 566 00 | 287, 792 00 | 90, 774 00 | 76. 02 | 23. 98 | 17, 987 00 | 1, 334 91 |
| 7 | Dakota | 112, 185 00 | 65, 500 00 | 46, 685 00 | 58. 39 | 41. 61 | 9, 357 14 | 1, 061 02 |
| 8 | Delaware | 55, 278 66 | 41, 061 66 | 14, 217 00 | 74. 28 | 25. 72 | 10, 265 42 | 836 30 |
| 9 | District of Columbia | 205, 924 00 | 134, 282 00 | 71, 642 00 | 65. 21 | 34. 79 | 33, 570 50 | 5, 970 16 |
| 10 | Florida | 43, 253 00 | 16, 000 00 | 27, 253 00 | 36. 99 | 63. 01 | 5, 333 33 | 879 13 |
| 11 | Georgia | 331, 327 00 | 190, 137 00 | 141, 190 00 | 57. 38 | 42. 62 | 12, 675 80 | 967 05 |
| 12 | Idaho | 18, 000 00 | ........ | 18, 000 00 | ........ | 100. 00 | ........ | 2, 571 43 |
| 13 | Illinois | 2, 736, 717 42 | 1, 480, 435 42 | 1, 256, 282 00 | 54. 10 | 45. 90 | 21, 455 58 | 1, 764 44 |
| 14 | Indiana | 745, 850 00 | 403, 443 00 | 342, 407 00 | 54. 09 | 45. 91 | 10, 086 07 | 1, 115 33 |
| 15 | Indian territory | 3, 000 00 | ........ | 3, 000 00 | ........ | 100. 00 | ........ | 1, 500 00 |
| 16 | Iowa | 647, 407 12 | 277, 009 12 | 370, 398 00 | 42. 79 | 57. 21 | 10, 259 59 | 798 27 |
| 17 | Kansas | 335, 437 86 | 140, 833 86 | 194, 604 00 | 41. 99 | 58. 01 | 7, 412 30 | 787 87 |
| 18 | Kentucky | 272, 136 00 | 75, 000 00 | 197, 136 00 | 27. 56 | 72. 44 | 8, 333 34 | 1, 332 00 |
| 19 | Louisiana | 411, 616 00 | 330, 835 00 | 80, 781 00 | 80. 37 | 19. 63 | 33, 083 50 | 1, 091 03 |
| 20 | Maine | 317, 006 00 | 95, 257 00 | 221, 749 00 | 30. 05 | 69. 95 | 9, 525 70 | 2, 956 65 |
| 21 | Maryland | 486, 958 00 | 373, 236 00 | 113, 722 00 | 76. 65 | 23. 35 | 28, 710 46 | 1, 277 78 |
| 22 | Massachusetts | 2, 074, 749 00 | 1, 342, 782 00 | 731, 967 00 | 64. 72 | 35. 28 | 40, 690 36 | 2, 927 87 |
| 23 | Michigan | 729, 673 00 | 385, 048 00 | 344, 625 00 | 52. 77 | 47. 23 | 12, 420 90 | 1, 063 65 |
| 24 | Minnesota | 390, 161 00 | 226, 521 00 | 163, 640 00 | 58. 06 | 41. 94 | 28, 315 12 | 956 95 |
| 25 | Mississippi | 109, 036 00 | 40, 220 00 | 68, 816 00 | 36. 89 | 63. 11 | 8, 044 00 | 739 96 |
| 26 | Missouri | 1, 284, 831 00 | 913, 154 00 | 371, 677 00 | 71. 08 | 28. 92 | 21, 741 76 | 1, 102 90 |
| 27 | Montana | 66, 700 00 | 30, 500 00 | 36, 200 00 | 45. 73 | 54. 27 | 10, 166 66 | 4, 022 22 |
| 28 | Nebraska | 250, 732 00 | 138, 808 00 | 111, 924 00 | 55. 36 | 44. 64 | 10, 677 53 | 888 29 |
| 29 | Nevada | 162, 338 00 | 144, 500 00 | 17, 838 00 | 89. 01 | 10. 99 | 10, 321 42 | 1, 189 20 |
| 30 | New Hampshire | 119, 203 00 | 62, 950 00 | 56, 253 00 | 52. 81 | 47. 19 | 6, 994 44 | 1, 081 79 |
| 31 | New Jersey | 454, 533 00 | 241, 784 00 | 212, 749 00 | 53. 19 | 46. 81 | 10, 074 33 | 1, 447 27 |
| 32 | New Mexico | 31, 292 00 | 23, 760 00 | 7, 532 00 | 75. 93 | 24. 07 | 7, 920 00 | 1, 076 00 |
| 33 | New York | 6, 460, 071 00 | 4, 227, 715 00 | 2, 232, 356 00 | 65. 44 | 34. 56 | 38, 087 52 | 2, 972 51 |
| 34 | North Carolina | 119, 809 00 | 49, 070 00 | 70, 739 00 | 40. 96 | 59. 04 | 5, 452 22 | 760 63 |
| 35 | Ohio | 1, 761, 038 00 | 1, 082, 455 00 | 678, 583 00 | 61. 47 | 38. 53 | 22, 551 14 | 1, 275 53 |
| 36 | Oregon | 128, 430 33 | 86, 822 33 | 41, 608 00 | 67. 60 | 32. 40 | 12, 403 14 | 904 52 |
| 37 | Pennsylvania | 2, 913, 162 00 | 1, 932, 818 00 | 980, 344 00 | 66. 35 | 33. 65 | 20, 133 52 | 1, 704 95 |
| 38 | Rhode Island | 206, 525 63 | 161, 158 63 | 45, 367 00 | 78. 03 | 21. 97 | 26, 859 77 | 1, 972 48 |
| 39 | South Carolina | 110, 081 00 | 54, 900 00 | 55, 181 00 | 49. 87 | 50. 13 | 13, 725 00 | 951 40 |
| 40 | Tennessee | 265, 456 50 | 156, 496 00 | 108, 960 50 | 58. 95 | 41. 05 | 15, 649 60 | 893 12 |
| 41 | Texas | 772, 059 00 | 617, 486 00 | 154, 573 00 | 79. 98 | 20. 02 | 22, 053 07 | 898 68 |
| 42 | Utah | 88, 580 00 | 76, 080 00 | 12, 500 00 | 85. 89 | 14. 11 | 19, 020 00 | 1, 250 00 |
| 43 | Vermont | 92, 959 00 | 29, 000 00 | 63, 959 00 | 31. 20 | 68. 80 | 9, 666 66 | 1, 254 09 |
| 44 | Virginia | 261, 362 00 | 162, 350 00 | 99, 012 00 | 62. 12 | 37. 88 | 8, 544 74 | 925 34 |
| 45 | Washington | 34, 975 00 | 15, 700 00 | 19, 275 00 | 44. 89 | 55. 11 | 5, 233 33 | 1, 070 83 |
| 46 | West Virginia | 99, 671 00 | 31, 772 00 | 67, 899 00 | 31. 88 | 68. 12 | 15, 886 00 | 798 81 |
| 47 | Wisconsin | 531, 903 00 | 283, 841 00 | 248, 062 00 | 53. 36 | 46. 64 | 14, 939 00 | 996 23 |
| 48 | Wyoming | 25, 900 00 | 20, 300 00 | 5, 600 00 | 78. 38 | 21. 62 | 6, 766 66 | 1, 400 00 |

## NEWSPAPERS AND PERIODICALS PUBLISHED IN THE UNITED STATES, WITH PERCENTAGE OF HANDS EMPLOYED IN MANUFACTURE, AND NUMBER EMPLOYED IN EDITORIAL WORK.

| Gross value of annual products. | | | Receipts from advertising. | | Receipts from subscription. | | Percentage of receipts from advertising. | | Percentage of receipts from subscription. | | Number of persons employed in manufacture. | | Number employed in editorial work. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Dailies. | Weeklies and all others. | Total. | Dailies and weeklies connected. | Weeklies and all others. | Dailies and weeklies connected. | Weeklies and all others. | Dailies and weeklies connected. | Weeklies and all others. | Dailies and weeklies connected. | Weeklies and all others. | Males. | Females. | | |
| $43, 702, 113 | $45, 306, 961 | $89, 009, 074 | $21,487,676 | $17, 648, 630 | $22,214,437 | $27,658, 331 | 49. 17 | 38. 95 | 50. 83 | 61. 05 | 51, 140 | 3, 875 | 16, 600 | |
| 194, 400 | 229, 511 | 423, 911 | 95, 900 | 124, 765 | 98, 500 | 104, 746 | 49. 33 | 54. 36 | 50. 67 | 45. 64 | 334 | 3 | 143 | 1 |
| 71, 500 | 24, 200 | 95, 700 | 45, 900 | 12, 100 | 25, 600 | 12, 100 | 64. 20 | 50. 00 | 35. 80 | 50. 00 | 72 | 12 | 23 | 2 |
| 145, 200 | 194, 903 | 340, 103 | 71, 933 | 110, 268 | 73, 267 | 84, 635 | 49. 54 | 56. 58 | 50. 46 | 43. 42 | 337 | 21 | 130 | 3 |
| 2, 596, 158 | 1, 340, 080 | 3, 936, 238 | 1, 555, 096 | 595, 821 | 1, 041, 062 | 744, 259 | 59. 90 | 44. 46 | 40. 10 | 55. 54 | 1, 645 | 137 | 567 | 4 |
| 789, 220 | 225, 890 | 1, 015, 110 | 415, 745 | 151, 697 | 373, 475 | 74, 193 | 52. 68 | 67. 16 | 47. 32 | 32. 84 | 473 | 17 | 127 | 5 |
| 640, 480 | 299, 002 | 939, 482 | 314, 855 | 145, 215 | 325, 625 | 153, 787 | 49. 16 | 48. 57 | 50. 84 | 51. 43 | 618 | 45 | 248 | 6 |
| 109, 500 | 125, 551 | 235, 051 | 52, 700 | 75, 326 | 56, 800 | 50, 225 | 48. 13 | 60. 00 | 51. 87 | 40. 00 | 230 | 9 | 76 | 7 |
| 114, 988 | 41, 100 | 156, 088 | 67, 913 | 24, 070 | 47, 075 | 17, 030 | 59. 06 | 58. 93 | 40. 94 | 41. 07 | 146 | 8 | 36 | 8 |
| 324, 143 | 245, 514 | 569, 657 | 151, 386 | 74, 542 | 172, 757 | 170, 972 | 46. 70 | 30. 36 | 53. 30 | 69. 64 | 231 | 14 | 98 | 9 |
| 32, 500 | 84, 200 | 116, 700 | 16, 250 | 50, 409 | 16, 250 | 33, 791 | 50. 00 | 59. 87 | 50. 00 | 40. 13 | 134 | 2 | 40 | 10 |
| 488, 771 | 459, 858 | 948, 629 | 257, 078 | 211, 433 | 231, 693 | 248, 425 | 52. 60 | 45. 98 | 47. 40 | 54. 02 | 827 | 21 | 236 | 11 |
| ........... | 38, 000 | 38, 000 | ........... | 19, 190 | ........... | 18, 810 | ........... | 50. 50 | ........... | 49. 50 | 21 | 2 | 9 | 12 |
| 3, 451, 157 | 3, 813, 428 | 7, 264, 585 | 1, 589, 701 | 1, 590, 253 | 1, 861, 456 | 2, 223, 175 | 46. 06 | 41. 70 | 53. 94 | 58. 30 | 4, 708 | 491 | 1, 384 | 13 |
| 880, 314 | 1, 155, 799 | 2, 036, 113 | 469, 194 | 588, 494 | 411, 120 | 567, 305 | 53. 30 | 50. 92 | 46. 70 | 49. 08 | 1, 978 | 115 | 583 | 14 |
| ........... | 6, 300 | 6, 300 | ........... | 2, 990 | ........... | 3, 310 | ........... | 47. 46 | ........... | 52. 54 | 11 | ........... | 3 | 15 |
| 755, 673 | 1, 332, 497 | 2, 088, 170 | 383, 375 | 767, 431 | 372, 298 | 565, 066 | 50. 74 | 57. 59 | 49. 26 | 42. 41 | 1, 881 | 159 | 507 | 16 |
| 327, 693 | 679, 107 | 1, 006, 800 | 191, 844 | 399, 879 | 135, 849 | 279, 228 | 58. 54 | 58. 88 | 41. 46 | 41. 12 | 1, 051 | 83 | 365 | 17 |
| 834, 412 | 634, 205 | 1, 468, 617 | 381, 636 | 290, 248 | 452, 776 | 343, 957 | 45. 74 | 45. 77 | 54. 26 | 54. 23 | 1, 045 | 14 | 297 | 18 |
| 820, 595 | 310, 060 | 1, 130, 655 | 491, 904 | 125, 358 | 328, 691 | 184, 702 | 59. 95 | 40. 43 | 40. 05 | 59. 57 | 594 | 2 | 190 | 19 |
| 222, 422 | 1, 014, 039 | 1, 236, 461 | 92, 436 | 121, 958 | 129, 986 | 892, 081 | 41. 56 | 12. 03 | 58. 44 | 87. 97 | 517 | 367 | 152 | 20 |
| 1, 122, 160 | 445, 733 | 1, 567, 893 | 632, 356 | 227, 491 | 489, 804 | 218, 242 | 56. 35 | 51. 04 | 43. 65 | 48. 96 | 873 | 19 | 271 | 21 |
| 3, 033, 267 | 3, 334, 493 | 6, 367, 760 | 1, 426, 555 | 1, 085, 967 | 1, 606, 712 | 2, 248, 526 | 47. 03 | 32. 57 | 52. 97 | 67. 43 | 2, 148 | 420 | 848 | 22 |
| 979, 270 | 1, 078, 168 | 2, 057, 438 | 468, 527 | 533, 565 | 510, 743 | 544, 603 | 47. 84 | 49. 49 | 52. 16 | 50. 51 | 1, 669 | 172 | 598 | 23 |
| 424, 960 | 522, 943 | 947, 903 | 226, 088 | 298, 452 | 198, 872 | 224, 491 | 53. 20 | 57. 07 | 46. 80 | 42. 93 | 871 | 46 | 261 | 24 |
| 77, 200 | 303, 693 | 380, 893 | 41, 800 | 170, 134 | 35, 400 | 133, 559 | 54. 15 | 56. 03 | 45. 85 | 43. 97 | 330 | 10 | 128 | 25 |
| 2, 234, 565 | 1, 344, 356 | 3, 578, 921 | 1, 084, 512 | 625, 729 | 1, 150, 053 | 718, 627 | 48. 53 | 46 54 | 51. 47 | 53. 46 | 2, 413 | 151 | 651 | 26 |
| 68, 000 | 109, 750 | 177, 750 | 31, 200 | 52, 930 | 36, 800 | 56, 820 | 45. 88 | 48. 23 | 54. 12 | 51. 77 | 64 | 3 | 27 | 27 |
| 339, 698 | 372, 846 | 712, 544 | 171, 753 | 220, 072 | 167, 945 | 152, 774 | 50. 56 | 59. 02 | 49. 44 | 40. 98 | 515 | 34 | 213 | 28 |
| 283, 500 | 55, 300 | 338, 800 | 183, 570 | 31, 569 | 99, 930 | 23, 731 | 64. 75 | 57. 09 | 35. 25 | 42. 91 | 151 | 7 | 44 | 29 |
| 184, 709 | 175, 150 | 359, 859 | 94, 766 | 84, 249 | 89, 943 | 90, 901 | 51. 31 | 48. 10 | 48. 69 | 51. 90 | 262 | 54 | 96 | 30 |
| 577, 825 | 597, 190 | 1, 175, 015 | 333, 352 | 360, 805 | 244, 473 | 236, 385 | 57. 69 | 60. 42 | 42. 31 | 39. 58 | 1, 016 | 63 | 285 | 31 |
| 52, 372 | 18, 600 | 70, 972 | 26, 288 | 9, 595 | 26, 084 | 9, 005 | 50. 19 | 51. 59 | 49. 81 | 48. 41 | 57 | 2 | 20 | 32 |
| 10, 412, 991 | 13, 853, 920 | 24, 266, 911 | 4, 667, 985 | 4, 005, 188 | 5, 745, 006 | 9, 847, 732 | 44. 83 | 28. 92 | 55. 17 | 71. 08 | 8, 646 | 519 | 3, 237 | 33 |
| 89, 900 | 254, 232 | 344, 132 | 46, 220 | 132, 104 | 43, 680 | 122, 128 | 51. 41 | 51. 96 | 48. 59 | 48. 04 | 300 | 2 | 140 | 34 |
| 3, 182, 295 | 2, 927, 153 | 6, 109, 448 | 1, 321, 003 | 1, 139, 639 | 1, 861, 292 | 1, 787, 514 | 41. 51 | 38. 93 | 58. 49 | 61. 07 | 3, 995 | 237 | 1, 081 | 35 |
| 169, 174 | 198, 015 | 367, 189 | 77, 210 | 99, 885 | 91, 964 | 98, 130 | 45. 64 | 50. 44 | 54. 36 | 49. 56 | 234 | 17 | 92 | 36 |
| 4, 819, 396 | 4, 500, 101 | 9, 319, 497 | 2, 551, 613 | 1, 667, 157 | 2, 267, 783 | 2, 832, 944 | 52. 94 | 37. 05 | 47. 06 | 62. 95 | 5, 399 | 209 | 1, 630 | 37 |
| 338, 425 | 117, 301 | 455, 726 | 184, 703 | 59, 452 | 153, 722 | 57, 849 | 54. 58 | 50. 68 | 45. 42 | 49. 32 | 340 | 24 | 79 | 38 |
| 141, 100 | 168, 138 | 309, 238 | 70, 039 | 75, 868 | 71, 061 | 92, 270 | 49. 64 | 45. 13 | 50. 36 | 54. 87 | 280 | 8 | 99 | 39 |
| 415, 890 | 368, 191 | 784, 081 | 215, 848 | 157, 602 | 200, 042 | 210, 589 | 51. 90 | 42. 81 | 48. 10 | 57. 19 | 660 | 21 | 220 | 40 |
| 595, 986 | 504, 309 | 1, 100, 295 | 313, 961 | 256, 128 | 282, 025 | 248, 181 | 52. 68 | 50. 79 | 47. 32 | 49. 21 | 1, 048 | 61 | 348 | 41 |
| 146, 708 | 30, 350 | 177, 058 | 68, 395 | 12, 875 | 78, 313 | 17, 475 | 46. 62 | 42. 42 | 53. 38 | 57. 58 | 136 | 7 | 25 | 42 |
| 63, 400 | 109, 319 | 262, 719 | 30, 900 | 71, 719 | 32, 500 | 127, 600 | 48. 74 | 35. 98 | 51. 26 | 64. 02 | 216 | 82 | 73 | 43 |
| 324, 540 | 374, 286 | 698, 826 | 179, 365 | 176, 839 | 145, 175 | 197, 447 | 55. 27 | 47. 25 | 44. 73 | 52. 75 | 682 | 17 | 262 | 44 |
| 29, 700 | 57, 700 | 87, 400 | 16, 890 | 31, 950 | 12, 810 | 25, 750 | 56. 87 | 55. 37 | 43. 13 | 44. 63 | 72 | 10 | 27 | 45 |
| 83, 556 | 217, 855 | 301, 411 | 44, 556 | 124, 724 | 39, 000 | 93, 131 | 53. 32 | 57. 25 | 46. 68 | 42. 75 | 302 | 5 | 114 | 46 |
| 077, 900 | 911, 825 | 1, 589, 725 | 308, 550 | 446, 370 | 369, 350 | 465, 455 | 45. 52 | 48. 95 | 54. 48 | 51. 05 | 1, 416 | 152 | 412 | 47 |
| 34, 500 | 12, 800 | 47, 300 | 24, 825 | 8, 125 | 9, 675 | 4, 675 | 71. 96 | 63. 48 | 28. 04 | 36. 52 | 36 | 1 | 9 | 48 |

TABLE V.—AVERAGE AND AGGREGATE EMS OF TYPE SET PER ISSUE ON THE NEWSPAPERS AND PERIODICALS OF THE UNITED STATES, WITH AGGREGATE POUNDS OF TYPE AND NUMBER OF PRESSES IN USE, AND THE NUMBER OF PAPERS PRINTED ON THE CO-OPERATIVE PLAN.

| STATES AND TERRITORIES. | Average ems of type set per issue. | | Aggregate ems of type set per issue. | | Aggregate pounds of type in use. | Number of presses owned and used in newspaper work. | | | Number of co-operative papers. |
|---|---|---|---|---|---|---|---|---|---|
| | Dailies. | Weeklies and all others. | Dailies. | Weeklies and all others. | | Hand-power. | Water-power. | Steam-power. | |
| The United States | 74, 147 | 57, 197 | 66, 140, 266 | 490, 753, 756 | 6, 689, 878 | 4, 873 | 148 | 3, 027 | 3, 238 |
| Alabama | 47, 000 | 35, 263 | 235, 000 | 3, 596, 900 | 48, 855 | 91 | ........ | 9 | 52 |
| Arizona | 41, 750 | 44, 000 | 250, 500 | 220, 000 | 8, 550 | 8 | ........ | 3 | ........ |
| Arkansas | 29, 167 | 45, 368 | 175, 000 | 4, 309, 956 | 52, 350 | 83 | ........ | 14 | 22 |
| California | 66, 150 | 55, 415 | 3, 307, 500 | 13, 188, 774 | 196, 720 | 142 | 4 | 51 | 70 |
| Colorado | 66, 882 | 54, 142 | 1, 137, 000 | 2, 544, 700 | 48, 930 | 36 | 5 | 20 | 7 |
| Connecticut | 70, 663 | 50, 957 | 1, 201, 264 | 4, 739, 000 | 78, 360 | 32 | 7 | 42 | 35 |
| Dakota | 35, 714 | 37, 058 | 250, 000 | 1, 890, 000 | 31, 050 | 54 | ........ | 5 | 41 |
| Delaware | 58, 924 | 47, 116 | 235, 698 | 800, 972 | 13, 100 | 15 | ........ | 9 | 3 |
| District of Columbia | 92, 500 | 95, 353 | 370, 000 | 3, 242, 000 | 45, 520 | 3 | 2 | 7 | 4 |
| Florida | 46, 667 | 39, 053 | 140, 000 | 1, 288, 760 | 26, 850 | 28 | 1 | 6 | 2 |
| Georgia | 66, 400 | 40, 652 | 996, 000 | 5, 935, 155 | 101, 495 | 124 | 1 | 30 | 38 |
| Idaho | ........ | 41, 875 | ........ | 335, 000 | 4, 550 | 8 | ........ | ........ | ........ |
| Illinois | 67, 894 | 50, 072 | 4, 752, 600 | 39, 106, 362 | 517, 520 | 126 | 17 | 545 | 376 |
| Indiana | 58, 525 | 51, 929 | 2, 341, 000 | 18, 538, 648 | 241, 375 | 83 | 4 | 298 | 136 |
| Indian territory | ........ | 41, 666 | ........ | 125, 000 | 1, 300 | 3 | ........ | ........ | 1 |
| Iowa | 68, 130 | 49, 633 | 1, 839, 500 | 23, 377, 312 | 359, 008 | 406 | 9 | 92 | 318 |
| Kansas | 47, 142 | 45, 845 | 853, 950 | 12, 148, 884 | 146, 639 | 234 | ........ | 31 | 159 |
| Kentucky | 90, 982 | 57, 954 | 1, 000, 800 | 9, 156, 792 | 121, 769 | 120 | 1 | 28 | 23 |
| Louisiana | 140, 100 | 36, 470 | 1, 401, 000 | 3, 027, 000 | 123, 125 | 72 | ........ | 15 | 14 |
| Maine | 66, 700 | 67, 518 | 667, 000 | 6, 076, 600 | 63, 035 | 44 | 3 | 54 | 10 |
| Maryland | 136, 854 | 46, 535 | 1, 642, 250 | 4, 839, 676 | 79, 093 | 61 | 1 | 31 | 21 |
| Massachusetts | 94, 470 | 63, 073 | 3, 117, 500 | 20, 372, 659 | 289, 580 | 74 | 8 | 163 | 59 |
| Michigan | 53, 531 | 48, 862 | 1, 713, 000 | 17, 736, 935 | 194, 817 | 252 | 1 | 111 | 277 |
| Minnesota | 100, 875 | 40, 592 | 807, 000 | 7, 509, 600 | 120, 275 | 156 | 1 | 27 | 105 |
| Mississippi | 34, 400 | 42, 880 | 172, 000 | 4, 331, 910 | 60, 285 | 93 | ........ | 6 | 24 |
| Missouri | 81, 648 | 53, 757 | 3, 429, 200 | 21, 019, 051 | 332, 142 | 315 | 1 | 71 | 170 |
| Montana | 36, 667 | 50, 444 | 110, 000 | 535, 000 | 8, 050 | 3 | 1 | 9 | ........ |
| Nebraska | 53, 000 | 42, 472 | 689, 000 | 6, 498, 250 | 97, 615 | 137 | ........ | 20 | 144 |
| Nevada | 38, 286 | 40, 941 | 536, 000 | 696, 000 | 28, 250 | 20 | 1 | 7 | ........ |
| New Hampshire | 39, 000 | 53, 154 | 390, 000 | 3, 136, 100 | 40, 149 | 42 | 3 | 27 | 28 |
| New Jersey | 55, 354 | 59, 514 | 1, 328, 500 | 9, 462, 800 | 131, 800 | 94 | 7 | 64 | 45 |
| New Mexico | 29, 867 | 35, 250 | 89, 600 | 282, 000 | 6, 375 | 11 | ........ | 1 | ........ |
| New York | 102, 341 | 94, 332 | 11, 564, 555 | 102, 161, 983 | 1, 242, 649 | 315 | 31 | 490 | 201 |
| North Carolina | 34, 750 | 45, 695 | 278, 000 | 4, 752, 310 | 58, 055 | 99 | ........ | 5 | 27 |
| Ohio | 108, 262 | 48, 180 | 5, 196, 566 | 29, 341, 803 | 378, 425 | 301 | 8 | 210 | 229 |
| Oregon | 49, 286 | 51, 857 | 345, 000 | 2, 644, 708 | 37, 775 | 41 | 2 | 9 | 5 |
| Pennsylvania | 80, 282 | 68, 578 | 7, 466, 253 | 51, 639, 149 | 681, 736 | 329 | 20 | 280 | 178 |
| Rhode Island | 78, 587 | 72, 487 | 628, 790 | 1, 812, 186 | 31, 800 | 7 | 1 | 19 | 4 |
| South Carolina | 63, 000 | 52, 423 | 252, 000 | 3, 250, 240 | 33, 255 | 57 | ........ | 8 | 22 |
| Tennessee | 66, 450 | 43, 721 | 664, 500 | 6, 208, 328 | 83, 979 | 114 | ........ | 39 | 44 |
| Texas | 52, 093 | 45, 886 | 1, 510, 700 | 9, 498, 432 | 134, 571 | 203 | 1 | 22 | 18 |
| Utah | 55, 750 | 46, 750 | 223, 000 | 467, 500 | 18, 800 | 7 | 1 | 7 | 3 |
| Vermont | 60, 000 | 74, 844 | 180, 000 | 3, 817, 033 | 43, 435 | 31 | 3 | 25 | 25 |
| Virginia | 49, 395 | 45, 471 | 938, 500 | 6, 411, 384 | 81, 404 | 99 | 2 | 30 | 24 |
| Washington | 32, 000 | 42, 150 | 96, 000 | 843, 000 | 17, 450 | 16 | ........ | 7 | 6 |
| West Virginia | 85, 000 | 50, 662 | 170, 000 | 4, 812, 914 | 49, 490 | 78 | ........ | 9 | 33 |
| Wisconsin | 69, 717 | 47, 069 | 1, 324, 630 | 12, 896, 990 | 173, 672 | 202 | 1 | 68 | 172 |
| Wyoming | 41, 333 | 32, 000 | 124, 000 | 128, 000 | 4, 850 | 4 | ........ | 3 | 3 |

## TABLE VI.—AVERAGE AND AGGREGATE NUMBER OF POUNDS AND REAMS OF PAPER USED PER ISSUE ON NEWSPAPERS AND PERIODICALS IN THE UNITED STATES, WITH TOTAL POUNDS AND REAMS OF PAPER USED DURING THE CENSUS YEAR.

| STATES AND TERRITORIES. | Average pounds of paper used per issue. |  | Aggregate pounds of paper per issue. |  | Aggregate reams of paper per issue. |  | Total pounds of paper used in census year. | Total reams of paper used in census year. |
|---|---|---|---|---|---|---|---|---|
|  | Dailies. | Weeklies and all others. | Dailies. | Weeklies and all others. | Dailies. | Weeklies and all others. |  |  |
| The United States | 338.47 | 281.86 | 291,764.95 | 2,624,354.92 | 7,430.18 | 58,797.00 | 189,145,048 | 4,308,012 |
| Alabama | 131.00 | 66.11 | 655.00 | 6,082.30 | 20.12 | 173.78 | 480,354 | 14,122 |
| Arizona | 51.00 | 83.00 | 263.00 | 747.00 | 7.50 | 20.75 | 105,048 | 2,945 |
| Arkansas | 74.32 | 82.92 | 371.72 | 7,590.55 | 10.48 | 205.15 | 383,857 | 10,397 |
| California | 266.41 | 156.51 | 12,787.62 | 43,198.23 | 328.78 | 1,004.61 | 6,375,390 | 151,795 |
| Colorado | 157.00 | 94.75 | 2,198.00 | 5,780.80 | 54.95 | 144.52 | 721,305 | 18,495 |
| Connecticut | 226.03 | 154.24 | 4,056.54 | 16,658.46 | 98.94 | 396.18 | 1,782,060 | 42,430 |
| Dakota | 35.15 | 51.01 | 281.00 | 2,703.60 | 9.37 | 67.59 | 222,534 | 5,706 |
| Delaware | 246.90 | 65.89 | 987.60 | 1,317.84 | 32.92 | 38.76 | 344,864 | 10,777 |
| District of Columbia | 570.30 | 380.19 | 2,281.20 | 13,306.68 | 76.04 | 369.63 | 1,157,520 | 33,072 |
| Florida | 81.30 | 36.93 | 162.60 | 1,329.52 | 5.42 | 51.52 | 113,891 | 4,347 |
| Georgia | 127.33 | 107.91 | 1,855.36 | 17,589.95 | 57.98 | 502.57 | 1,530,830 | 43,738 |
| Idaho | .............. | 40.00 | .............. | 360.00 | .............. | 11.56 | 23,853 | 766 |
| Illinois | 459.19 | 241.27 | 23,141.22 | 197,115.60 | 564.42 | 4,479.90 | 15,649,893 | 363,951 |
| Indiana | 131.52 | 119.44 | 4,997.85 | 46,580.68 | 151.45 | 1,225.86 | 3,502,848 | 93,559 |
| Indian territory | .............. | 107.50 | .............. | 315.00 | .............. | 8.46 | 16,297 | 438 |
| Iowa | 120.16 | 80.88 | 3,124.29 | 39,224.44 | 80.11 | 1,060.12 | 2,765,927 | 74,473 |
| Kansas | 111.42 | 67.63 | 1,559.95 | 18,909.80 | 44.57 | 540.28 | 1,347,475 | 38,727 |
| Kentucky | 291.77 | 168.55 | 3,209.42 | 28,822.24 | 69.77 | 758.48 | 2,041,378 | 52,776 |
| Louisiana | 295.64 | 87.61 | 3,252.12 | 7,797.20 | 79.32 | 194.93 | 1,625,250 | 32,505 |
| Maine | 118.38 | 1,283.07 | 1,183.80 | 127,024.17 | 39.46 | 2,490.67 | 2,567,686 | 53,461 |
| Maryland | 631.50 | 205.94 | 8,840.96 | 24,094.47 | 276.28 | 587.67 | 3,983,128 | 104,407 |
| Massachusetts | 649.07 | 505.52 | 23,366.40 | 180,472.00 | 584.16 | 3,609.44 | 15 118,634 | 311,083 |
| Michigan | 153.48 | 128.55 | 4,450.94 | 51,162.32 | 130.91 | 1,162.78 | 4,648,339 | 97,207 |
| Minnesota | 356.16 | 89.39 | 2,849.28 | 17,341.47 | 59.36 | 403.29 | 1,545,303 | 37,704 |
| Mississippi | 52.50 | 57.73 | 262.50 | 6,812.50 | 8.75 | 174.38 | 426,012 | 11,028 |
| Missouri | 316.06 | 219.93 | 12,010.38 | 96,550.85 | 255.54 | 1,755.47 | 9,925,367 | 165,136 |
| Montana | 21.53 | 147.75 | 64.60 | 1,773.00 | 1.90 | 41.49 | 114,990 | 2,668 |
| Nebraska | 119.83 | 63.51 | 1,435.97 | 10,478.77 | 38.81 | 283.21 | 903,207 | 24,411 |
| Nevada | 76.59 | 32.51 | 1,072.20 | 617.68 | 35.74 | 22.06 | 354,444 | 12,126 |
| New Hampshire | 54.57 | 140.25 | 545.70 | 10,659.25 | 18.90 | 368.54 | 581,916 | 20,073 |
| New Jersey | 158.67 | 90.44 | 3,808.08 | 15,284.70 | 105.78 | 413.10 | 1,698,173 | 46,146 |
| New Mexico | 41.70 | 29.93 | 125.10 | 299.31 | 4.17 | 9.07 | 56,352 | 1,748 |
| New York | 754.97 | 713.86 | 83,046.80 | 855,210.72 | 2,076.17 | 17,453.28 | 57,823,682 | 1,203,657 |
| North Carolina | 49.59 | 59.74 | 495.90 | 6,631.00 | 16.53 | 203.26 | 460,590 | 14,207 |
| Ohio | 405.84 | 309.40 | 19,480.10 | 204,824.65 | 450.70 | 5,994.99 | 11,065,159 | 317,873 |
| Oregon | 115.30 | 121.72 | 807.10 | 7,059.60 | 23.06 | 176.49 | 709,836 | 17,871 |
| Pennsylvania | 523.76 | 526.17 | 48,185.60 | 426,726.82 | 1,204.64 | 9,276.67 | 28,026,402 | 619,916 |
| Rhode Island | 398.90 | 161.55 | 3,191.25 | 5,008.00 | 86.25 | 116.08 | 123,745 | 30,201 |
| South Carolina | 121.12 | 68.89 | 484.50 | 4,753.28 | 16.15 | 129.48 | 432,478 | 12,030 |
| Tennessee | 233.45 | 141.37 | 2,334.52 | 21,489.00 | 64.57 | 546.44 | 1,423,483 | 38,112 |
| Texas | 97.31 | 98.48 | 2,335.44 | 20,386.80 | 63.12 | 485.40 | 1,791,588 | 41,424 |
| Utah | 153.18 | 152.93 | 612.72 | 2,294.00 | 16.56 | 58.72 | 321,039 | 8,058 |
| Vermont | 65.62 | 215.61 | 262.50 | 12,074.08 | 8.75 | 262.48 | 538,301 | 11,836 |
| Virginia | 118.26 | 105.14 | 2,010.50 | 16,822.44 | 67.02 | 467.29 | 1,852,930 | 38,381 |
| Washington | 26.67 | 51.87 | 80.00 | 1,141.25 | 2.50 | 32.61 | 76,968 | 2,213 |
| West Virginia | 115.00 | 63.74 | 330.00 | 6,310.00 | 8.54 | 170.54 | 378,670 | 10,215 |
| Wisconsin | 150.75 | 120.40 | 2,713.62 | 35,277.90 | 69.58 | 839.95 | 2,428,546 | 58,127 |
| Wyoming | 64.67 | 57.50 | 194.00 | 345.00 | 4.14 | 7.50 | 77,506 | 1,074 |

## TABLE VII.—TOTAL NUMBER OF NEWSPAPERS AND PERIODICALS ESTABLISHED AND SUSPENDED IN THE UNITED STATES DURING THE CENSUS YEAR, NUMBER OF CONSOLIDATIONS WITH EXISTING PAPERS, NUMBER ESTABLISHED BETWEEN 1850 AND 1880, BY DECADES, AND NUMBER ESTABLISHED PRIOR TO 1850.

| STATES AND TERRITORIES. | Established in the census year. | | Suspended in the census year. | | Number of consolidations represented in existing papers. | Number of existing papers established between 1870 and 1880. | Number of existing papers established between 1860 and 1870. | Number of existing papers established between 1850 and 1860. | Number of existing papers established prior to 1850. | Number of papers with no date given. |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dailies. | Weeklies and all others. | Dailies. | Weeklies and all others. | | | | | | |
| The United States | 85 | 1,042 | 56 | 777 | 1,640 | 5,429 | 1,731 | 903 | 1,216 | 117 |
| Alabama | 1 | 16 | ........ | 13 | 21 | 53 | 16 | 5 | 20 | 2 |
| Arizona | 3 | 2 | ........ | 1 | 2 | 10 | 1 | ........ | ........ | ........ |
| Arkansas | ........ | 27 | ........ | 11 | 7 | 69 | 7 | 3 | 2 | ........ |
| California | 5 | 36 | 3 | 24 | 24 | 172 | 70 | 46 | 4 | 3 |
| Colorado | 2 | 18 | 3 | 4 | 5 | 48 | 10 | 2 | ........ | ........ |
| Connecticut | 2 | 10 | 1 | 10 | 20 | 60 | 22 | 10 | 25 | ........ |
| Dakota | 3 | 17 | 1 | 1 | 9 | 43 | 2 | ........ | ........ | ........ |
| Delaware | 1 | ........ | 1 | 1 | 1 | 13 | 3 | 3 | 4 | ........ |
| District of Columbia | ........ | 3 | ........ | 1 | 1 | 31 | 5 | 2 | 2 | ........ |
| Florida | ........ | 2 | ........ | 6 | 5 | 33 | 4 | ........ | 1 | ........ |
| Georgia | 2 | 13 | ........ | 13 | 50 | 118 | 21 | 15 | 18 | ........ |
| Idaho | ........ | 1 | ........ | 1 | ........ | 4 | 4 | ........ | ........ | ........ |
| Illinois | 5 | 55 | 3 | 72 | 214 | 532 | 165 | 84 | 62 | 42 |
| Indiana | 2 | 23 | ........ | 34 | 66 | 218 | 83 | 55 | 52 | ........ |
| Indian territory | ........ | ........ | ........ | 1 | ........ | 1 | ........ | ........ | 1 | ........ |
| Iowa | 1 | 69 | 3 | 47 | 46 | 281 | 98 | 53 | 18 | 1 |
| Kansas | 2 | 72 | 3 | 38 | 82 | 194 | 34 | 8 | ........ | 1 |
| Kentucky | 2 | 19 | ........ | 18 | 6 | 112 | 37 | 4 | 14 | ........ |
| Louisiana | 1 | 10 | 1 | 6 | 12 | 57 | 19 | 8 | 11 | ........ |
| Maine | 1 | 13 | 1 | 4 | 23 | 50 | 16 | 9 | 27 | 2 |
| Maryland | ........ | 13 | 1 | 8 | 18 | 56 | 25 | 6 | 34 | ........ |
| Massachusetts | 3 | 30 | 2 | 14 | 103 | 191 | 55 | 36 | 90 | 6 |
| Michigan | 4 | 56 | 1 | 26 | 45 | 223 | 81 | 43 | 28 | 2 |
| Minnesota | 2 | 14 | ........ | 25 | 29 | 126 | 37 | 17 | 2 | ........ |
| Mississippi | 1 | 15 | ........ | 11 | 6 | 56 | 28 | 6 | 7 | ........ |
| Missouri | 4 | 59 | 2 | 46 | 24 | 262 | 107 | 28 | 23 | ........ |
| Montana | 1 | 2 | ........ | 2 | 6 | 7 | 5 | 1 | ........ | ........ |
| Nebraska | 3 | 36 | 1 | 11 | 32 | 116 | 18 | 6 | ........ | ........ |
| Nevada | 1 | 2 | ........ | 3 | 2 | 23 | 6 | 2 | ........ | ........ |
| New Hampshire | ........ | 2 | ........ | 2 | 9 | 38 | 19 | 6 | 20 | ........ |
| New Jersey | 3 | 22 | 3 | 11 | 18 | 85 | 39 | 13 | 40 | 1 |
| New Mexico | ........ | 2 | ........ | 3 | 7 | 10 | 3 | ........ | ........ | ........ |
| New York | 6 | 116 | 1 | 78 | 262 | 577 | 219 | 142 | 252 | 23 |
| North Carolina | 2 | 16 | 3 | 22 | 4 | 73 | 15 | 7 | 6 | ........ |
| Ohio | 2 | 44 | 4 | 40 | 72 | 346 | 105 | 64 | 154 | 15 |
| Oregon | 1 | 9 | ........ | 6 | 9 | 38 | 16 | 4 | ........ | 1 |
| Pennsylvania | 8 | 59 | 5 | 51 | 184 | 444 | 136 | 90 | 170 | 10 |
| Rhode Island | 1 | 3 | ........ | 5 | 5 | 14 | 6 | 5 | 10 | ........ |
| South Carolina | ........ | 8 | ........ | 8 | 6 | 34 | 9 | 9 | 13 | 2 |
| Tennessee | 2 | 29 | 2 | 27 | 29 | 82 | 22 | 16 | 15 | 1 |
| Texas | 4 | 37 | 3 | 19 | 24 | 168 | 31 | 10 | 10 | ........ |
| Utah | ........ | 4 | 1 | 1 | 2 | 9 | 5 | 1 | ........ | 1 |
| Vermont | ........ | 3 | 1 | 8 | 5 | 32 | 9 | 2 | 27 | ........ |
| Virginia | 2 | 20 | 2 | 9 | 54 | 85 | 35 | 14 | 28 | ........ |
| Washington | ........ | 2 | 1 | 2 | 2 | 18 | 5 | 1 | ........ | ........ |
| West Virginia | ........ | 8 | ........ | 10 | 5 | 61 | 20 | 4 | 5 | 1 |
| Wisconsin | 2 | 24 | 1 | 21 | 83 | 151 | 55 | 63 | 21 | 3 |
| Wyoming | ........ | 1 | 2 | 2 | 1 | 5 | 3 | ........ | ........ | ........ |

## TABLE VIII.—STATISTICS OF NEWSPAPERS AND PERIODICALS PUBLISHED IN THE GERMAN LANGUAGE IN THE UNITED STATES.

| STATES AND TERRITORIES. | Number of periodicals. | | | Aggregate circulation per issue. | | | Average subscription price. | | Amount paid annually in wages. | Gross value of annual products. | Number of persons employed in manufacture. | | Aggregate pounds of paper per issue. | Aggregate reams of paper per issue. | Number established in census year. | Number suspended in census year. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Dailies. | Weeklies. | All others. | Dailies. | Weeklies. | All others. | Dailies. | Weeklies and all others. | | | Males. | Females. | | | | |
| The United States | 80 | 466 | 95 | 447, 954 | 1, 326, 248 | 708, 060 | $7 81 | $2 01 | $2, 398, 475 89 | $7, 737, 299 40 | 3, 964 | 100 | 209, 146. 50 | 5, 268. 74 | 41 | 33 |
| California | 2 | 12 | 1 | 8, 202 | 23, 900 | 900 | 10 00 | 3 73 | 56, 942 00 | 158, 352 00 | 65 | 2 | 2, 880. 00 | 69. 53 | 2 | .... |
| Illinois | 9 | 54 | 7 | 30, 116 | 132, 510 | 21, 300 | 8 47 | 1 94 | 253, 435 89 | 676, 428 40 | 432 | 11 | 18, 423. 00 | 412. 03 | 5 | 6 |
| Indiana | 4 | 23 | 5 | 4, 360 | 28, 435 | 4, 625 | 7 25 | 1 87 | 64, 469 00 | 143, 323 00 | 173 | 12 | 3, 667. 00 | 49. 27 | .... | 1 |
| Iowa | 3 | 30 | 3 | 1, 200 | 74, 049 | 5, 200 | 9 33 | 1 89 | 37, 529 00 | 93, 010 00 | 84 | 1 | 2, 311. 00 | 57. 82 | 4 | 4 |
| Kansas | 1 | 9 | 1 | 650 | 10, 410 | 1, 200 | 9 00 | 1 50 | 10, 550 00 | 26, 968 00 | 24 | 1 | 730. 00 | 24. 28 | 2 | 4 |
| Kentucky | 2 | 6 | 3 | 6, 115 | 17, 830 | 7, 100 | 8 60 | 2 27 | 52, 250 00 | 134, 920 00 | 74 | 1 | 2, 190. 00 | 57. 55 | 1 | 1 |
| Louisiana | 1 | 2 | 1 | 2, 500 | 7, 500 | 2, 200 | 16 00 | 1 66 | 35, 035 00 | 55, 495 00 | 25 | ..... | 1, 160. 00 | 14. 35 | .... | .... |
| Maryland | 2 | 7 | .... | 19, 500 | 40, 800 | ......... | 6 25 | 2 39 | 81, 800 00 | 321, 000 00 | 50 | 4 | 4, 170. 00 | 101. 33 | .... | 1 |
| Michigan | 2 | 12 | 1 | 4, 025 | 37, 725 | 2, 000 | 7 80 | 1 94 | 46, 220 00 | 135, 280 00 | 85 | 2 | 3, 880. 00 | 86. 70 | 1 | .... |
| Minnesota | 1 | 12 | .... | 2, 000 | 18, 516 | ......... | 9 00 | 2 00 | 33, 100 00 | 68, 900 00 | 74 | 1 | 1, 740. 00 | 19. 80 | .... | .... |
| Missouri | 7 | 24 | 3 | 35, 110 | 120, 083 | 13, 500 | 9 57 | 1 86 | 245, 764 00 | 513, 700 00 | 299 | 3 | 14, 829. 00 | 293. 43 | 2 | 3 |
| Nebraska | 1 | 9 | 1 | 750 | 10, 024 | 2, 500 | 8 00 | 1 63 | 18, 300 00 | 49, 500 00 | 42 | 4 | 953. 00 | 27. 00 | 2 | 1 |
| New Jersey | 3 | 11 | 5 | 5, 200 | 13, 515 | 3, 550 | 7 00 | 2 21 | 61, 130 00 | 126, 486 00 | 88 | 1 | 17, 000. 00 | 43. 83 | 3 | 3 |
| New York | 12 | 64 | 21 | 212, 200 | 296, 342 | 214, 042 | 6 65 | 2 42 | 439, 653 00 | 2, 052, 774 00 | 747 | 8 | 67, 467. 00 | 2, 057. 75 | 5 | 4 |
| Ohio | 10 | 59 | 20 | 40, 742 | 236, 829 | 335, 573 | 6 94 | 1 67 | 471, 642 00 | 1, 669, 336 00 | 779 | 25 | 30, 884. 50 | 1, 013. 40 | 3 | 3 |
| Pennsylvania | 10 | 66 | 11 | 62, 034 | 129, 389 | 41, 800 | 6 48 | 1 70 | 295, 777 00 | 989, 458 00 | 432 | 11 | 16, 924. 00 | 455. 08 | .... | .... |
| Texas | 2 | 11 | ... | 1, 700 | 12, 778 | 600 | 10 00 | 2 54 | 31, 000 00 | 62, 850 00 | 47 | 1 | 1, 312. 00 | 31. 17 | 3 | .... |
| Wisconsin | 3 | 35 | 9 | 8, 800 | 99, 823 | 43, 970 | 9 33 | 1 96 | 133, 835 00 | 366, 969 00 | 364 | 11 | 16, 666. 00 | 399. 34 | 6 | 1 |
| Other states and territories | 5 | 20 | 3 | 2, 750 | 15, 790 | 8, 000 | 6 70 | 2 44 | 30, 044 00 | 92, 550 00 | 80 | 1 | 1, 960. 00 | 55. 58 | 2 | 1 |

NOTE.—The following-named states and territories, representing in the aggregate 28 newspapers—dailies 5, weeklies 20, and semi-weeklies 3—have been consolidated and entered under the head "other states and territories", viz: Arkansas, 1; Connecticut, 5; Colorado, 3; District of Columbia, 3; Dakota, 1; Delaware, 1; Georgia, 1; Massachusetts, 1; Oregon, 2; Rhode Island, 1; South Carolina, 1; Tennessee, 1; Virginia, 5; West Virginia, 2. The five daily papers were published in Connecticut, Colorado, District of Columbia, and Virginia (2).

## TABLE IX.—STATISTICS OF NEWSPAPERS AND PERIODICALS PUBLISHED IN FOREIGN LANGUAGES, OTHER THAN GERMAN, IN THE UNITED STATES.

| | Number of periodicals. | | | Aggregate circulation per issue. | | Average subscription price. | | Amount paid annually in wages. | Number of persons employed in manufacture. | | Gross value of annual products. | | Aggregate pounds of paper per issue. | Aggregate reams of paper per issue. | Number established in census year. | Number suspended in census year. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Dailies. | Weeklies. | All others. | Dailies. | Weeklies and all others. | Dailies. | Weeklies and all others. | | Males. | Females. | Dailies. | Weeklies and all others. | | | | |
| Totals | 10 | 110 | 38 | 25,700 | 347,105 | $10 75 | $3 46 | $348,335 | 600 | 18 | $431,550 | $980,583 | 35,349 | 801.59 | 12 | 9 |
| Bohemian | 2 | 10 | 1 | 1,800 | 19,350 | 7 75 | 2 59 | 24,996 | 61 | 4 | 28,000 | 45,006 | 1,748 | 41.66 | 1 | ...... |
| Chinese | ...... | 2 | ...... | .......... | 1,050 | ........ | 5 25 | 1,200 | 4 | ..... | .......... | 5,600 | 48 | 2.80 | ...... | ...... |
| Danish and Scandinavian | 1 | 37 | 11 | 1,500 | 125,625 | 5 00 | 1 65 | 96,484 | 212 | 8 | 47,000 | 234,490 | 12,504 | 284.56 | 4 | 3 |
| French | 5 | 30 | 6 | 21,900 | 54,810 | 14 00 | 6 09 | 141,683 | 161 | 4 | 350,000 | 192,777 | 7,528 | 157.50 | 3 | 3 |
| Holland | ...... | 8 | 1 | .......... | 11,075 | ........ | 1 77 | 7,500 | 29 | 1 | .......... | 23,900 | 700 | 23.25 | ...... | ...... |
| Indian | ...... | 2 | 1 | .......... | 4,385 | ........ | 1 00 | 3,000 | 10 | ........ | .......... | 6,260 | 305 | 8.75 | ...... | ...... |
| Italian | ...... | 3 | 1 | .......... | 6,600 | ........ | 5 25 | 7,460 | 12 | ........ | .......... | 43,500 | 325 | 13.50 | ...... | ...... |
| Polish | ...... | 2 | ...... | .......... | 5,000 | ........ | 2 00 | 3,500 | 9 | ........ | .......... | 11,000 | 406 | 10.00 | ...... | ...... |
| Portuguese | ...... | 1 | 1 | .......... | 10,300 | ........ | 1 62 | 5,100 | 10 | ........ | .......... | 14,500 | 440 | 11.00 | ...... | ...... |
| Spanish | 2 | 12 | 12 | 500 | 62,830 | 8 50 | 4 67 | 41,412 | 65 | 1 | 6,550 | 297,750 | 6,535 | 145.07 | 4 | 3 |
| Welsh | ...... | 2 | 3 | .......... | 19,880 | ........ | 1 86 | 9,500 | 14 | ........ | .......... | 45,700 | 2,210 | 51.00 | ...... | ...... |
| Other languages | ...... | 1 | 1 | .......... | 26,200 | ........ | 2 50 | 6,500 | 18 | ........ | .......... | 60,100 | 2,600 | 52.50 | ...... | ...... |

NOTE.—1 Irish, 1 Catalan consolidated and entered under the head of other languages.

## TABLE X.—TOTAL NUMBER OF NEWSPAPERS AND PERIODICALS DEVOTED TO RELIGION, BY DENOMINATIONS, PUBLISHED IN THE UNITED STATES.

| STATES AND TERRITORIES. | Total. | Baptist. | Christian. | Congregational. | Disciples. | Dunkards. | Episcopal. | Evangelical. | Friends. | Jewish. | Lutheran. | Mennonite. | Methodist. | Moravian. | Mormon. | Presbyterian. | Primitive Christian. | Reformed. | Roman Catholic. | Second Advent. | Spiritualist. | Swedenborgian. | Unitarian. | United Brethren in Christ. | Universalist. | Unsectarian. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| The United States | 553 | 63 | 4 | 14 | 11 | 4 | 33 | 27 | 5 | 16 | 22 | 9 | 75 | 2 | 4 | 43 | 2 | 11 | 70 | 12 | 7 | 3 | 4 | 7 | 9 | 96 |
| Alabama | 5 | 3 | | | | | 1 | | | | | | | | | | | | | | | | | | 1 | |
| Arizona | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Arkansas | 5 | | | | 1 | | | | | | | | 3 | | | | | | | | | | | | | 1 |
| California | 12 | 2 | | 1 | | | 1 | | | 2 | | | 2 | | | 1 | | | 1 | 1 | 1 | | | | | |
| Colorado | 2 | | | 1 | | | | | | | | | | | | 1 | | | | | | | | | | |
| Connecticut | 3 | 1 | | 1 | | | | | | | | | | | | | | | 1 | | | | | | | |
| Dakota | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Delaware | 1 | | | | | | | | | | | | 1 | | | | | | | | | | | | | |
| District of Columbia | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Florida | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Georgia | 7 | 3 | | | | | | | | | | | 3 | | | | | | | | | | | | 1 | |
| Idaho | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Illinois | 49 | 4 | | 1 | 2 | | 2 | | | 1 | 3 | | 5 | | 1 | 2 | | 1 | 6 | 1 | 1 | 1 | | 1 | 2 | 15 |
| Indiana | 13 | | 1 | | | | | 1 | | | | 6 | | | | | | | 2 | | | | | | | 3 |
| Indian territory | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Iowa | 15 | 1 | | | | | 1 | 2 | | | 2 | | | | | 1 | | | 2 | 1 | | | | | | 5 |
| Kansas | 4 | | | | | | 1 | | | | | 1 | 1 | | | | | | | | | | | | | 1 |
| Kentucky | 13 | 1 | | | 1 | | 1 | | | | | | 3 | | | 2 | | | 2 | | | | | | | 3 |
| Louisiana | 7 | | | | | | | | | 1 | | | 3 | | | 1 | | | 2 | | | | | | | |
| Maine | 9 | 1 | | 1 | | | 1 | | | | | | 1 | | | | | | | | | | | | 1 | 4 |
| Maryland | 10 | | | | | | 1 | | | | | | 4 | | | 2 | | | 2 | | | | | | | 1 |
| Massachusetts | 30 | 2 | | 3 | | | | 4 | | | | | 2 | | | | | | 2 | 4 | 2 | 1 | 2 | | 3 | 5 |
| Michigan | 11 | 1 | | | | | | | | | | | 2 | | | | | 2 | 2 | 3 | | | | | | 1 |
| Minnesota | 3 | | | | | | | | | | | | | | | | | | 3 | | | | | | | |
| Mississippi | 4 | 2 | | | | | | | | | | | 1 | | | | | | | | | | | | | 1 |
| Missouri | 28 | 5 | | | 1 | | 1 | 1 | | 1 | 3 | | 2 | | | 5 | 1 | | 2 | | | | | | | 6 |
| Montana | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nebraska | 2 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | |
| Nevada | | | | | | | | | | | | | | | | | | | | | | | | | | |
| New Hampshire | 3 | 3 | | | | | | | | | | | | | | | | | | | | | | | | |
| New Jersey | 3 | | | | | | 1 | | | | | | 1 | | | | | | | | | | | | | 1 |
| New Mexico | 1 | | | | | | | | | | | | | | | | | | 1 | | | | | | | |
| New York | a97 | 9 | | 2 | | | 11 | 2 | | 6 | 2 | | 9 | | | 4 | | 1 | 20 | 1 | 1 | | | | | 28 |
| North Carolina | 12 | 4 | | | | | 1 | | | | | | 4 | | | 2 | 1 | | | | | | | | | |
| Ohio | 57 | 4 | 1 | 1 | 2 | 1 | 1 | 8 | 2 | 3 | 3 | | 6 | | | 1 | | 2 | 9 | | | | | 4 | 1 | 8 |
| Oregon | 5 | | | | 1 | | 1 | | | | | | 1 | | | | | | 1 | | | | | 1 | | |
| Pennsylvania | 75 | 3 | | 1 | | 3 | 3 | 7 | 3 | 1 | 7 | 2 | 5 | 2 | | 9 | | 5 | 8 | 1 | 1 | 1 | 1 | 1 | | 11 |
| Rhode Island | | | | | | | | | | | | | | | | | | | | | | | | | | |
| South Carolina | 10 | 1 | | | | | 1 | | | | 1 | | 2 | | | 5 | | | | | | | | | | |
| Tennessee | 14 | 5 | | | 1 | | | | | | | | 4 | | | 3 | | | | | | | | | | 1 |
| Texas | 14 | 4 | 1 | | 1 | | | | | | | | 4 | | | 2 | | | | | 1 | | | | | 1 |
| Utah | 4 | | | | | | | | | | | | 1 | | 3 | | | | | | | | | | | |
| Vermont | 3 | 1 | | 1 | | | | | | | | | 1 | | | | | | | | | | | | | |
| Virginia | 11 | 3 | 1 | | 1 | | 1 | | | | 1 | | 2 | | | 1 | | | 1 | | | | | | | |
| Washington | 1 | | | | | | | | | | | | | | | | | | | | | | 1 | | | |
| West Virginia | 3 | | | | | | | | | | | | 2 | | | | | | 1 | | | | | | | |
| Wisconsin | 7 | | | | | | 2 | 2 | | 1 | | | | | | | | | 2 | | | | | | | |
| Wyoming | | | | | | | | | | | | | | | | | | | | | | | | | | |

*a* 1 Shaker included in grand total, and omitted in denominational columns.

## TABLE XI.—COMPARATIVE EXHIBIT OF THE NUMBER AND CIRCULATION OF NEWSPAPERS BY PERIODS

| | STATES AND TERRITORIES. | ALL CLASSES. | | | | | |
|---|---|---|---|---|---|---|---|
| | | 1880. | | | 1870. | | |
| | | No. | Circulation. | Copies annually issued. | No. | Circulation. | Copies annually issued. |
| | The United States | 11, 314 | 31, 779, 686 | 2, 067, 848, 209 | 5, 871 | 20, 842, 475 | 1, 508, 548, 250 |
| 1 | Alabama | 125 | 93, 073 | 6, 778, 544 | 89 | 91, 165 | 9, 198, 980 |
| 2 | Arizona | 17 | 13, 550 | 1, 413, 600 | 1 | 280 | 14, 560 |
| 3 | Arkansas | 117 | 103, 501 | 4, 990, 595 | 56 | 29, 830 | 1, 824, 860 |
| 4 | California | 361 | 640, 026 | 72, 861, 836 | 201 | 491, 903 | 47, 472, 756 |
| 5 | Colorado | 87 | 95, 744 | 8, 877, 831 | 14 | 12, 750 | 1, 190, 600 |
| 6 | Connecticut | 139 | 237, 660 | 20, 366, 449 | 71 | 203, 725 | 17, 454, 740 |
| 7 | Dakota | 67 | 36, 943 | 2, 739, 014 | 3 | 1, 652 | 85, 904 |
| 8 | Delaware | 26 | 34, 425 | 5, 172, 998 | 17 | 20, 860 | 1, 607, 840 |
| 9 | District of Columbia | 44 | 213, 923 | 15, 874, 432 | 22 | 81, 400 | 10, 092, 800 |
| 10 | Florida | 45 | 27, 332 | 2, 086, 644 | 23 | 10, 545 | 649, 220 |
| 11 | Georgia | 200 | *a* 269, 066 | *a* 20, 994, 549 | 110 | 150, 987 | 15, 539, 724 |
| 12 | Idaho | 10 | 5, 650 | 367, 600 | 6 | 2, 750 | 200, 200 |
| 13 | Illinois | 1, 017 | *b* 2, 421, 275 | *b* 174, 696, 505 | 505 | 1, 722, 541 | 113, 140, 492 |
| 14 | Indiana | 467 | 661, 111 | 44, 908, 191 | 293 | 363, 542 | 26, 964, 984 |
| 15 | Indian territory | 3 | 4, 060 | 210, 200 | ........ | ........ | ........ |
| 16 | Iowa | 569 | 547, 340 | 35, 747, 302 | 233 | 219, 090 | 16, 403, 380 |
| 17 | Kansas | 347 | 280, 729 | 18, 589, 223 | 97 | 96, 803 | 9, 518, 176 |
| 18 | Kentucky | 205 | 397, 564 | 25, 332, 423 | 89 | 197, 130 | 18, 270, 160 |
| 19 | Louisiana | 112 | 131, 630 | 15, 602, 320 | 92 | 84, 165 | 13, 755, 690 |
| 20 | Maine | 123 | 1, 214, 460 | 25, 661, 345 | 65 | 170, 690 | 9, 867, 680 |
| 21 | Maryland | 143 | 414, 693 | 50, 115, 182 | 88 | 235, 450 | 33, 497, 778 |
| 22 | Massachusetts | 427 | 2, 012, 929 | 149, 319, 973 | 259 | 1, 692, 124 | 129, 691, 266 |
| 23 | Michigan | 464 | 620, 974 | 46, 659, 470 | 211 | 253, 774 | 19, 686, 978 |
| 24 | Minnesota | 223 | 222, 074 | 18, 097, 781 | 95 | 110, 778 | 9, 543, 656 |
| 25 | Mississippi | 123 | 87, 904 | 5, 293, 418 | 111 | 71, 868 | 4, 703, 336 |
| 26 | Missouri | 530 | 965, 285 | 79, 265, 309 | 279 | 522, 866 | 47, 980, 422 |
| 27 | Montana | 18 | 20, 827 | 1, 280, 480 | 10 | 19, 580 | 2, 860, 600 |
| 28 | Nebraska | 189 | 154, 570 | 11, 717, 103 | 42 | 31, 600 | 3, 388, 500 |
| 29 | Nevada | 37 | 27, 745 | 5, 820, 575 | 12 | 11, 300 | 2, 572, 000 |
| 30 | New Hampshire | 87 | 185, 968 | 9, 635, 410 | 51 | 173, 919 | 7, 237, 588 |
| 31 | New Jersey | 215 | 249, 478 | 22, 150, 095 | 122 | 205, 500 | 18, 625, 740 |
| 32 | New Mexico | 18 | 6, 355 | 838, 860 | 5 | 1, 525 | 137, 350 |
| 33 | New York | 1, 411 | 9, 374, 134 | 577, 755, 819 | 835 | 7, 561, 497 | 471, 741, 744 |
| 34 | North Carolina | 142 | 105, 501 | 6, 819, 382 | 64 | 64, 820 | 6, 684, 950 |
| 35 | Ohio | 774 | 3, 093, 931 | 152, 579, 380 | 395 | 1, 288, 367 | 98, 548, 814 |
| 36 | Oregon | 74 | 85, 786 | 8, 578, 213 | 35 | 45, 750 | 3, 657, 300 |
| 37 | Pennsylvania | 973 | 5, 031, 061 | 297, 559, 892 | 540 | 3, 419, 765 | 241, 170, 540 |
| 38 | Rhode Island | 44 | 97, 121 | 14, 496, 498 | 32 | 82, 050 | 9, 781, 500 |
| 39 | South Carolina | 81 | 69, 902 | 5, 774, 415 | 55 | 80, 900 | 8, 901, 400 |
| 40 | Tennessee | 193 | 293, 288 | 18, 293, 872 | 91 | 225, 952 | 18, 300, 844 |
| 41 | Texas | 280 | 263, 289 | 19, 883, 792 | 112 | 55, 250 | 4, 214, 800 |
| 42 | Utah | 22 | 36, 175 | 3, 867, 500 | 10 | 14, 250 | 1, 578, 400 |
| 43 | Vermont | 82 | 130, 192 | 5, 681, 464 | 47 | 71, 390 | 4, 055, 300 |
| 44 | Virginia | 194 | 256, 471 | 18, 422, 845 | 114 | 143, 840 | 13, 319, 578 |
| 45 | Washington | 29 | 16, 751 | 1, 062, 103 | 14 | 6, 785 | 396, 500 |
| 46 | West Virginia | 109 | 85, 958 | 4, 903, 466 | 59 | 54, 432 | 4, 012, 400 |
| 47 | Wisconsin | 340 | 436, 576 | 27, 901, 051 | 190 | 343, 385 | 28, 762, 920 |
| 48 | Wyoming | 11 | 5, 686 | 803, 260 | 6 | 1, 950 | 243, 300 |

*a* Includes 1 weekly, 1 semi-monthly, and 1 monthly (Sunday-school papers), not separately reported, having a circulation of 50,000, and copies annually printed 600,000.

*b* Includes 4 weeklies, 13 monthlies, 12 quarterlies (Sunday-school papers), not separately reported, having a circulation of 100,000, and copies annually printed 6.000,000.

## AND PERIODICALS PUBLISHED IN THE UNITED STATES FROM 1850 TO 1880, BY DECADES AND OF ISSUE.

| ALL CLASSES—continued. | | | | | | DAILY. | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1860. | | | 1850. | | | 1880. | | 1870. | | 1860. | | 1850. | | |
| No. | Circulation. | Copies annually issued. | No. | Circulation. | Copies annually issued. | No. | Circulation. | No. | Circulation. | No. | Circulation. | No. | Circulation. | |
| 4, 051 | 13, 663, 409 | 927, 951, 548 | 2, 526 | 5, 142, 177 | 426, 409, 978 | 971 | 3, 566, 395 | 574 | 2, 601, 547 | 387 | 1, 478, 435 | 254 | 758, 454 | |
| 96 | 93, 595 | 7, 175, 444 | 60 | 34, 282 | 2, 662, 741 | 6 | 9, 660 | 9 | 16, 420 | 9 | 8, 820 | 6 | 2, 804 | 1 |
| ...... | ...... | ...... | ...... | ...... | ...... | 6 | 3, 600 | ...... | ...... | ...... | ...... | ...... | ...... | 2 |
| 37 | 39, 812 | 2, 122, 224 | 9 | 7, 250 | 377, 000 | 6 | 5, 030 | 3 | 1, 250 | ...... | ...... | ...... | ...... | 3 |
| 121 | 229, 893 | 26, 111, 788 | 7 | 4, 619 | 761, 200 | 58 | 157, 814 | 33 | 94, 100 | 22 | 58, 444 | 4 | 2, 019 | 4 |
| ...... | ...... | ...... | ...... | ...... | ...... | 19 | 26, 375 | 4 | 2, 200 | ...... | ...... | ...... | ...... | 5 |
| 55 | 95, 536 | 9, 555, 672 | 46 | 52, 670 | 4, 267, 932 | 17 | 47, 490 | 16 | 35, 730 | 14 | 19, 100 | 7 | 5, 654 | 6 |
| ...... | ...... | ...... | ...... | ...... | ...... | 9 | 4, 500 | ...... | ...... | ...... | ...... | ...... | ...... | 7 |
| 14 | 16, 144 | 1, 010, 776 | 10 | 7, 500 | 421, 200 | 5 | 15, 800 | 1 | 1, 600 | ...... | ...... | ...... | ...... | 8 |
| 13 | 69, 510 | 10, 881, 100 | 18 | 100, 073 | 11, 127, 236 | 5 | 36, 500 | 3 | 24, 000 | 5 | 32, 910 | 5 | 19, 836 | 9 |
| 22 | 15, 500 | 1, 081, 600 | 10 | 5, 750 | 319, 800 | 3 | 2, 600 | ...... | ...... | ...... | ...... | ...... | ...... | 10 |
| 105 | 180, 972 | 13, 415, 444 | 51 | 64, 155 | 4, 070, 866 | 16 | 27, 830 | 15 | 30, 800 | 12 | 18, 650 | 5 | 3, 504 | 11 |
| ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | 12 |
| 286 | 356, 159 | 27, 464, 764 | 107 | 88, 050 | 5, 102, 276 | 74 | 270, 923 | 39 | 166, 400 | 23 | 38, 100 | 8 | 3, 615 | 13 |
| 186 | 159, 381 | 10, 090, 310 | 107 | 63, 138 | 4, 316, 828 | 40 | 72, 698 | 20 | 42, 300 | 13 | 8, 881 | 9 | 3, 720 | 14 |
| ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | 15 |
| 130 | 89, 240 | 6, 589, 360 | 29 | 22, 500 | 1, 512, 800 | 30 | 38, 455 | 22 | 19, 800 | 9 | 7, 700 | ...... | ...... | 16 |
| 27 | 21, 920 | 1, 565, 540 | ...... | ...... | ...... | 20 | 21, 396 | 12 | 17, 570 | 3 | 1, 650 | ...... | ...... | 17 |
| 77 | 179, 597 | 13, 504, 044 | 62 | 79, 868 | 6, 582, 838 | 11 | 33, 492 | 8 | 31, 900 | 4 | 19, 500 | 9 | 7, 237 | 18 |
| 81 | 120, 650 | 16, 948, 000 | 55 | 80, 288 | 12, 416, 224 | 13 | 38, 065 | 7 | 34, 395 | 8 | 41, 000 | 11 | 32, 088 | 19 |
| 70 | 126, 169 | 8, 333, 278 | 49 | 63, 439 | 4, 203, 064 | 12 | 18, 940 | 7 | 10, 700 | 8 | 8, 141 | 4 | 3, 110 | 20 |
| 57 | 122, 244 | 20, 721, 472 | 68 | 124, 779 | 19, 612, 724 | 15 | 132, 613 | 8 | 82, 921 | 6 | 53, 200 | 6 | 50, 989 | 21 |
| 222 | 1, 368, 980 | 102, 000, 760 | 209 | 718, 221 | 64, 820, 564 | 39 | 280, 399 | 21 | 231, 625 | 17 | 169, 600 | 22 | 130, 640 | 22 |
| 118 | 128, 848 | 11, 606, 596 | 58 | 52, 690 | 3, 247, 736 | 33 | 62, 839 | 16 | 27, 485 | 8 | 14, 150 | 3 | 4, 039 | 23 |
| 49 | 32, 554 | 2, 344, 000 | ...... | ...... | ...... | 10 | 28, 493 | 6 | 14, 800 | 4 | 2, 524 | ...... | ...... | 24 |
| 73 | 88, 737 | 9, 099, 784 | 50 | 30, 555 | 1, 752, 504 | 5 | 4, 200 | 3 | 2, 300 | 5 | 15, 370 | ...... | ...... | 25 |
| 173 | 354, 007 | 29, 741, 464 | 61 | 70, 235 | 6, 195, 560 | 43 | 122, 660 | 21 | 86, 555 | 16 | 44, 550 | 5 | 10, 905 | 26 |
| ...... | ...... | ...... | ...... | ...... | ...... | 4 | 912 | 3 | 6, 980 | ...... | ...... | ...... | ...... | 27 |
| 14 | 9, 750 | 519, 000 | ...... | ...... | ...... | 15 | 18, 630 | 7 | 6, 850 | ...... | ...... | ...... | ...... | 28 |
| ...... | ...... | ...... | ...... | ...... | ...... | 14 | 17, 155 | 5 | 7, 500 | ...... | ...... | ...... | ...... | 29 |
| 20 | 19, 700 | 1, 024, 400 | 38 | 60, 226 | 3, 067, 552 | 10 | 9, 070 | 7 | 6, 100 | ...... | ...... | ...... | ...... | 30 |
| 90 | 162, 016 | 12, 801, 412 | 51 | 44, 521 | 4, 098, 678 | 27 | 50, 776 | 20 | 38, 030 | 15 | 18, 510 | 6 | 7, 017 | 31 |
| 2 | 1, 150 | 59, 800 | 2 | 1, 150 | 38, 800 | 3 | 2, 000 | 1 | 225 | ...... | ...... | ...... | ...... | 32 |
| 542 | 6, 034, 636 | 320, 930, 884 | 428 | 1, 624, 756 | 115, 385, 473 | 115 | 996, 561 | 87 | 780, 470 | 74 | 487, 340 | 51 | 206, 222 | 33 |
| 74 | 79, 374 | 4, 862, 572 | 51 | 35, 252 | 2, 020, 564 | 13 | 7, 934 | 8 | 11, 795 | 8 | 3, 550 | ...... | ...... | 34 |
| 340 | 1, 121, 682 | 71, 767, 742 | 261 | 389, 463 | 30, 473, 407 | 56 | 216, 336 | 26 | 139, 705 | 24 | 84, 560 | 26 | 46, 083 | 35 |
| 16 | 27, 620 | 1, 074, 640 | 2 | 1, 134 | 58, 968 | 7 | 11, 070 | 4 | 6, 350 | 2 | 800 | ...... | ...... | 36 |
| 367 | 1, 432, 695 | 116, 094, 480 | 310 | 984, 777 | 84, 898, 672 | 98 | 578, 227 | 55 | 466, 070 | 29 | 233, 550 | 24 | 162, 635 | 37 |
| 26 | 49, 690 | 5, 289, 280 | 19 | 24, 472 | 2, 756, 950 | 8 | 41, 402 | 6 | 23, 250 | 5 | 10, 300 | 5 | 5, 705 | 38 |
| 45 | 53, 870 | 3, 654, 840 | 46 | 53, 743 | 7, 145, 930 | 4 | 7, 750 | 5 | 16, 100 | 2 | 1, 600 | 7 | 16, 357 | 39 |
| 83 | 176, 908 | 10, 053, 152 | 50 | 67, 672 | 6, 940, 750 | 12 | 30, 995 | 13 | 34, 630 | 8 | 11, 300 | 8 | 14, 218 | 40 |
| 89 | 108, 038 | 7, 855, 808 | 34 | 18, 205 | 1, 296, 924 | 30 | 30, 297 | 12 | 3, 500 | 3 | 5, 360 | ...... | ...... | 41 |
| 2 | 6, 300 | 327, 600 | ...... | ...... | ...... | 5 | 7, 950 | 3 | 2, 700 | ...... | ...... | ...... | ...... | 42 |
| 31 | 47, 415 | 2, 579, 080 | 35 | 45, 961 | 2, 567, 662 | 5 | 4, 200 | 3 | 3, 190 | 2 | 750 | 2 | 555 | 43 |
| 139 | 301, 622 | *a* 26, 772, 568 | 87 | 87, 768 | *a* 9, 223, 068 | 20 | 32, 172 | 16 | 24, 099 | 15 | 44, 400 | 15 | 16, 104 | 44 |
| 4 | 2, 350 | 122, 200 | ...... | ...... | ...... | 4 | 1, 100 | 1 | 160 | ...... | ...... | ...... | ...... | 45 |
| ...... | ...... | ...... | ...... | ...... | ...... | 2 | 4, 100 | 4 | 5, 192 | ...... | ...... | ...... | ...... | 46 |
| 155 | 139, 145 | 10, 798, 670 | 46 | 33, 015 | 2, 665, 487 | 21 | 33, 400 | 14 | 43, 250 | 14 | 14, 125 | 6 | 3, 398 | 47 |
| ...... | ...... | ...... | ...... | ...... | ...... | 3 | 1, 986 | 2 | 550 | ...... | ...... | ...... | ...... | 48 |

*a* In 1860 and 1850 Virginia included West Virginia.

## TABLE XI.—COMPARATIVE EXHIBIT OF THE NUMBER AND CIRCULATION OF NEWSPAPERS AND

| | STATES AND TERRITORIES. | TRI-WEEKLY. | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 1880. | | 1870. | | 1860. | | 1850. | |
| | | No. | Circulation. | No. | Circulation. | No. | Circulation. | No. | Circulation. |
| | The United States | 73 | 68, 086 | 107 | 155, 105 | 86 | 107, 170 | 115 | 75, 712 |
| 1 | Alabama | 1 | 200 | 2 | 700 | 6 | 2, 886 | 5 | 1, 708 |
| 2 | Arizona | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| 3 | Arkansas | ...... | ...... | 1 | 300 | ...... | ...... | ...... | ...... |
| 4 | California | 2 | 5, 500 | 4 | 9, 500 | 2 | 3, 300 | ...... | ...... |
| 5 | Colorado | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| 6 | Connecticut | ...... | ...... | ...... | ...... | ...... | ...... | 4 | 2, 400 |
| 7 | Dakota | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| 8 | Delaware | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| 9 | District of Columbia | ...... | ...... | 1 | 2, 000 | 1 | 4, 600 | 5 | 7, 748 |
| 10 | Florida | ...... | ...... | 2 | 820 | 2 | 1, 400 | 1 | 200 |
| 11 | Georgia | 4 | 1, 800 | 5 | 3, 600 | 5 | 3, 600 | 3 | 938 |
| 12 | Idaho | 1 | 500 | 1 | 250 | ...... | ...... | ...... | ...... |
| 13 | Illinois | 6 | 6, 510 | 10 | 40, 570 | 6 | 2, 936 | 4 | 1, 375 |
| 14 | Indiana | 3 | 1, 716 | 3 | 2, 200 | ...... | ...... | 2 | 1, 250 |
| 15 | Indian territory | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| 16 | Iowa | 1 | 200 | 3 | 1, 650 | 2 | 695 | 2 | 3, 700 |
| 17 | Kansas | ...... | ...... | 4 | 1, 840 | ...... | ...... | ...... | ...... |
| 18 | Kentucky | 2 | 1, 800 | 4 | 3, 500 | 3 | 2, 750 | 7 | 7, 213 |
| 19 | Louisiana | 1 | 1, 000 | 1 | 800 | ...... | ...... | 6 | *a* 4, 433 |
| 20 | Maine | 1 | 480 | 1 | 850 | 4 | 3, 978 | 5 | 1, 942 |
| 21 | Maryland | ...... | ...... | 1 | 5, 015 | 2 | 6, 146 | 4 | 3, 203 |
| 22 | Massachusetts | 1 | 400 | 1 | 800 | 3 | 2, 400 | 4 | 2, 250 |
| 23 | Michigan | 3 | 6, 250 | 3 | 5, 000 | 1 | 9, 000 | 2 | 333 |
| 24 | Minnesota | 1 | 750 | 5 | 4, 200 | ...... | ...... | ...... | ...... |
| 25 | Mississippi | 5 | 2, 200 | 6 | 3, 650 | 3 | 2, 500 | 4 | 1, 573 |
| 26 | Missouri | 8 | 10, 120 | 5 | 13, 800 | 3 | 7, 800 | 4 | 1, 750 |
| 27 | Montana | ...... | ...... | 1 | 400 | ...... | ...... | ...... | ...... |
| 28 | Nebraska | ...... | ...... | 1 | 500 | ...... | ...... | ...... | ...... |
| 29 | Nevada | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| 30 | New Hampshire | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| 31 | New Jersey | 1 | 750 | ...... | ...... | ...... | ...... | ...... | ...... |
| 32 | New Mexico | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| 33 | New York | 5 | 4, 510 | 5 | 5, 800 | 7 | 18, 900 | 8 | 4, 975 |
| 34 | North Carolina | 2 | 750 | 3 | 800 | 1 | 200 | 5 | 2, 656 |
| 35 | Ohio | 8 | 6, 700 | 8 | 13, 560 | 8 | 4, 212 | 10 | 6, 718 |
| 36 | Oregon | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| 37 | Pennsylvania | 4 | 6, 000 | 3 | 10, 000 | 1 | 3, 900 | 2 | 500 |
| 38 | Rhode Island | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| 39 | South Carolina | 3 | 1, 350 | 4 | 9, 600 | 4 | 6, 200 | 5 | 3, 521 |
| 40 | Tennessee | ...... | ...... | 2 | 2, 300 | 7 | 4, 509 | 2 | 1, 707 |
| 41 | Texas | 1 | 600 | 5 | 2, 450 | 3 | 9, 288 | 5 | 3, 368 |
| 42 | Utah | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| 43 | Vermont | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| 44 | Virginia | 5 | 3, 700 | 7 | 4, 800 | 5 | 2, 750 | 12 | 9, 080 |
| 45 | Washington | ...... | ...... | 1 | 600 | ...... | ...... | ...... | ...... |
| 46 | West Virginia | 1 | 500 | 2 | 550 | ...... | ...... | ...... | ...... |
| 47 | Wisconsin | 3 | 3, 800 | 2 | 3, 200 | 8 | 3, 220 | 4 | 1, 271 |
| 48 | Wyoming | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |

*a* Circulation in 1850 should be 4,333.

## PERIODICALS PUBLISHED IN THE UNITED STATES FROM 1850 TO 1880, BY DECADES, ETC.—Cont'd.

| SEMI-WEEKLY. | | | | | | | | WEEKLY. | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1880. | | 1870. | | 1860. | | 1850. | | 1880. | | 1870. | | 1860. | | 1850. | | |
| No. | Circulation. | No. | Circulation. | No. | Circulation | No. | Circulation. | No. | Circulation. | No. | Circulation. | No. | Circulation. | No. | Circulation. | |
| 133 | 264, 910 | 115 | 247, 197 | 79 | 175, 165 | 31 | 53, 511 | 8, 633 | 16, 266, 830 | 4, 295 | 10, 594, 643 | 3, 173 | 7, 581, 930 | 1, 902 | 2, 944, 629 | |
| ...... | ............ | 2 | 2, 870 | 1 | 400 | ...... | ............ | 109 | 73, 163 | 70 | 71, 175 | 77 | 74, 289 | 48 | 29, 020 | 1 |
| ...... | ............ | ...... | ............ | ...... | ............ | ...... | ............ | 11 | 9, 950 | 1 | 280 | ...... | ............ | ...... | ............ | 2 |
| 1 | 1, 500 | ...... | ............ | (a) | 1, 000 | ...... | ............ | 104 | 80, 621 | 48 | 26, 280 | 37 | 38, 812 | 5 | 7, 250 | 3 |
| 11 | 20, 710 | 4 | 2, 700 | 3 | 2, 300 | ...... | ............ | 250 | 345, 962 | 140 | 298, 603 | 89 | 131, 249 | 3 | 2, 600 | 4 |
| 1 | 600 | ...... | ............ | ...... | ............ | ...... | ............ | 63 | 58, 869 | 9 | 9, 550 | ...... | ............ | ...... | ............ | 5 |
| 2 | 1, 700 | 1 | 800 | 1 | 400 | ...... | ............ | 99 | 152, 895 | 43 | 107, 395 | 37 | 68, 436 | 30 | 40, 716 | 6 |
| 1 | (b) | ...... | ............ | ...... | ............ | ...... | ............ | 57 | 32, 443 | 3 | 1, 652 | ...... | ............ | ...... | ............ | 7 |
| ...... | ............ | 3 | 3, 660 | 4 | 3, 294 | 3 | 800 | 20 | 17, 625 | 12 | 13, 600 | 10 | 12, 850 | 7 | 6, 900 | 8 |
| ...... | ............ | ...... | ............ | 2 | 3, 000 | ...... | ............ | 23 | 105, 162 | 12 | 41, 900 | 4 | 26, 000 | 8 | 72, 489 | 9 |
| 2 | 1, 000 | 1 | 300 | 1 | 2, 500 | ...... | ............ | 40 | 23, 732 | 20 | 9, 425 | 19 | 11, 600 | 9 | 5, 550 | 10 |
| 3 | 3, 300 | 9 | 5, 100 | 1 | 900 | ...... | ............ | 163 | 150, 686 | 73 | 88, 837 | 73 | 127, 322 | 37 | 50, 188 | 11 |
| 2 | 500 | 1 | 600 | ...... | ............ | ...... | ............ | 7 | 4, 650 | 4 | 1, 900 | ...... | ............ | ...... | ............ | 12 |
| 17 | 29, 129 | 4 | 2, 950 | 2 | 1, 026 | ...... | ............ | 758 | 1, 527, 042 | 364 | 890, 913 | 238 | 282, 997 | 84 | 68, 768 | 13 |
| 1 | 2, 250 | 1 | 350 | 5 | 1, 600 | ...... | ............ | 390 | 518, 322 | 233 | 239, 342 | 160 | 134, 600 | 95 | 56, 168 | 14 |
| ...... | ............ | ...... | ............ | ...... | ............ | ...... | ............ | 3 | 4, 060 | ...... | ............ | ...... | ............ | ...... | ............ | 15 |
| 3 | 1, 900 | 1 | 1, 000 | 2 | 500 | ...... | ........ | 500 | 449, 550 | 196 | 187, 840 | 112 | 76, 945 | 25 | 17, 750 | 16 |
| 1 | 1, 800 | ...... | ............ | ...... | ............ | ...... | ............ | 310 | 230, 141 | 78 | 71, 393 | 24 | 20, 270 | ...... | ............ | 17 |
| 7 | 6, 844 | 4 | 4, 100 | 1 | 2, 000 | ...... | ............ | 160 | 240, 473 | 68 | 137, 930 | 64 | 123, 947 | 38 | 58, 712 | 18 |
| 1 | 8, 000 | 8 | 8, 500 | 3 | 1, 850 | ...... | ............ | 94 | 81, 415 | 75 | 39, 970 | 70 | 77, 800 | 37 | 31, 667 | 19 |
| ...... | ............ | ...... | ............ | ...... | ............ | ...... | ............ | 90 | 156, 940 | 47 | 114, 600 | 52 | 95, 510 | 39 | 55, 887 | 20 |
| ...... | ............ | 2 | 1, 600 | ...... | ............ | ...... | ............ | 111 | 255, 770 | 69 | 127, 314 | 40 | 62, 898 | 54 | 60, 887 | 21 |
| 13 | 34, 727 | 16 | 41, 484 | 14 | 40, 700 | 11 | 19, 904 | 279 | 1, 089, 515 | 153 | 899, 465 | 145 | 778, 680 | 126 | 391, 752 | 22 |
| 3 | 3, 965 | ...... | ............ | 3 | 9, 150 | ...... | ............ | 397 | 488, 927 | 174 | 192, 889 | 103 | 92, 648 | 47 | 32, 418 | 23 |
| ...... | ............ | ...... | ............ | ...... | ............ | ...... | ............ | 205 | 167, 206 | 79 | 79, 978 | 43 | 30, 030 | ...... | ............ | 24 |
| 1 | 400 | 3 | 2, 400 | 1 | 5, 000 | ...... | ............ | 109 | 75, 004 | 92 | 60, 018 | 65 | 65, 867 | 46 | 28, 982 | 25 |
| 2 | 1, 100 | ...... | ............ | ...... | ............ | ...... | ............ | 415 | 645, 747 | 225 | 342, 361 | 143 | 277, 357 | 45 | 46, 280 | 26 |
| ...... | ............ | ...... | ............ | ...... | ............ | ...... | ............ | 14 | 19, 915 | 6 | 12, 200 | ...... | ............ | ...... | ............ | 27 |
| 1 | 500 | ...... | ............ | 1 | 1, 000 | ...... | ............ | 165 | 121, 800 | 30 | 22, 400 | 12 | 7, 750 | ...... | ............ | 28 |
| ...... | ............ | 2 | 950 | ...... | ............ | ...... | ............ | 22 | 10, 090 | 5 | 2, 850 | ...... | ............ | ...... | ............ | 29 |
| ...... | ............ | ...... | ............ | ...... | ............ | ...... | ............ | 66 | 107, 998 | 37 | 75, 819 | 20 | 19, 700 | 35 | 58, 426 | 30 |
| 6 | 3, 600 | ...... | ............ | 1 | 1, 000 | ...... | ............ | 163 | 164, 502 | 95 | 120, 670 | 70 | 131, 506 | 43 | 36, 544 | 31 |
| ...... | ............ | ...... | ............ | ...... | ............ | ...... | ............ | 15 | 4, 355 | 4 | 1, 300 | 2 | 1, 150 | 1 | 400 | 32 |
| 24 | 100, 544 | 22 | 114, 500 | 10 | 58, 871 | 13 | 29, 965 | 892 | 4, 253, 908 | 518 | 3, 388, 497 | 366 | 2, 600, 925 | 308 | 753, 960 | 33 |
| 3 | 1, 400 | 5 | 5, 750 | 4 | 2, 162 | ...... | ............ | 113 | 83, 437 | 44 | 43, 325 | 57 | 65, 612 | 40 | 29, 427 | 34 |
| 4 | 6, 250 | 3 | 7, 200 | 4 | 3, 500 | ...... | ............ | 584 | 1, 328, 133 | 299 | 923, 502 | 260 | 805, 810 | 201 | 256, 427 | 35 |
| ...... | ............ | ...... | ............ | ...... | ............ | ...... | ............ | 59 | 57, 786 | 26 | 30, 400 | 12 | 14, 820 | 2 | 1, 134 | 36 |
| 3 | 13, 800 | 2 | 17, 700 | 3 | 9, 800 | 1 | 600 | 674 | 1, 998, 340 | 385 | 1, 214, 395 | 297 | 700, 961 | 261 | 526, 142 | 37 |
| 1 | 700 | 1 | 1, 200 | 1 | 2, 000 | 2 | 242 | 31 | 51, 579 | 18 | 43, 950 | 19 | 35, 990 | 12 | 18, 525 | 38 |
| 1 | 500 | ...... | ............ | ...... | ............ | ...... | ............ | 69 | 58, 492 | 42 | 44, 000 | 35 | 41, 070 | 27 | 27, 190 | 39 |
| 2 | 1, 700 | 1 | 1, 000 | ...... | ............ | ...... | ............ | 154 | 224, 503 | 65 | 117, 022 | 61 | 101, 839 | 36 | 41, 147 | 40 |
| 2 | 1, 460 | 5 | 3, 700 | ...... | ............ | ...... | ............ | 231 | 180, 102 | 89 | 45, 300 | 79 | 90, 615 | 29 | 14, 837 | 41 |
| 4 | 8, 200 | 3 | 2, 900 | ...... | ............ | ...... | ............ | 8 | 11, 950 | 3 | 8, 400 | 2 | 6, 300 | ...... | ............ | 42 |
| ...... | ............ | ...... | ............ | ...... | ............ | 1 | 2, 200 | 72 | 73, 107 | 43 | 56, 200 | 28 | 44, 665 | 30 | 41, 206 | 43 |
| 6 | 4, 191 | 8 | 7, 033 | 11 | 21, 212 | ...... | ............ | 124 | 121, 281 | 69 | 75, 488 | 103 | 189, 360 | 55 | 48, 434 | 44 |
| ...... | ............ | ...... | ............ | ...... | ............ | ...... | ............ | 23 | 15, 651 | 10 | 4, 525 | 4 | 2, 350 | ...... | ............ | 45 |
| 2 | 1, 250 | ...... | ............ | ...... | ............ | ...... | ............ | 96 | 74, 152 | 48 | 42, 390 | ...... | ............ | ...... | ............ | 46 |
| 2 | 1, 400 | 3 | 6, 850 | ...... | ............ | ...... | ............ | 283 | 316, 179 | 160 | 266, 000 | 130 | 111, 400 | 35 | 26, 846 | 47 |
| ...... | ............ | ...... | ............ | ...... | ............ | ...... | ............ | 8 | 3, 700 | 4 | 1, 400 | ...... | ............ | ...... | ............ | 48 |

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*a* No number reported.

*b* No circulation reported.

## TABLE XI.—COMPARATIVE EXHIBIT OF THE NUMBER AND CIRCULATION OF NEWSPAPERS AND

| | STATES AND TERRITORIES. | BI-WEEKLY. | | SEMI-MONTHLY. | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 1880. | | 1880. | | 1870. | | 1850. | |
| | | No. | Circulation. | No. | Circulation. | No. | Circulation. | No. | Circulation. |
| | The United States | 42 | 63, 850 | 160 | 1, 247, 135 | 96 | 1, 349, 820 | 95 | 487, 645 |
| 1 | Alabama | ...... | ...... | 2 | 3, 000 | ...... | ...... | 1 | 750 |
| 2 | Arizona | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| 3 | Arkansas | ...... | ...... | 4 | 15, 850 | ...... | ...... | ...... | ...... |
| 4 | California | ...... | ...... | 6 | 8, 550 | 1 | 300 | ...... | ...... |
| 5 | Colorado | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| 6 | Connecticut | 1 | 575 | 2 | 1, 350 | 2 | 900 | ...... | ...... |
| 7 | Dakota | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| 8 | Delaware | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| 9 | District of Columbia | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| 10 | Florida | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| 11 | Georgia | ...... | ...... | 3 | 2, 100 | 2 | 700 | 6 | 9, 525 |
| 12 | Idaho | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| 13 | Illinois | 4 | 6, 800 | 18 | 47, 725 | 11 | 107, 900 | 3 | 1, 800 |
| 14 | Indiana | 1 | 1, 200 | 5 | 4, 675 | 6 | 9, 200 | 1 | 2, 000 |
| 15 | Indian territory | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| 16 | Iowa | 2 | 1, 400 | 1 | 1, 095 | 3 | 3, 400 | ...... | ...... |
| 17 | Kansas | ...... | ...... | 1 | 1, 200 | ...... | ...... | ...... | ...... |
| 18 | Kentucky | ...... | ...... | 2 | 85, 700 | ...... | ...... | 8 | 6, 706 |
| 19 | Louisiana | 1 | 2, 200 | ...... | ...... | ...... | ...... | ...... | ...... |
| 20 | Maine | 1 | 400 | ...... | ...... | 1 | 700 | ...... | ...... |
| 21 | Maryland | ...... | ...... | 4 | 5, 650 | ...... | ...... | 1 | 2, 000 |
| 22 | Massachusetts | 7 | 7, 750 | 1 | 3, 500 | 11 | 45, 200 | 3 | 2, 575 |
| 23 | Michigan | 2 | 1, 200 | 4 | 9, 600 | 2 | 1, 300 | 3 | 5, 600 |
| 24 | Minnesota | ...... | ...... | 1 | 475 | ...... | ...... | ...... | ...... |
| 25 | Mississippi | ...... | ...... | ...... | ...... | 2 | 700 | ...... | ...... |
| 26 | Missouri | 1 | 1, 000 | 8 | 26, 258 | 3 | 22, 000 | ...... | ...... |
| 27 | Montana | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| 28 | Nebraska | ...... | ...... | 1 | 600 | ...... | ...... | ...... | ...... |
| 29 | Nevada | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| 30 | New Hampshire | 1 | 850 | 3 | 28, 750 | 1 | 25, 000 | 1 | 650 |
| 31 | New Jersey | 2 | 1, 000 | ...... | ...... | ...... | ...... | 2 | 960 |
| 32 | New Mexico | ...... | ...... | ...... | ...... | ...... | ...... | 1 | 750 |
| 33 | New York | 10 | 24, 900 | 35 | 223, 271 | 21 | 216, 300 | 9 | 71, 000 |
| 34 | North Carolina | ...... | ...... | 4 | 5, 230 | 1 | 1, 250 | 6 | 3, 169 |
| 35 | Ohio | 3 | 6, 825 | 18 | 344, 956 | 8 | 65, 050 | 23 | 74, 235 |
| 36 | Oregon | ...... | ...... | 1 | (a) | ...... | ...... | ...... | ...... |
| 37 | Pennsylvania | 1 | 1, 800 | 16 | 359, 435 | 11 | 825, 100 | 19 | 290, 500 |
| 38 | Rhode Island | 1 | 400 | ...... | ...... | ...... | ...... | ...... | ...... |
| 39 | South Carolina | ...... | ...... | ...... | ...... | ...... | ...... | 5 | 4, 275 |
| 40 | Tennessee | ...... | ...... | 6 | 4, 340 | 1 | 15, 000 | ...... | ...... |
| 41 | Texas | ...... | ...... | 2 | 1, 300 | 1 | 300 | ...... | ...... |
| 42 | Utah | ...... | ...... | 1 | 3, 500 | ...... | ...... | ...... | ...... |
| 43 | Vermont | ...... | ...... | 1 | 285 | ...... | ...... | ...... | ...... |
| 44 | Virginia | ...... | ...... | 2 | 18, 625 | 4 | 4, 520 | 3 | 11, 150 |
| 45 | Washington | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| 46 | West Virginia | 1 | 150 | ...... | ...... | 2 | 3, 100 | ...... | ...... |
| 47 | Wisconsin | 3 | 5, 400 | 8 | 40, 115 | 2 | 1, 900 | ...... | ...... |
| 48 | Wyoming | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |

NOTE.—Two tri-monthlies, having a circulation of 1,575, are included in Connecticut and Illinois with circulation of bi-weeklies in 1880. Six semi-annual periodicals, having a circulation of 19,750, are included in the circulation of quarterlies in the following states, viz: Illinois (1), Michigan (1), New York (3), and Pennsylvania (1).

*a* No circulation reported.

## PERIODICALS PUBLISHED IN THE UNITED STATES FROM 1850 TO 1880, BY DECADES, ETC.—Cont'd.

| MONTHLY. | | | | | | | | BI-MONTHLY. | | | | | | QUARTERLY. | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1880. | | 1870. | | 1860. | | 1850. | | 1880. | | 1870. | | 1850. | | 1880. | | 1870. | | 1860. | | 1850. | | |
| No. | Circulation. | No. | Circulation. | No. | Circulation. | No. | Circulation. | No. | Circulation. | No. | Circulation. | No. | Circulation. | No. | Circulation. | No. | Circulation. | No. | Circulation. | No. | Circulation. | |
| 1, 167 | 8, 139, 881 | 622 | 5, 650, 843 | 280 | 3, 411, 959 | 100 | 740, 651 | 13 | 48, 550 | 13 | 31, 650 | 5 | 8, 200 | 122 | 1, 964, 049 | 49 | 211, 670 | 30 | 101, 000 | 19 | 25, 875 | |
| 7 | 7, 050 | | | 3 | 7, 200 | | | | | | | | | | | | | | | | | 1 |
| | | | | | | | | | | | | | | | | | | | | | | 2 |
| 2 | 500 | 4 | 2, 000 | | | | | | | | | | | | | | | | | | | 3 |
| 32 | 98, 040 | 17 | 82, 200 | 5 | 34, 600 | | | | | | | | | 2 | 3, 450 | 2 | 4, 500 | | | | | 4 |
| 1 | 9, 900 | 1 | 1, 009 | | | | | | | | | | | | | | | | | | | 5 |
| 15 | 31, 000 | 7 | 56, 400 | 1 | 500 | 1 | 500 | 1 | 1, 250 | 1 | 1, 150 | 1 | 1, 200 | 2 | 1, 400 | 1 | 1, 350 | 2 | 7, 100 | 2 | *a* 2, 200 | 6 |
| | | | | | | | | | | | | | | | | | | | | | | 7 |
| 1 | 1, 000 | 1 | 2, 000 | | | | | | | | | | | | | | | | | | | 8 |
| 15 | 71, 211 | 6 | 13, 500 | | | | | | | | | | | 1 | 1, 050 | | | 1 | 3, 000 | | | 9 |
| | | | | | | | | | | | | | | | | | | | | | | 10 |
| 11 | 33, 350 | 6 | 21, 950 | 13 | 29, 500 | | | | | | | | | | | | | 1 | 1, 000 | | | 11 |
| | | | | | | | | | | | | | | | | | | | | | | 12 |
| 118 | 401, 646 | 72 | 490, 808 | 17 | 31, 100 | 7 | 12, 267 | | | 2 | 11, 000 | | | 22 | 31, 500 | 3 | 12, 000 | | | 1 | 225 | 13 |
| 27 | 60, 250 | 28 | 64, 150 | 8 | 14, 300 | | | | | 2 | 6, 000 | | | | | | | | | | | 14 |
| | | | | | | | | | | | | | | | | | | | | | | 15 |
| 31 | 51, 740 | 5 | 3, 950 | 5 | 3, 400 | 2 | 1, 050 | | | 2 | 750 | | | 1 | 3, 000 | 1 | 700 | | | | | 16 |
| 15 | 26, 192 | 3 | 6, 000 | | | | | | | | | | | | | | | | | | | 17 |
| 23 | 29, 255 | 7 | 19, 700 | 5 | 31, 400 | | | | | | | | | | | | | | | | | 18 |
| 2 | 950 | 1 | 500 | | | 1 | 12, 200 | | | | | | | | | | | | | | | 19 |
| 18 | 1, 036, 200 | 8 | 42, 840 | 6 | 18, 540 | 1 | 2, 500 | | | | | | | 1 | 1, 500 | 1 | 1, 500 | | | | | 20 |
| 12 | 19, 760 | 8 | 18, 600 | | | 3 | 7, 700 | | | | | | | 1 | 900 | | | | | | | 21 |
| 80 | 574, 538 | 48 | 462, 150 | 30 | 353, 100 | 29 | 113. 100 | | | | | 4 | 7, 000 | 7 | 22, 100 | 9 | 11, 400 | 6 | 21, 500 | 7 | 6, 000 | 22 |
| 19 | 33, 293 | 16 | 27, 100 | 8 | 3, 900 | 3 | 10, 300 | 1 | 1, 150 | | | | | 2 | 13, 750 | | | | | | | 23 |
| 6 | 25, 150 | 5 | 11, 800 | | | | | | | | | | | | | | | | | | | 24 |
| 3 | 6, 100 | 5 | 2, 800 | | | | | | | | | | | | | | | | | | | 25 |
| 50 | 153, 800 | 23 | 53, 650 | 11 | 24, 300 | 7 | 11, 300 | 2 | 3, 800 | 1 | 1, 500 | | | 1 | 800 | 1 | 3, 000 | | | | | 26 |
| | | | | | | | | | | | | | | | | | | | | | | 27 |
| 7 | 13, 040 | 4 | 1, 850 | 1 | 1, 000 | | | | | | | | | | | | | | | | | 28 |
| 1 | 500 | | | | | | | | | | | | | | | | | | | | | 29 |
| 7 | 39, 300 | 6 | 67, 000 | | | 2 | 1, 150 | | | | | | | | | | | | | | | 30 |
| 13 | 16, 300 | 7 | 46, 800 | 3 | 10, 000 | | | 1 | 550 | | | | | 2 | 12, 000 | | | | | | | 31 |
| | | | | | | | | | | | | | | | | | | | | | | 32 |
| 282 | 2, 903, 527 | 163 | 2, 920, 810 | 69 | 2, 045, 000 | 36 | 552, 484 | 5 | 38, 000 | | | | | 43 | 828, 913 | 19 | 135, 120 | 10 | 57, 600 | 3 | 6, 150 | 33 |
| 7 | 6, 750 | 3 | 1, 900 | 4 | 7, 850 | | | | | | | | | | | | | | | | | 34 |
| 90 | 622, 531 | 47 | 228, 750 | 41 | 218, 850 | | | | | 2 | 2, 700 | | | 11 | 562, 200 | 2 | 7, 900 | | | 1 | 6, 000 | 35 |
| 6 | 15, 330 | 5 | 9, 000 | (*b*) | 4, 000 | | | | | | | | | 1 | 1, 600 | | | 1 | (*c*) | | | 36 |
| 159 | 1, 606, 073 | 73 | 846, 750 | 28 | 464, 684 | | | 1 | 500 | 3 | 8, 550 | | | 17 | 466, 886 | 8 | 31, 200 | 6 | 6, 800 | 2 | 1, 900 | 37 |
| 3 | 3, 040 | 6 | 13, 650 | 1 | 1, 400 | | | | | | | | | | | | | | | | | 38 |
| 3 | 1, 110 | 3 | 10, 000 | 3 | 4, 500 | | | | | | | | | 1 | 700 | 1 | 1, 200 | 1 | 500 | 2 | 2, 400 | 39 |
| 16 | 23, 850 | 8 | 54, 200 | 4 | 43, 760 | 4 | 10, 600 | 1 | 3, 000 | | | | | 2 | 4, 900 | 1 | 1, 800 | 2 | 3, 500 | | | 40 |
| 14 | 49, 540 | | | 4 | 2, 775 | | | | | | | | | | | | | | | | | 41 |
| 4 | 4, 575 | 1 | 250 | | | | | | | | | | | | | | | | | | | 42 |
| 3 | 51, 500 | 1 | 12, 000 | 1 | 2, 000 | 2 | 2, 000 | | | | | | | 1 | 1, 100 | | | | | | | 43 |
| 33 | 70, 902 | 10 | 27, 900 | 5 | 43, 900 | 1 | 2, 000 | 1 | 800 | | | | | 3 | 5, 300 | | | | | 1 | 1, 000 | 44 |
| 2 | (*d*) | 2 | 1, 500 | | | | | | | | | | | | | | | | | | | 45 |
| 6 | 4, 806 | 3 | 3, 200 | | | | | | | | | | | 1 | 1, 000 | | | | | | | 46 |
| 20 | 36, 282 | 9 | 22, 185 | 3 | 10, 400 | 1 | 1, 500 | | | | | | | | | | | | | | | 47 |
| | | | | | | | | | | | | | | | | | | | | | | 48 |

*a* Also in Connecticut 1 periodical published three times a year, with a circulation of 1,500.

*b* No number reported.

*c* No circulation reported.

*d* Suspended.

## TABLE XII.—AVERAGE NUMBER OF INHABITANTS TO AGGREGATE CIRCULATION PER ISSUE AND AREA IN SQUARE MILES FOR EACH NEWSPAPER AND PERIODICAL PUBLISHED IN THE UNITED STATES.

| STATES AND TERRITORIES. | Area in square miles. | Population, census of 1880. | Number of publications. | Aggregate circulation per issue. | Total number of copies printed annually. | Average number of inhabitants to aggregate circulation per issue. | Average area for each publication in square miles. |
|---|---|---|---|---|---|---|---|
| The United States | 2, 970, 000 | 50, 155, 783 | 11, 314 | 31, 779, 686 | 2, 067, 848, 209 | 1. 58 | 262. 51 |
| Alabama | 51, 540 | 1, 262, 505 | 125 | 93, 073 | 6, 778, 544 | 13. 56 | 412. 32 |
| Arizona | 112, 920 | 40, 440 | 17 | 13, 550 | 1, 413, 600 | 2. 98 | 6, 642. 35 |
| Arkansas | 53, 045 | 802, 525 | 117 | 103, 501 | 4, 990, 595 | 7. 75 | 453. 38 |
| California | 155, 980 | 864, 694 | 361 | 640, 026 | 72, 861, 836 | 1. 35 | 432. 08 |
| Colorado | 103, 645 | 194, 327 | 87 | 95, 744 | 8, 877, 831 | 2. 03 | 1, 191. 32 |
| Connecticut | 4, 845 | 622, 700 | 139 | 237, 660 | 20, 366, 449 | 2. 62 | 34. 86 |
| Dakota | 147, 700 | 135, 177 | 67 | 36, 943 | 2, 739, 014 | 3. 66 | 2, 204. 48 |
| Delaware | 1, 960 | 146, 608 | 26 | 34, 425 | 5, 172, 998 | 4. 26 | 75. 38 |
| District of Columbia | 60 | 177, 624 | 44 | 213, 923 | 15, 874, 432 | 0. 83 | 1. 36 |
| Florida | 54, 240 | 269, 493 | 45 | 27, 332 | 2, 086, 644 | 9. 86 | 1, 205. 33 |
| Georgia | 58, 980 | 1, 542, 180 | 200 | 269, 066 | 20, 994, 549 | 5. 73 | 294. 90 |
| Idaho | 84, 290 | 32, 610 | 10 | 5, 650 | 367, 600 | 5. 77 | 8, 429. 00 |
| Illinois | 56, 000 | 3, 077, 871 | 1, 017 | 2, 421, 275 | 174, 696, 505 | 1. 27 | 55. 06 |
| Indiana | 35, 910 | 1, 978, 301 | 467 | 661, 111 | 44, 908, 191 | 2. 99 | 76. 90 |
| Indian territory | 64, 090 | .............. | 3 | 4, 060 | 210, 200 | .............. | 21, 363. 33 |
| Iowa | 55, 475 | 1, 624, 615 | 569 | 547, 340 | 35, 747, 302 | 2. 97 | 97. 50 |
| Kansas | 81, 700 | 996, 096 | 347 | 280, 729 | 18, 589, 223 | 3. 55 | 235. 45 |
| Kentucky | 40, 000 | 1, 648, 690 | 205 | 397, 564 | 25, 332, 423 | 4. 15 | 195. 12 |
| Louisiana | 45, 420 | 939, 946 | 112 | 131, 680 | 15, 602, 320 | 7. 14 | 405. 54 |
| Maine | 29, 895 | 648, 936 | 123 | 1, 214, 460 | 25, 661, 845 | 0. 53 | 243. 05 |
| Maryland | 9, 860 | 934, 943 | 143 | 414, 693 | 50, 115, 182 | 2. 25 | 68. 95 |
| Massachusetts | 8, 040 | 1, 783, 085 | 427 | 2, 012, 929 | 149, 319, 973 | 0. 88 | 18. 83 |
| Michigan | 57, 430 | 1, 636, 937 | 464 | 620, 974 | 46, 659, 470 | 2. 64 | 123. 77 |
| Minnesota | 79, 205 | 780, 773 | 223 | 222, 074 | 18, 097, 781 | 3. 51 | 355. 18 |
| Mississippi | 46, 340 | 1, 131, 597 | 123 | 87, 904 | 5, 293, 418 | 12. 87 | 376. 75 |
| Missouri | 68, 735 | 2, 168, 380 | 530 | 965, 285 | 79, 265, 309 | 2. 25 | 120. 69 |
| Montana | 145, 310 | 39, 159 | 18 | 20, 827 | 1, 280, 480 | 1. 88 | 8, 072. 78 |
| Nebraska | 76, 185 | 452, 402 | 189 | 154, 570 | 11, 717, 103 | 2. 93 | 403. 10 |
| Nevada | 109, 740 | 62, 266 | 37 | 27, 745 | 5, 820, 575 | 2. 24 | 2, 965. 95 |
| New Hampshire | 9, 005 | 346, 991 | 87 | 185, 968 | 9, 635, 410 | 1. 86 | 103. 51 |
| New Jersey | 7, 455 | 1, 131, 116 | 215 | 249, 478 | 22, 150, 095 | 4. 53 | 34. 67 |
| New Mexico | 122, 460 | 119, 565 | 18 | 6, 355 | 838, 860 | 18. 81 | 6, 803. 33 |
| New York | 47, 620 | 5, 082, 871 | 1, 411 | 9, 374, 134 | 577, 755, 819 | 0. 54 | 33. 75 |
| North Carolina | 48, 580 | 1, 399, 750 | 142 | 105, 501 | 6, 819, 382 | 13. 26 | 342. 11 |
| Ohio | 40, 760 | 3, 198, 062 | 774 | 3, 093, 931 | 152, 579, 380 | 1. 03 | 52. 66 |
| Oregon | 94, 560 | 174, 768 | 74 | 85, 786 | 8, 578, 213 | 2. 04 | 1, 277. 84 |
| Pennsylvania | 44, 985 | 4, 282, 891 | 973 | 5, 031, 061 | 297, 559, 892 | 0. 85 | 46. 23 |
| Rhode Island | 1, 085 | 276, 531 | 44 | 97, 121 | 14, 496, 498 | 2. 85 | 24. 66 |
| South Carolina | 30, 170 | 995, 577 | 81 | 69, 902 | 5, 774, 415 | 14. 24 | 372. 47 |
| Tennessee | 41, 750 | 1, 542, 359 | 193 | 293, 288 | 18, 293, 872 | 5. 26 | 216. 32 |
| Texas | 262, 290 | 1, 591, 749 | 280 | 263, 289 | 19, 883, 792 | 6. 05 | 936. 75 |
| Utah | 82, 190 | 143, 963 | 22 | 36, 175 | 3, 867, 500 | 3. 98 | 3, 735. 91 |
| Vermont | 9, 135 | 332, 286 | 82 | 130, 192 | 5, 681, 464 | 2. 55 | 111. 40 |
| Virginia | 40, 125 | 1, 512, 565 | 194 | 256, 471 | 18, 422, 845 | 5. 90 | 206. 83 |
| Washington | 66, 880 | 75, 116 | 29 | 16, 751 | 1, 062, 103 | 4. 48 | 2, 306. 21 |
| West Virginia | 24, 645 | 618, 457 | 109 | 85, 958 | 4, 903, 466 | 7. 19 | 226. 10 |
| Wisconsin | 54, 450 | 1, 315, 497 | 340 | 436, 576 | 27, 901, 051 | 3. 01 | 160. 14 |
| Wyoming | 97, 575 | 20, 789 | 11 | 5, 686 | 803, 260 | 3. 66 | 8, 870. 45 |
| Unorganized territory | 5, 740 | .............. | .............. | .............. | .............. | .............. | .............. |

## TABLE XIII.—NUMBER OF COUNTIES IN THE SEVERAL STATES AND TERRITORIES IN WHICH NEWSPAPERS WERE PUBLISHED, AND THE NUMBER OF TOWNS IN EACH STATE AND TERRITORY IN WHICH ONE, TWO, THREE, FOUR, AND FIVE OR MORE NEWSPAPERS WERE PUBLISHED.

| STATES AND TERRITORIES. | Number of counties. | Number of counties in which newspapers were published. | Number of towns in which the following number of papers were published during the census year. | | | | |
|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 or more. |
| The United States | 2,605 | 2,073 | 2,459 | 1,026 | 375 | 209 | 329 |
| Alabama | 66 | 55 | 37 | 20 | 5 | 2 | 4 |
| Arizona | 7 | 5 | 2 | 1 | 1 | 1 | 1 |
| Arkansas | 74 | 61 | 51 | 15 | 3 | 3 | 2 |
| California | 52 | 52 | 56 | 29 | 5 | 7 | 12 |
| Colorado | 31 | 26 | 17 | 7 | 3 | 1 | 4 |
| Connecticut | 8 | 8 | 30 | 9 | 3 | 4 | 5 |
| Dakota | 93 | 28 | 26 | 9 | 1 | 2 | 2 |
| Delaware | 3 | 3 | 6 | 3 | ........ | ........ | 1 |
| Florida | 39 | 23 | 15 | 10 | 1 | ........ | 1 |
| Georgia | 137 | 100 | 75 | 17 | 8 | 2 | 6 |
| Idaho | 13 | 6 | 4 | 1 | ........ | 1 | ........ |
| Illinois | 102 | 102 | 170 | 93 | 37 | 12 | 28 |
| Indiana | 92 | 92 | 88 | 43 | 26 | 16 | 16 |
| Iowa | 99 | 99 | 140 | 61 | 33 | 10 | 21 |
| Kansas | 104 | 83 | 101 | 45 | 16 | 7 | 10 |
| Kentucky | 117 | 78 | 56 | 24 | 4 | 4 | 5 |
| Louisiana | 58 | 53 | 44 | 12 | ........ | 2 | 1 |
| Maine | 16 | 16 | 35 | 11 | 2 | 1 | 5 |
| Maryland | 23 | 23 | 24 | 8 | 8 | ........ | 5 |
| Massachusetts | 14 | 14 | 82 | 30 | 10 | 2 | 12 |
| Michigan | 79 | 72 | 132 | 45 | 19 | 10 | 14 |
| Minnesota | 78 | 68 | 79 | 29 | 9 | 3 | 3 |
| Mississippi | 74 | 60 | 45 | 18 | 2 | 2 | 5 |
| Missouri | 114 | 114 | 83 | 56 | 22 | 10 | 17 |
| Montana | 11 | 9 | 9 | ........ | ........ | 1 | 1 |
| Nebraska | 69 | 58 | 56 | 27 | 4 | 6 | 4 |
| Nevada | 15 | 12 | 15 | 2 | 3 | 1 | 1 |
| New Hampshire | 10 | 10 | 20 | 9 | ........ | 3 | 4 |
| New Jersey | 21 | 21 | 43 | 22 | 10 | 8 | 7 |
| New Mexico | 12 | 6 | 6 | 1 | ........ | 1 | 1 |
| New York | 60 | 60 | 207 | 85 | 27 | 10 | 26 |
| North Carolina | 94 | 51 | 40 | 13 | 5 | 4 | 5 |
| Ohio | 88 | 88 | 128 | 56 | 27 | 17 | 24 |
| Oregon | 23 | 20 | 18 | 9 | 2 | 2 | 1 |
| Pennsylvania | 67 | 67 | 143 | 58 | 31 | 10 | 32 |
| Rhode Island | 5 | 5 | 10 | ........ | 1 | 2 | 1 |
| South Carolina | 33 | 32 | 25 | 14 | ........ | ........ | 3 |
| Tennessee | 94 | 70 | 50 | 21 | 8 | 4 | 4 |
| Texas | 225 | 110 | 89 | 32 | 11 | 5 | 8 |
| Utah | 23 | 7 | 6 | ........ | 1 | ........ | 1 |
| Vermont | 14 | 14 | 34 | 7 | 5 | 1 | 4 |
| Virginia | 99 | 61 | 44 | 13 | 7 | 5 | 5 |
| Washington | 25 | 12 | 7 | 3 | 1 | 2 | 1 |
| West Virginia | 54 | 43 | 27 | 21 | 4 | 1 | 8 |
| Wisconsin | 63 | 62 | 84 | 34 | 10 | 8 | 13 |
| Wyoming | 7 | 5 | 1 | 3 | ........ | 1 | ........ |

TABLE XIV.—STATEMENT SHOWING THE LANGUAGE AND NUMBER OF DAILY, WEEKLY, AND TERRITORIES OF THE UNITED STATES DURING

| | STATES AND TERRITORIES. | Total. | BOHEMIAN. | | CATALAN. | | CHINESE. | | ENGLISH. | | FRENCH. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Dailies. | Weeklies and all others. | Dailies. | Weeklies and all others. | Dailies. | Weeklies and all others. | Dailies. | Weeklies and all others. | Dailies. | Weeklies and all others. |
| | The United States | 11, 314 | 2 | 11 | | 1 | | 2 | 880 | 9, 635 | 5 | 36 |
| 1 | Alabama | 125 | | | | | | | 6 | 119 | | |
| 2 | Arizona | 17 | | | | | | | 6 | 10 | | |
| 3 | Arkansas | 117 | | | | | | | 6 | 110 | | |
| 4 | California | 361 | | | | | | 2 | 54 | 274 | 1 | 4 |
| 5 | Colorado | 87 | | | | | | | 18 | 66 | | |
| 6 | Connecticut | 139 | | | | | | | 16 | 118 | | |
| 7 | Dakota | 67 | | | | | | | 9 | 56 | | |
| 8 | Delaware | 26 | | | | | | | 5 | 20 | | |
| 9 | District of Columbia | 44 | | | | | | | 4 | 37 | | |
| 10 | Florida | 45 | | | | | | | 3 | 42 | | |
| 11 | Georgia | 200 | | | | | | | 16 | 183 | | |
| 12 | Idaho | 10 | | | | | | | | 10 | | |
| 13 | Illinois | 1, 017 | 1 | 3 | | | | | 63 | 857 | | 1 |
| 14 | Indiana | 467 | | | | | | | 35 | 400 | | |
| 15 | Indian territory | 3 | | | | | | | | 1 | | |
| 16 | Iowa | 569 | | 1 | | | | | 27 | 400 | | |
| 17 | Kansas | 347 | | | | | | | 19 | 315 | | |
| 18 | Kentucky | 205 | | | | | | | 9 | 185 | | |
| 19 | Louisiana | 112 | | | | | | | 10 | 83 | 2 | 13 |
| 20 | Maine | 123 | | | | | | | 12 | 111 | | |
| 21 | Maryland | 143 | | | | | | | 13 | 121 | | |
| 22 | Massachusetts | 427 | | | | | | | 39 | 383 | | 4 |
| 23 | Michigan | 464 | | | | | | | 31 | 408 | | 2 |
| 24 | Minnesota | 223 | | | | | | | 9 | 193 | | 1 |
| 25 | Mississippi | 123 | | | | | | | 5 | 118 | | |
| 26 | Missouri | 530 | | | | | | | 36 | 458 | | 1 |
| 27 | Montana | 18 | | | | | | | 4 | 14 | | |
| 28 | Nebraska | 189 | | 1 | | | | | 14 | 161 | | |
| 29 | Nevada | 37 | | | | | | | 14 | 23 | | |
| 30 | New Hampshire | 87 | | | | | | | 10 | 77 | | |
| 31 | New Jersey | 215 | | | | | | | 24 | 172 | | |
| 32 | New Mexico | 18 | | | | | | | 3 | 11 | | |
| 33 | New York | 1, 411 | 1 | 2 | | 1 | | | 100 | 1, 180 | 2 | 8 |
| 34 | North Carolina | 142 | | | | | | | 13 | 129 | | |
| 35 | Ohio | 774 | | 1 | | | | | 46 | 637 | | 1 |
| 36 | Oregon | 74 | | | | | | | 7 | 65 | | |
| 37 | Pennsylvania | 973 | | | | | | | 88 | 796 | | |
| 38 | Rhode Island | 44 | | | | | | | 8 | 34 | | 1 |
| 39 | South Carolina | 81 | | | | | | | 4 | 76 | | |
| 40 | Tennessee | 193 | | | | | | | 12 | 180 | | |
| 41 | Texas | 280 | | 1 | | | | | 27 | 234 | | |
| 42 | Utah | 22 | | | | | | | 5 | 17 | | |
| 43 | Vermont | 82 | | | | | | | 5 | 77 | | |
| 44 | Virginia | 194 | | | | | | | 18 | 171 | | |
| 45 | Washington | 29 | | | | | | | 4 | 25 | | |
| 46 | West Virginia | 109 | | | | | | | 2 | 105 | | |
| 47 | Wisconsin | 340 | | 2 | | | | | 18 | 269 | | |
| 48 | Wyoming | 11 | | | | | | | 3 | 8 | | |

## ALL OTHER NEWSPAPERS AND PERIODICALS PUBLISHED IN THE SEVERAL STATES AND THE CENSUS YEAR ENDING MAY 31, 1880.

| GERMAN. | | DUTCH. | | INDIAN. | | IRISH. | | ITALIAN. | | POLISH. | | PORTUGUESE. | | SCANDINAVIAN AND DANISH. | | SPANISH. | | WELSH. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Dailies. | Weeklies and all others. | Dailies. | Weeklies and all others. | Dailies. | Weeklies and all others. | Dailies. | Weeklies and all others. | Dailies. | Weeklies and all others. | Dailies. | Weeklies and all others. | Dailies. | Weeklies and all others. | Dailies. | Weeklies and all others. | Dailies. | Weeklies and all others. | Dailies. | Weeklies and all others. | |
| 80 | 561 | | 9 | | 3 | | 1 | | 4 | | 2 | | 2 | 1 | 48 | 2 | 24 | | 5 | |
| | | | | | | | | | | | | | | | | | | | | 1 |
| | | | | | | | | | | | | | | | | | 1 | | | 2 |
| | 1 | | | | | | | | | | | | | | | | | | | 3 |
| 2 | 13 | | | | | | | | 3 | | | | | | [illegible] | 1 | 5 | | | 4 |
| 1 | 2 | | | | | | | | | | | | | | | | | | | 5 |
| 1 | 4 | | | | | | | | | | | | | | | | | | | 6 |
| | 1 | | | | | | | | | | | | | | 1 | | | | | 7 |
| | 1 | | | | | | | | | | | | | | | | | | | 8 |
| 1 | 2 | | | | | | | | | | | | | | | | | | | 9 |
| | | | | | | | | | | | | | | | | | | | | 10 |
| | 1 | | | | | | | | | | | | | | | | | | | 11 |
| | | | | | | | | | | | | | | | | | | | | 12 |
| 9 | 61 | | | | | | | | | | 2 | | | 1 | 19 | | | | | 13 |
| 4 | 28 | | | | | | | | | | | | | | | | | | | 14 |
| | | | | | 2 | | | | | | | | | | | | | | | 15 |
| 3 | 33 | | 2 | | 1 | | | | | | | | | | 6 | | | | | 16 |
| 1 | 10 | | | | | | | | | | | | | | 2 | | | | | 17 |
| 2 | 9 | | | | | | | | | | | | | | | | | | | 18 |
| 1 | 3 | | | | | | | | | | | | | | | | | | | 19 |
| | | | | | | | | | | | | | | | | | | | | 20 |
| 2 | 7 | | | | | | | | | | | | | | | | | | | 21 |
| | 1 | | | | | | | | | | | | | | | | | | | 22 |
| 2 | 13 | | 6 | | | | | | | | | | | | 2 | | | | | 23 |
| 1 | 12 | | | | | | | | | | | | | | 7 | | | | | 24 |
| | | | | | | | | | | | | | | | | | | | | 25 |
| 7 | 27 | | | | | | | | | | | | | | | | 1 | | | 26 |
| | | | | | | | | | | | | | | | | | | | | 27 |
| 1 | 10 | | | | | | | | | | | | | | 2 | | | | | 28 |
| | | | | | | | | | | | | | | | | | | | | 29 |
| | | | | | | | | | | | | | | | | | | | | 30 |
| 3 | 16 | | | | | | | | | | | | | | | | | | | 31 |
| | | | | | | | | | | | | | | | | | 4 | | | 32 |
| 12 | 85 | | | | | | 1 | | 1 | | | | 1 | | 4 | | 9 | | 4 | 33 |
| | | | | | | | | | | | | | | | | | | | | 34 |
| 10 | 79 | | | | | | | | | | | | | | | | | | | 35 |
| | 2 | | | | | | | | | | | | | | | | | | | 36 |
| 10 | 77 | | | | | | | | | | | | 1 | | | | | | 1 | 37 |
| | 1 | | | | | | | | | | | | | | | | | | | 38 |
| | 1 | | | | | | | | | | | | | | | | | | | 39 |
| | 1 | | | | | | | | | | | | | | | | | | | 40 |
| 2 | 11 | | | | | | | | | | | | | | | 1 | 4 | | | 41 |
| | | | | | | | | | | | | | | | | | | | | 42 |
| | | | | | | | | | | | | | | | | | | | | 43 |
| 2 | 3 | | | | | | | | | | | | | | | | | | | 44 |
| | | | | | | | | | | | | | | | | | | | | 45 |
| | 2 | | | | | | | | | | | | | | | | | | | 46 |
| 3 | 44 | | 1 | | | | | | | | | | | | [illegible] | | | | | 47 |
| | | | | | | | | | | | | | | | | | | | | 48 |

## TABLE XV.—STATISTICS OF THE NEWSPAPER AND PERIODICAL PRESS IN TEN PRINCIPAL CITIES OF THE UNITED STATES.

| CITIES. | Number of periodicals and aggregate circulation per issue. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dailies. | | Weeklies. | | Monthlies. | | All others. | | Aggregate circulation per issue. | Aggregate copies printed during the census year. |
| | No. | Circulation. | No. | Circulation. | No. | Circulation. | No. | Circulation. | | |
| Total | 148 | 2, 131, 577 | 780 | 7, 565, 133 | 588 | 5, 656, 126 | 223 | 3, 508, 469 | 18, 861, 305 | 1, 151, 394, 145 |
| Baltimore, Md | 9 | 128, 643 | 30 | 184, 950 | 10 | 19, 810 | 5 | 6, 550 | 339, 953 | 47, 772, 660 |
| Boston, Mass | 11 | 221, 315 | 69 | 838, 548 | 59 | 509, 725 | 15 | 45, 562 | 1, 615, 150 | 117, 059, 569 |
| Chicago, Ill | 18 | 220, 577 | 138 | 886, 702 | 91 | 499, 280 | 42 | 194, 160 | 1, 800, 719 | 130, 882, 585 |
| Cincinnati, Ohio | 12 | 117, 549 | 53 | 408, 821 | 41 | 245, 904 | 15 | 762, 800 | 1, 535, 074 | 70, 464, 932 |
| Louisville, Ky | 5 | 22, 215 | 26 | 82, 406 | 15 | 44, 180 | 4 | 94, 000 | 242, 795 | 14, 962, 300 |
| New Orleans, La | 10 | 37, 565 | 22 | 49, 810 | 2 | 950 | 2 | 10, 200 | 98, 525 | 16, 357, 500 |
| New York, N. Y | 29 | 765, 843 | 239 | 3, 341, 469 | 222 | 2, 715, 992 | 92 | 1, 127, 475 | 7, 950, 779 | 463, 730, 681 |
| Philadelphia, Pa | 24 | 375, 274 | 93 | 1, 126, 310 | 88 | 1, 464, 550 | 27 | 1, 214, 694 | 4, 180, 828 | 178, 563, 594 |
| Saint Louis, Mo | 9 | 99, 364 | 43 | 393, 337 | 33 | 94, 875 | 11 | 28, 578 | 616, 154 | 49, 392, 838 |
| San Francisco, Cal | 21 | 143, 232 | 67 | 252, 786 | 27 | 60, 860 | 10 | 24, 450 | 481, 328 | 62, 207, 486 |

| CITIES. | Character of publication. | | | | | | | No. of hands employed in the publication. | | | Amount paid in wages during the census year. | Gross receipts during the census year. | Total number of reams and pounds of paper used during the census year. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | News and politics. | Agriculture. | Commerce and trade. | Financial. | Literary. | Religious. | Miscellaneous publications. | Total. | Male. | Female. | | | Reams. | Pounds. |
| Total | 420 | 49 | 228 | 24 | 126 | 235 | 657 | 15, 100 | 14, 095 | 1, 005 | $12, 703, 929 00 | $44, 604, 820 95 | 2, 398, 737 | 106, 874, 792 |
| Baltimore, Md | 22 | 4 | 3 | ...... | 3 | 8 | 14 | 571 | 554 | 17 | 408, 246 00 | 1, 287, 474 00 | 90, 526 | 3, 455, 287 |
| Boston, Mass | 43 | 3 | 10 | 1 | 16 | 25 | 56 | 1, 364 | 1, 143 | 221 | 1, 540, 823 00 | 4, 988, 221 66 | 243, 874 | 11, 102, 838 |
| Chicago, Ill | 63 | 8 | 51 | 1 | 9 | 33 | 124 | 2, 520 | 2, 194 | 326 | 1, 884, 659 42 | 5, 036, 904 92 | 272, 672 | 12, 381, 059 |
| Cincinnati, Ohio | 32 | 2 | 17 | ...... | ...... | 22 | 48 | 1, 138 | 1, 106 | 32 | 850, 384 00 | 2, 742, 098 00 | 146, 802 | 6, 794, 541 |
| Louisville, Ky | 19 | 5 | 4 | ...... | 2 | 8 | 12 | 344 | 334 | 10 | 101, 088 00 | 866, 435 00 | 31, 172 | 1, 306, 601 |
| New Orleans, La | 21 | ...... | 1 | ...... | ...... | 7 | 7 | 386 | 385 | 1 | 348, 166 00 | 956, 795 00 | 34, 078 | 1, 438, 280 |
| New York, N. Y | 89 | 13 | 94 | 11 | 74 | 65 | 236 | 4, 852 | 4, 627 | 225 | 4, 574, 361 72 | 19, 119, 095 73 | 966, 106 | 43, 217, 282 |
| Philadelphia, Pa | 53 | 6 | 21 | 3 | 14 | 37 | 98 | 1, 817 | 1, 750 | 67 | 1, 364, 824 00 | 4, 919, 825 00 | 372, 007 | 16, 867, 512 |
| Saint Louis, Mo | 31 | 4 | 10 | ...... | 5 | 20 | 26 | 1, 187 | 1, 128 | 59 | 776, 674 00 | 1, 979, 882 00 | 102, 902 | 4, 657, 977 |
| San Francisco, Cal | 47 | 4 | 17 | 8 | 3 | 10 | 36 | 921 | 874 | 47 | 854, 702 86 | 2, 708, 089 64 | 129, 598 | 5, 653, 415 |

# APPENDIX B.

# CATALOGUE OF PERIODICAL PUBLICATIONS.

# CATALOGUE OF PERIODICAL PUBLICATIONS

ISSUED DURING

# THE CENSUS YEAR, JUNE 1, 1879, TO MAY 31, 1880.

## ALABAMA.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **AUTAUGA CO.**—*Population:* 13,108. | | | | | |
| Prattville | Autauga Citizen | Weekly | News and politics | 1853 | $2 00 |
| | Southern Signal | do | do | 1877 | 1 50 |
| **BARBOUR CO.**—*Population:* 33,979. | | | | | |
| Clayton | Clayton Courier | Weekly | News and politics | 1870 | 2 00 |
| Eufaula | Times and News | do | do | 1874 | 2 00 |
| | Times and News | Tri-weekly | do | 1874 | 4 00 |
| **BIBB CO.**—*Population:* 9,487. | | | | | |
| Six-Mile | Bibb Blade | Weekly | News and politics | 1879 | 1 00 |
| **BLOUNT CO.**—*Population:* 15,369. | | | | | |
| Blountsville | Blount County News | Weekly | News and politics | 1877 | 1 50 |
| | Blount County Herald | do | do | 1873 | 1 00 |
| **BULLOCK CO.**—*Population:* 29,066. | | | | | |
| Union Springs | Union Springs Herald | Weekly | News and politics | 1866 | 2 00 |
| **BUTLER CO.**—*Population:* 19,649. | | | | | |
| Greenville | Greenville Advocate | Weekly | News and politics | 1865 | 2 00 |
| **CALHOUN CO.**—*Population:* 19,591. | | | | | |
| Jacksonville | Jacksonville Republican | Weekly | News and politics | 1836 | 3 00 |
| Oxford | Oxford Record | do | do | 1878 | 1 50 |
| **CHAMBERS CO.**—*Population:* 23,440. | | | | | |
| Lafayette | Lafayette Clipper | Weekly | News and politics | 1873 | 1 00 |
| | Lafayette Leader (*a*) | do | do | | |
| **CHEROKEE CO.**—*Population:* 19,108. | | | | | |
| Center | Coosa River News | Weekly | News and politics | 1878 | 2 00 |
| | Cherokee Advertiser | do | do | 1866 | 2 00 |
| **CHOCTAW CO.**—*Population:* 15,731. | | | | | |
| Butler | Choctaw County News | Weekly | News and politics | 1876 | 2 00 |
| **CLARKE CO.**—*Population:* 17,806. | | | | | |
| Grove Hill | Clarke County Democrat | Weekly | News and politics | 1856 | 1 00 |
| **CLAY CO.**—*Population:* 12,938. | | | | | |
| Ashland | Ashland News | Weekly | News and politics | 1877 | 75 |
| **CLEBURNE CO.**—*Population:* 10,976. | | | | | |
| Edwardsville | Cleburne County Clarion (*b*) | Weekly | News and politics | 1880 | |
| **COLBERT CO.**—*Population:* 16,153. | | | | | |
| Tuscumbia | North Alabamian | Weekly | News and politics | 1832 | 2 00 |
| | Tuscumbia Democrat | do | do | 1878 | 2 00 |
| **CONECUH CO.**—*Population:* 12,605. | | | | | |
| Evergreen | Conecuh Escambia Star | Weekly | News and politics | 1868 | 1 00 |
| | Evergreen News | do | do | 1879 | 1 00 |
| **COOSA CO.**—*Population:* 15,113. | | | | | |
| Rockford | Rockford Enterprise | Weekly | News and politics | 1878 | 1 00 |
| **CULLMAN CO.**—*Population:* 6,355. | | | | | |
| Cullman | Southern Immigrant | Weekly | News and politics | 1876 | 1 50 |
| | Alabama Tribune (*c*) | do | do | | |
| **DALE CO.**—*Population:* 12,677. | | | | | |
| Ozark | Southern Star | Weekly | News and politics | 1866 | 1 00 |
| **DALLAS CO.**—*Population:* 48,433. | | | | | |
| Selma | Morning Times | Daily (*morning*) | News and politics | 1825 | 10 00 |
| | Weekly Times | Weekly | do | 1825 | 1 00 |
| | Southern Argus | do | do | 1869 | 1 50 |
| | Alabama Baptist | do | Religious (*Baptist*) | 1874 | 2 50 |
| **DE KALB CO.**—*Population:* 12,675. | | | | | |
| Collinsville | Wills Valley Post | Weekly | News and politics | 1854 | 1 50 |
| Fort Payne | Fort Payne Journal | do | do | 1878 | 1 00 |

*a* Consolidated with "Clipper" *b* Suspended December, 1880. *c* Consolidated with "Southern Immigrant".

## ALABAMA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **Elmore co.**—*Population:* 17,502. | | | | | |
| Wetumpka | Central Alabamian | Weekly | News and politics | 1875 | $1 50 |
| | Wetumpka Times | do | do | 1876 | 1 50 |
| **Etowah co.**—*Population:* 15,398. | | | | | |
| Gadsden | Gadsden Times | Weekly | News and politics | 1867 | 1 50 |
| | Etowah Herald (*a*) | do | do | 1879 | 1 25 |
| **Fayette co.**—*Population:* 10,135. | | | | | |
| Fayette | Fayette Gazette | Weekly | News and politics | 1852 | 1 50 |
| **Greene co.**—*Population:* 21,931. | | | | | |
| Eutaw | Eutaw Whig and Observer | Weekly | News and politics | 1840 | 2 00 |
| | Eutaw Mirror | do | do | 1879 | 1 50 |
| **Hale co.**—*Population:* 26,553. | | | | | |
| Greensboro | Alabama Beacon | Weekly | News and politics | 1835 | 2 00 |
| | Southern Watchman | do | do | 1876 | 2 00 |
| **Henry co.**—*Population:* 18,761. | | | | | |
| Abbeville | Henry County Register | Weekly | News and politics | 1866 | 2 00 |
| Columbia | Columbia Enterprise | do | do | 1880 | 2 00 |
| **Jackson co.**—*Population:* 25,114. | | | | | |
| Scottsboro | Alabama Herald | Weekly | News and politics | 1868 | 1 50 |
| | Citizen | do | do | 1877 | 1 50 |
| **Jefferson co.**—*Population:* 23,272. | | | | | |
| Birmingham | Independent | Weekly | News and politics | 1872 | 2 00 |
| | Iron Age | do | do | 1874 | 2 00 |
| | Observer | do | do | 1880 | 1 50 |
| **Lamar co.**—*Population:* 12,142. | | | | | |
| Vernon | Vernon Clipper (*b*) | Weekly | News and politics | 1879 | 1 50 |
| **Lauderdale co.**—*Population:* 21,035. | | | | | |
| Florence | Florence Gazette | Weekly | News and politics | 1819 | 1 50 |
| | Lauderdale News | do | do | 1879 | 1 50 |
| **Lawrence co.**—*Population:* 21,392. | | | | | |
| Moulton | Moulton Advertiser | Weekly | News and politics | 1827 | 2 00 |
| Mountain Home | Friend of the Laborer | do | do | 1878 | 1 00 |
| **Lee co.**—*Population:* 27,262. | | | | | |
| Opelika | Opelika Observer | Weekly | News and politics | 1870 | 1 50 |
| | Opelika Times | do | do | 1874 | 2 00 |
| | Opelika Leader (*c*) | do | do | 1878 | 1 00 |
| **Limestone co.**—*Population:* 21,600. | | | | | |
| Athens | Athens Post (*d*) | Weekly | News and politics | 1876 | 2 00 |
| | Limestone News (*d*) | do | do | 1880 | 2 00 |
| **Lowndes co.**—*Population:* 31,176. | | | | | |
| Hayneville | Hayneville Examiner | Weekly | News and politics | 1868 | 2 50 |
| | Sunny South (*d*) | do | do | | |
| **Macon co.**—*Population:* 17,371. | | | | | |
| Notasulga | Universalist Herald | Semi-monthly | Religious (*Universalist*) | 1848 | 2 00 |
| Tuskegee | Tuskegee News | Weekly | News and politics | 1865 | 2 00 |
| | Macon Mail | do | do | 1876 | 2 00 |
| **Madison co.**—*Population:* 37,625. | | | | | |
| Huntsville | Huntsville Advocate | Weekly | News and politics | 1815 | 1 50 |
| | Huntsville Democrat | do | do | 1823 | 2 00 |
| | Huntsville Independent | do | do | 1854 | 2 00 |
| | Huntsville Gazette | do | do | 1879 | 1 50 |
| | Herald | do | do | 1879 | 1 50 |
| | National Freeman | do | do | 1879 | 2 25 |
| **Marengo co.**—*Population:* 30,890. | | | | | |
| Demopolis | Marengo News Journal | Weekly | News and politics | 1873 | 2 00 |
| Linden | Linden Reporter | do | do | 1879 | 1 50 |
| **Mobile co.**—*Population:* 48,653. | | | | | |
| Mobile | Register | Daily (*morning*) | News and politics | 1830 | 12 00 |
| | Register | do (*evening*) | do | 1830 | 12 00 |
| | Register | Weekly | do | 1820 | 2 00 |
| | Register | Sunday | do | | |
| | News | Daily (*evening*) | do | 1870 | 6 00 |
| | News | Sunday | do | | 1 50 |
| **Monroe co.**—*Population:* 17,091. | | | | | |
| Monroeville | Monroe Journal | Weekly | News and politics | 1876 | 2 00 |
| **Montgomery co.**—*Population:* 52,356. | | | | | |
| Montgomery | Advertiser and Mail | Daily (*morning*) | News and politics | 1828 | 10 00 |
| | Advertiser and Mail | Weekly | do | 1828 | 2 00 |
| | Dixie Farmer | do | Agricultural | 1872 | 1 50 |
| | Advance | do | News and politics | 1877 | 2 00 |
| | Alabama Farm Journal | Monthly | Agricultural | 1878 | 1 50 |
| | Southern Law Journal and Reporter | do | Law | 1879 | 5 00 |
| | Workingmen's Advocate (*e*) | Weekly | News and politics | 1878 | 2 00 |
| | Evening News Item (*f*) | Daily (*evening*) | do | 1880 | |
| **Morgan co.**—*Population:* 16,428. | | | | | |
| Decatur | Decatur News | Weekly | News and politics | 1872 | 2 00 |
| Somerville | Somerville Critic | do | do | 1878 | 1 00 |
| **Perry co.**—*Population:* 30,741. | | | | | |
| Marion | Commonwealth | Weekly | News and politics | 1848 | 2 00 |
| | Howard Collegian | Monthly | Collegiate | 1872 | 1 00 |
| | Normal Reporter | do | Educational | 1879 | 75 |
| | Southern Standard | Weekly | News and politics | 1879 | 2 00 |
| Uniontown | Uniontown Press | do | do | 1879 | 1 50 |

*a* Suspended May, 1880.
*b* Removed to Fulton, Miss., spring of 1881.
*c* Suspended June, 1880.
*d* Suspended.
*e* Suspended June, 1879.
*f* Suspended August, 1880.

## ALABAMA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| Pickens co.—*Population:* 21,479. | | | | | |
| Carrollton | West Alabamian | Weekly | News and politics | 1849 | $2 00 |
| Pike co.—*Population:* 20,640. | | | | | |
| Troy | Troy Messenger | Weekly | News and politics | 1867 | 2 00 |
| | Troy Enquirer | do | do | 1875 | 2 00 |
| | Primitive Pathway | Semi-monthly | Religious (*Baptist*) | 1876 | 1 50 |
| Randolph co.—*Population:* 16,575. | | | | | |
| Roanoke | Randolph County News | Weekly | News and politics | 1874 | 1 00 |
| Wedowee | Wedowee Journal (*a*) | do | do | 1879 | 1 00 |
| Russell co.—*Population:* 24,837. | | | | | |
| Seale | Russell Register | Weekly | News and politics | 1875 | 1 00 |
| Saint Clair co.—*Population:* 14,462. | | | | | |
| Ashville | Southern Ægis | Weekly | News and politics | 1873 | 1 50 |
| Shelby co.—*Population:* 17,236. | | | | | |
| Columbiana | Shelby Sentinel | Weekly | News and politics | 1875 | 1 50 |
| Montevallo | Montevallo Guide (*a*) | do | do | 1878 | 1 50 |
| Sumter co.—*Population:* 28,728. | | | | | |
| Gainesville | Gainesville Reporter | Weekly | News and politics | 1880 | 2 00 |
| Livingston | Livingston Journal | do | do | 1865 | 3 00 |
| Talladega co.—*Population:* 23,360. | | | | | |
| Talladega | Reporter and Watchtower | Weekly | News and politics | 1842 | 2 00 |
| | Our Mountain Home | do | do | 1868 | 1 50 |
| | Talladega Messenger | do | do | 1879 | 1 00 |
| Tallapoosa co.—*Population:* 23,401. | | | | | |
| Dadeville | Tallapoosa Gazette | Weekly | News and politics | 1862 | 1 00 |
| | Tallapoosa Democrat | do | do | 1878 | 1 00 |
| Tuscaloosa co.—*Population:* 24,957. | | | | | |
| Tuscaloosa | Tuscaloosa Times | Weekly | News and politics | 1837 | 2 00 |
| | Tuscaloosa Gazette | do | do | 1871 | 2 00 |
| | Alabama University Monthly | Monthly | Collegiate | 1873 | 2 00 |
| | Old Church Path | do | Religious (*Protestant Episcopal*) | 1878 | 50 |
| | Clarion | Weekly | News and politics | 1879 | 1 50 |
| North Port | North Port New Era (*b*) | do | do | 1878 | 1 50 |
| Walker co.—*Population:* 9,479. | | | | | |
| Jasper | Mountain Eagle | Weekly | News and politics | 1872 | 1 50 |
| | Walker County Times (*c*) | do | do | 1871 | |
| | Baptist Monthly (*a*) | Monthly | Religious (*Baptist*) | | |
| Wilcox co.—*Population:* 31,828. | | | | | |
| Camden | Wilcox News and Pacificator | Weekly | News and politics | 1865 | 2 50 |
| | Wilcox Monitor | do | do | 1880 | 2 00 |
| Winston co.—*Population:* 4,253. | | | | | |
| Houston | Times (*a*) | Weekly | News and politics | | |
| | Herald | do | do | 1880 | 1 50 |

## ARIZONA TERRITORY.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| Maricopa co.—*Population:* 5,689. | | | | | |
| Phœnix | Herald | Daily (*evening*) | News and politics | 1880 | $10 00 |
| | Herald | Weekly | do | 1878 | 5 00 |
| | Territorial Expositor | do | do | 1879 | 5 00 |
| Pima co.—*Population:* 17,006. | | | | | |
| Tombstone | Nugget | Daily (*morning*) | News and politics | 1879 | 10 00 |
| | Nugget | Weekly | do | 1879 | 5 00 |
| | Epitaph | Daily (*morning*) | do | 1880 | 10 00 |
| | Epitaph | Weekly | do | 1880 | 5 00 |
| Tucson | Arizona Star | Daily (*morning*) | do | 1879 | 8 00 |
| | Arizona Star | Weekly | do | 1877 | 3 00 |
| | El Fronterizo | Sunday | News and politics (*Spanish*) | 1878 | 4 00 |
| | Arizona Citizen | Daily (*evening*) | News and politics | 1879 | 10 00 |
| | Arizona Citizen | Weekly | do | 1870 | 5 00 |
| | Pima County Record (*d*) | do | do | | |
| Pinal co.—*Population:* 3,044. | | | | | |
| Globe | Arizona Silver Belt | Weekly | News and politics | 1877 | 4 00 |
| Yavapai co.—*Population:* 5,013. | | | | | |
| Prescott | Arizona Miner | Daily (*evening*) | News and politics | 1874 | 5 00 |
| | Arizona Democrat | Weekly | do | 1880 | 5 00 |
| Yuma co.—*Population:* 3,215. | | | | | |
| Yuma | Arizona Sentinel | Weekly | News and politics | 1863 | 5 00 |

## ARKANSAS.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| Arkansas co.—*Population:* 8,038. | | | | | |
| De Witt | De Witt Indicator (*e*) | Weekly | News and politics | 1875 | $2 00 |
| | Arkansas County Democrat | do | do | 1879 | 1 50 |
| Ashley co.—*Population:* 10,156. | | | | | |
| Hamburg | Ashley County Times | Weekly | News and politics | 1874 | 2 00 |

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*a* Suspended.
*b* Suspended January, 1880.
*c* Consolidated with "Mountain Eagle".
*d* Suspended, 1880.
*e* Suspended June, 1880.

## ARKANSAS—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| Baxter co.—*Population:* 6,004. | | | | | |
| Mountain Home | Mountain Home Quid Nunc | Weekly | News and politics | 1877 | $1 00 |
| Benton co.—*Population:* 20,328. | | | | | |
| Bentonville | Bentonville Advance | Weekly | News and politics | 1872 | 2 00 |
| Boone co.—*Population:* 12,146. | | | | | |
| Harrison | Harrison Times | Weekly | News and politics | 1875 | 2 00 |
| Bradley co.—*Population:* 6,825. | | | | | |
| Warren | Warren Whetstone (*a*) | Weekly | News and politics | 1879 | 1 50 |
| Carroll co.—*Population:* 13,337. | | | | | |
| Berryville | Berryville Eagle | Weekly | News and politics | 1879 | 1 50 |
| Eureka Springs | Eureka Herald | do | do | 1879 | 1 50 |
| | Eureka Springs Echo | Semi-weekly | do | 1880 | 3 00 |
| Chicot co.—*Population:* 10,117. | | | | | |
| Arkansas City | Arkansas City Journal | Weekly | News and politics | 1875 | 1 50 |
| Clark co.—*Population:* 15,771. | | | | | |
| Arkadelphia | Southern Standard | Weekly | News and politics | 1868 | 2 00 |
| Clay co.—*Population:* 7,213. | | | | | |
| Corning | Corning Advocate | Weekly | News and politics | 1880 | 1 50 |
| | Corning Courier (*b*) | do | do | 1879 | |
| Columbia co.—*Population:* 14,090. | | | | | |
| Magnolia | Columbia Banner | Weekly | News and politics | 1878 | 2 00 |
| | Protestant Recorder | Semi-monthly | Religious (*Methodist*) | 1880 | 1 00 |
| Conway co.—*Population:* 12,755. | | | | | |
| Morrillton | Morrillton State | Weekly | News and politics | 1875 | 1 00 |
| Craighead co.—*Population:* 7,037. | | | | | |
| Jonesboro' | Jonesborough Times | Weekly | News and politics | 1874 | 1 50 |
| Crawford co.—*Population:* 14,740. | | | | | |
| Alma | Alma Independent | Weekly | News and politics | 1880 | 1 50 |
| Van Buren | Van Buren Press | do | do | 1859 | 2 00 |
| | Van Buren Argus | do | do | 1875 | 1 50 |
| Cross co.—*Population:* 5,050. | | | | | |
| Wittsburg | Wittsburg Chronicle | Weekly | News and politics | 1878 | 1 50 |
| Dorsey co.—*Population:* 8,370. | | | | | |
| Toledo | Toledo Blade | Weekly | News and politics | 1879 | 1 50 |
| Drew co.—*Population:* 12,231. | | | | | |
| Monticello | Monticellonian | Weekly | News and politics | 1870 | 2 00 |
| Faulkner co.—*Population:* 12,786. | | | | | |
| Conway | Arkansaw Traveller | Weekly | News and politics | 1875 | 2 00 |
| | Log Cabin | do | do | 1879 | 1 50 |
| | Faulkner County Democrat | do | do | 1879 | 1 50 |
| | Conway Organ | Semi-monthly | Religious | 1880 | 1 00 |
| | Conway Currency (*c*) | Weekly | News and politics | 1880 | |
| Franklin co.—*Population:* 14,951. | | | | | |
| Altus | Rural Recorder (*d*) | Semi-monthly | Agricultural | 1877 | 1 00 |
| Ozark | Ozark Democrat | Weekly | News and politics | 1877 | 1 50 |
| Fulton co.—*Population:* 6,720. | | | | | |
| Salem | Salem Informer | Weekly | News and politics | 1879 | 1 00 |
| Garland co.—*Population:* 9,023. | | | | | |
| Hot Springs | Illustrated Monthly (*b*) | Monthly | Literary | | |
| | Telegraph | Daily (*evening*) | News and politics | 1873 | 10 00 |
| | { Sentinel | do (*evening*) | do | 1877 | 10 00 |
| | { Sentinel | Weekly | do | 1877 | 2 00 |
| Greene co.—*Population:* 7,480. | | | | | |
| Gainesville | Gainesville Press | Weekly | News and politics | 1878 | 1 25 |
| Hempstead co.—*Population:* 19,015. | | | | | |
| Hope | Star of Hope (*e*) | Weekly | News and politics | 1874 | 2 00 |
| | Hempstead County Record | do | do | 1879 | 2 00 |
| | Hope City Times (*f*) | do | do | 1880 | |
| Washington | South Western Press | do | do | 1876 | 2 00 |
| Hot Spring co.—*Population:* 7,775. | | | | | |
| Malvern | Malvern Meteor | Weekly | News and politics | 1879 | 1 50 |
| Howard co.—*Population:* 9,917. | | | | | |
| Centre Point | Centre Point News | Weekly | News and politics | 1879 | 1 50 |
| Mineral Springs | Howard County Telephone | do | do | 1878 | 1 50 |
| Independence co.—*Population:* 18,086. | | | | | |
| Batesville | Batesville Guard | Weekly | News and politics | 1877 | 2 00 |
| | North Arkansas Pilot | do | do | 1879 | 2 00 |
| Izard co.—*Population:* 10,857. | | | | | |
| Melbourne | Melbourne Clipper | Weekly | News and politics | 1874 | 1 00 |
| Jackson co.—*Population:* 10,877. | | | | | |
| Jacksonport | Jacksonport Herald | Weekly | News and politics | 1860 | 1 50 |
| Newport | Newport News | do | do | 1874 | 1 50 |
| | Newport Journal (*b*) | do | do | 1878 | 1 50 |

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*a* Suspended February, 1881.
*b* Suspended.
*c* Suspended April, 1880.
*d* Merged into "Ozark Democrat".
*e* Suspended August, 1879.
*f* Suspended; succeeded by "Record"

## ARKANSAS—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| JEFFERSON CO.—*Population:* 22,386. | | | | | |
| Pine Bluff | Pine Bluff Press | Weekly | News and politics | 1868 | $1 50 |
| | Pine Bluff Eagle | do | do | 1880 | 2 00 |
| JOHNSON CO.—*Population:* 11,565. | | | | | |
| Clarksville | Clarksville Herald | Weekly | News and politics | 1878 | 1 50 |
| LAWRENCE CO.—*Population:* 8,782. | | | | | |
| Powhatan | Lawrence County Times | Weekly | News and politics | 1878 | 1 25 |
| LEE CO.—*Population:* 13,288. | | | | | |
| Marianna | Marianna Index | Weekly | News and politics | 1874 | 2 00 |
| LINCOLN CO.—*Population:* 9,255. | | | | | |
| Star City | Lincoln Lance | Weekly | News and politics | 1880 | 1 50 |
| LITTLE RIVER CO.—*Population:* 6,404. | | | | | |
| Richmond | Little River Herald | Weekly | News and politics | 1880 | 2 00 |
| LOGAN CO.—*Population:* 14,885. | | | | | |
| Paris | Paris Express | Weekly | News and politics | 1880 | 1 00 |
| LONOKE CO.—*Population:* 12,146. | | | | | |
| Austin | Austin Triumph | Weekly | News and politics | 1878 | 1 50 |
| Lonoke | Lonoke Valley Democrat | do | do | 1872 | 2 00 |
| | Arkansas Home (*a*) | do | do | 1879 | 1 00 |
| MADISON CO.—*Population:* 11,455. | | | | | |
| Huntsville | Madison County Record | Weekly | News and politics | 1879 | 1 50 |
| MILLER CO.—*Population:* 9,919. | | | | | |
| Texarkana | Texarkana Democrat | Weekly | News and politics | 1875 | 2 00 |
| MISSISSIPPI CO.—*Population:* 7,332. | | | | | |
| Osceola | Osceola Times | Weekly | News and politics | 1871 | 1 00 |
| MONROE CO.—*Population:* 9,574. | | | | | |
| Brinkley | Brinkley Item (*b*) | Weekly | News and politics | 1880 | 1 00 |
| | Brinkley Times (*a*) | do | do | 1880 | .... |
| Clarendon | Monroe County Sun | do | do | 1877 | 1 50 |
| | Cotton Plant Field (*b*) | do | do | 1880 | .... |
| MONTGOMERY CO.—*Population:* 5,729. | | | | | |
| Black Springs | Black Springs Herald | Weekly | News and politics | 1879 | 2 00 |
| Silver City | Arkansas Mining Journal | do | Mining | 1880 | 3 00 |
| NEVADA CO.—*Population:* 12,959. | | | | | |
| Prescott | Prescott Dispatch | Weekly | News and politics | 1876 | 1 00 |
| | Nevada Picayune | do | do | 1878 | 1 50 |
| OUACHITA CO.—*Population:* 11,758. | | | | | |
| Camden | Camden Beacon | Weekly | News and politics | 1867 | 2 00 |
| PERRY CO.—*Population:* 3,872. | | | | | |
| Perryville | Fourche Valley Times | Weekly | News and politics | 1879 | 1 50 |
| PHILLIPS CO.—*Population:* 21,262. | | | | | |
| Helena | Helena World | Daily (*evening*) | News and politics | 1871 | 10 00 |
| | Helena World | Weekly | do | 1871 | 2 00 |
| | Arkansas Yeoman | Daily (*morning*) | do | 1879 | 12 00 |
| | Arkansas Yeoman | Weekly | do | 1879 | 2 00 |
| POINSETT CO.—*Population:* 2,192. | | | | | |
| Harrisburg | Arkansas Tribune | Weekly | News and politics | 1877 | 1 50 |
| POPE CO.—*Population:* 14,322. | | | | | |
| Atkins | Atkins News | Weekly | News and politics | 1878 | 1 50 |
| Russellville | Russellville Democrat | do | do | 1874 | 1 50 |
| PRAIRIE CO.—*Population:* 8,435. | | | | | |
| Carlisle | New Departure | Weekly | News and politics | 1880 | 1 00 |
| Des Arc | Des Arc Citizen | do | do | 1854 | 1 50 |
| | Prairie County Appeal | do | do | 1879 | 1 00 |
| PULASKI CO.—*Population:* 32,616. | | | | | |
| Little Rock | Arkansas Gazette | Daily (*morning*) | News and politics | 1819 | 10 00 |
| | Arkansas Gazette | Weekly | do | 1819 | 1 50 |
| | Western Methodist | do | Religious (*Methodist Episcopal*) | 1850 | 2 00 |
| | Spirit of Arkansas | Semi-monthly | Agricultural | 1871 | 1 50 |
| | Arkansas Democrat | Daily (*evening*) | News and politics | 1876 | 7 50 |
| | Arkansas Democrat | Weekly | do | 1876 | 1 50 |
| | Arkansas Staats-Zeitung | do | News and politics (*German*) | 1877 | 3 00 |
| | Sunday Visitor (*c*) | Sunday | News and politics | 1879 | 2 00 |
| | Arkansas Medical Journal | Monthly | Medicine | 1880 | 3 00 |
| | Arkansas Republican | Weekly | News and politics | 1880 | 2 00 |
| RANDOLPH CO.—*Population:* 11,724. | | | | | |
| Pocahontas | Randolph Scalpel | Weekly | News and politics | 1877 | 1 50 |
| SAINT FRANCIS CO.—*Population:* 8,389. | | | | | |
| Forest City | Forest City Courier | Weekly | News and politics | 1878 | 1 50 |
| SALINE CO.—*Population:* 8,953. | | | | | |
| Benton | Saline County Digest | Weekly | News and politics | 1877 | 1 50 |
| SCOTT CO.—*Population:* 9,174. | | | | | |
| Waldron | Waldron Reporter | Weekly | News and politics | 1879 | 1 00 |

*a* Suspended. *b* Edition of "Monroe County Sun". *c* Suspended January, 1880.

## ARKANSAS—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| SEBASTIAN CO.—*Population:* 19,560. | | | | | |
| Fort Smith | Fort Smith Herald (*a*) | Weekly | News and politics | 1847 | $1 50 |
| | New Era | do | do | 1863 | 1 25 |
| | Wheeler's Independent | do | do | 1872 | 1 25 |
| | Fort Smith Elevator | do | do | 1878 | 1 00 |
| SHARP CO.—*Population:* 9,047. | | | | | |
| Evening Shade | Sharp County Record | Weekly | News and politics | 1877 | 1 50 |
| UNION CO.—*Population:* 13,419. | | | | | |
| El Dorado | El Dorado Eagle | Weekly | News and politics | 1877 | 2 00 |
| | Union County Times | do | do | 1880 | 1 50 |
| VAN BUREN CO.—*Population:* 9,565. | | | | | |
| Clinton | Clinton Banner | Weekly | News and politics | 1880 | 1 50 |
| WASHINGTON CO.—*Population:* 23,844. | | | | | |
| Fayetteville | Fayetteville Democrat | Weekly | News and politics | 1868 | 1 50 |
| | Arkansas Sentinel | do | do | 1875 | 2 00 |
| | Faithful Witness | do | Religious (*Disciples*) | 1879 | 2 00 |
| WHITE CO.—*Population:* 17,794. | | | | | |
| Beebe | Arkansas Watchman | Weekly | News and politics | 1877 | 1 50 |
| Judsonia | Judsonia Advance | do | do | 1877 | 1 50 |
| Searcy | Searcy Record | do | do | 1866 | 1 50 |
| | Arkansas Beacon | do | do | 1878 | 1 50 |
| WOODRUFF CO.—*Population:* 8,646. | | | | | |
| Augusta | Woodruff County Vidette | Weekly | News and politics | 1879 | 2 00 |
| YELL CO.—*Population:* 13,852. | | | | | |
| Dardanelle | Independent Arkansian | Weekly | News and politics | 1875 | 2 00 |
| | Western Immigrant | do | Miscellaneous | 1877 | 1 50 |
| | Western Methodist (*b*) | do | Religious (*Methodist*) | ........ | ........ |

## CALIFORNIA.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| ALAMEDA CO.—*Population:* 62,976. | | | | | |
| Alameda | Alameda Encinal | Weekly | News and politics | 1869 | $3 00 |
| | Alameda Argus | do | do | 1877 | 3 00 |
| Berkeley | Berkeleyan | Semi-monthly | Collegiate | 1875 | 1 50 |
| | Berkeley Advocate | Weekly | News and politics | 1877 | 2 00 |
| | Oestrus (*c*) | do | Collegiate | 1877 | 1 75 |
| | Berkeley Quarterly | Quarterly | Society | 1879 | 2 00 |
| Brooklyn | Brooklyn Vidette | Weekly | News and politics | 1876 | 3 50 |
| Hayward's | Hayward's Journal | do | do | 1877 | 2 50 |
| Livermore | Livermore Herald | do | do | 1877 | 3 00 |
| Newark | Newark Enterprise | do | do | 1880 | 3 00 |
| Oakland | Oakland Daily Times | Daily (*morning*) | do | 1866 | 6 00 |
| | Oakland Weekly Times | Weekly | do | 1866 | 2 00 |
| | Evening Tribune | Daily (*evening*) | do | 1870 | 6 00 |
| | Oakland Tribune | Weekly | do | 1870 | 2 50 |
| | Signs of the Times | do | Religious (*Adventist*) | 1874 | 2 00 |
| | Oakland and San Francisco Illustrated Mirror | do | Literary | 1875 | 3 00 |
| | Ladies' Home Journal | Monthly | Society | 1877 | 1 00 |
| | Herald of Truth | do | Religious (*Baptist*) | 1880 | 50 |
| | Dominion Press (*d*) | Weekly | News and politics | ........ | ........ |
| Washington Corners | Alameda County Reporter | do | do | 1875 | 3 00 |
| West Oakland | West Oakland Press | do | do | 1874 | 3 00 |
| ALPINE CO.—*Population:* 539. | | | | | |
| Monitor | Monitor Argus | Weekly | News and politics | 1879 | 4 00 |
| AMADOR CO.—*Population:* 11,384. | | | | | |
| Ione City | Amador Times (*e*) | Weekly | News and politics | 1877 | 3 00 |
| Jackson | Amador Ledger | do | do | 1854 | 3 00 |
| | Amador Dispatch | do | do | 1859 | 4 00 |
| | Amador Sentinel | do | do | 1879 | 3 00 |
| BUTTE CO.—*Population:* 18,721. | | | | | |
| Bigg's | Bigg's Recorder | Weekly | News and politics | 1874 | 4 00 |
| Chico | Butte Record | do | do | 1853 | 3 00 |
| | Semi-Weekly Enterprise | Semi-weekly | do | 1869 | 4 00 |
| Oroville | Oroville Mercury | Weekly | do | 1874 | 4 00 |
| | Butte County Register | do | do | 1877 | 4 00 |
| CALAVERAS CO.—*Population:* 9,094. | | | | | |
| Angel's Camp | Mountain Echo | Weekly | News and politics | 1870 | 3 50 |
| Mokelumne Hill | Calaveras Chronicle | do | do | 1851 | 3 00 |
| San Andreas | Calaveras Citizen | do | do | 1871 | 5 00 |
| | Calaveras Advertiser | do | do | 1879 | 3 50 |
| COLUSA CO.—*Population:* 13,118. | | | | | |
| Colusa | Colusa Sun | Weekly | News and politics | 1862 | 4 00 |
| Willow | Willow Journal | do | do | 1877 | 4 00 |
| CONTRA COSTA CO.—*Population:* 12,525. | | | | | |
| Antioch | Antioch Ledger | Weekly | News and politics | 1870 | 4 00 |
| Martinez | Contra Costa Gazette | do | do | 1858 | 3 00 |
| | Contra Costa News | do | do | 1874 | 3 00 |
| DEL NORTE CO.—*Population:* 2,584. | | | | | |
| Crescent City | Courier (*f*) | Weekly | News and politics | 1873 | 3 00 |
| | Del Norte Record | do | do | 1879 | 2 00 |
| EL DORADO CO.—*Population:* 10,683. | | | | | |
| Georgetown | Georgetown Gazette | Weekly | News and politics | 1880 | 2 50 |
| Placerville | Mountain Democrat | do | do | 1853 | 2 50 |
| | El Dorado County Republican | do | do | 1871 | 2 50 |

*a* Suspended January, 1880.
*b* Suspended November, 1879.
*c* Suspended October 27, 1879.
*d* Suspended, 1880.
*e* Suspended May 15, 1880.
*f* Merged into "Record" February, 1881.

## CALIFORNIA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| FRESNO CO.—*Population:* 9,478. | | | | | |
| Fresno | Fresno Expositor | Weekly | News and politics | 1870 | $3 00 |
| | Fresno Republican | do | do | 1876 | 2 50 |
| HUMBOLDT CO.—*Population:* 15,512. | | | | | |
| Arcata | Arcata Leader | Weekly | News and politics | 1879 | 2 00 |
| Eureka | Humboldt Times | Daily (*morning*) | do | 1874 | 12 00 |
| | Humboldt Times | Weekly | do | 1854 | 3 50 |
| | Evening Signal | Daily (*evening*) | do | 1876 | 10 00 |
| | West Coast Signal | Weekly | do | 1871 | 3 00 |
| | Democratic Standard | do | do | 1875 | 2 50 |
| | Evening Herald (*a*) | Daily (*evening*) | do | 1879 | 8 00 |
| Ferndale | Ferndale Enterprise | Weekly | do | 1877 | 3 00 |
| Rohnerville | Eel River Echo | do | do | 1878 | 1 00 |
| INYO CO.—*Population:* 2,928. | | | | | |
| Independence | Inyo Independent | Weekly | News and politics | 1870 | 5 00 |
| KERN CO.—*Population:* 5,601. | | | | | |
| Bakersfield | Courier and South Californian (*b*) | Weekly | News and politics | 1866 | 3 00 |
| | Kern County Gazette | do | do | 1875 | 3 00 |
| | Kern County Californian | do | do | 1879 | 3 00 |
| LAKE CO.—*Population:* 6,596. | | | | | |
| Lakeport | Lake County Bee | Weekly | News and politics | 1872 | 3 00 |
| | Lake Democrat | do | do | 1875 | 3 00 |
| Lower Lake | Lower Lake Bulletin | do | do | 1869 | 3 50 |
| LASSEN CO.—*Population:* 3,340. | | | | | |
| Susanville | Lassen Advocate | Weekly | News and politics | 1865 | 3 50 |
| | Mountain Review | do | do | 1879 | 2 50 |
| LOS ANGELES CO.—*Population:* 33,381. | | | | | |
| Anaheim | Anaheim Gazette | Weekly | News and family reading | 1870 | 2 50 |
| Downey City | Downey Courier (*c*) | do | do | 1875 | 3 00 |
| | Downey Outlook (*d*) | do | do | | |
| Los Angeles | Los Angeles Rescue | do | Temperance | 1863 | 2 50 |
| | Evening Express | Daily (*evening*) | News and politics | 1870 | 10 00 |
| | Weekly Express | Weekly | do | 1870 | 3 00 |
| | La Cronica | do | News and politics (*Spanish*) | 1872 | 4 00 |
| | Herald | Daily (*morning*) | News and politics | 1873 | 10 00 |
| | Herald | Weekly | do | 1873 | 3 00 |
| | Los Angeles Weekly Mirror | do | Temperance | 1873 | 1 00 |
| | Suedliche Californische Post | do | News and politics (*German*) | 1874 | 5 00 |
| | Los Angeles L'Union (*d*) | Semi-weekly | News and politics (*French*) | 1876 | 5 00 |
| | Daily Commercial | Daily (*morning*) | News and politics | 1879 | 6 00 |
| | Morning Journal (*a*) | do (*morning*) | do | 1879 | 10 00 |
| | Semi-Tropic California | Monthly | Agricultural | 1879 | 1 50 |
| | Los Angeles Outlook (*b*) | Weekly | News and politics | 1879 | 2 00 |
| | Los Angeles Southern Tidings (*e*) | do | do | 1879 | 1 00 |
| Santa Aña | Santa Aña Herald | do | do | 1877 | 2 00 |
| | Santa Aña Times (*f*) | do | do | 1877 | 3 00 |
| MARIN CO.—*Population:* 11,324. | | | | | |
| San Rafael | Marin County Journal | Weekly | News and politics | 1861 | 3 00 |
| | Marin County Tocsin | do | do | 1879 | 3 00 |
| MARIPOSA CO.—*Population:* 4,339. | | | | | |
| Mariposa | Mariposa Gazette | Weekly | News and politics | 1854 | 4 00 |
| MENDOCINO CO.—*Population:* 12,800. | | | | | |
| Mendocino | Mendocino Beacon | Weekly | News and politics | 1877 | 3 00 |
| Ukiah | Ukiah Mendocino Democrat | do | do | 1864 | 4 00 |
| | Ukiah Democratic Dispatch | do | do | 1869 | 3 00 |
| | Ukiah City Press | do | do | 1877 | 3 00 |
| MERCED CO.—*Population:* 5,656. | | | | | |
| Merced | San Joaquin Valley Argus | Weekly | News and politics | 1862 | 3 00 |
| | Merced Express | do | do | 1875 | 3 00 |
| MODOC CO.—*Population:* 4,399. | | | | | |
| Adin | Adin Hawkeye (*g*) | Weekly | News and politics | 1878 | 4 00 |
| Alturas | Modoc Independent | do | do | 1874 | 4 00 |
| MONO CO.—*Population:* 7,499. | | | | | |
| Bodie | Bodie Chronicle | Weekly | News and politics | 1863 | 5 00 |
| | Standard-News (*h*) | Daily (*evening*) | do | 1879 | 10 00 |
| | Standard-News | Weekly | do | 1879 | 5 00 |
| | Free Press | Daily (*morning*) | do | 1879 | 10 00 |
| Bridgeport | Bridgeport Union (*i*) | Weekly | do | 1880 | 5 00 |
| MONTEREY CO.—*Population:* 11,302. | | | | | |
| Castroville | Castroville Argus | Weekly | News and politics | 1869 | 3 00 |
| Monterey | Monterey Californian | do | do | 1872 | 2 50 |
| Salinas | Monterey Democrat | do | do | 1867 | 4 00 |
| | Salinas City Index | do | do | 1872 | 2 50 |
| NAPA CO.—*Population:* 13,235. | | | | | |
| Calistoga | Independent Calistogian | Weekly | News and politics | 1877 | 3 00 |
| Napa City | Napa Reporter | do | do | 1856 | 3 00 |
| | Register | Daily (*evening*) | do | 1872 | 6 00 |
| | Register | Weekly | do | 1863 | 3 00 |
| | Napa Classic | Monthly | Collegiate | 1874 | 1 00 |
| | Gold Dollar (*j*) | Daily (*morning*) | News and politics | 1879 | 3 00 |
| | Gold Dollar | Weekly | do | 1879 | 1 00 |
| Saint Helena | Saint Helena Star | do | do | 1874 | 3 00 |
| NEVADA CO.—*Population:* 20,823. | | | | | |
| Grass Valley | Daily Union | Daily (*morning*) | News and politics | 1864 | 10 00 |
| | Foot Hill Tidings | Weekly | do | 1874 | 3 00 |
| Nevada City | Transcript | Daily (*morning*) | do | 1860 | 6 00 |
| North San Juan | North San Juan Times | Weekly | do | 1873 | 4 00 |
| | Independent (*e*) | do | do | 1878 | 4 00 |
| Truckee | Truckee Republican | Semi-weekly | do | 1871 | 6 00 |

*a* Suspended.
*b* Suspended May, 1880.
*c* Suspended January, 1881.
*d* Suspended, 1880.
*e* Suspended April, 1880.
*f* Consolidated with "Santa Aña Herald" September, 1880.
*g* Removed to Alturas, Modoc county, November 28, 1880; suspended spring of 1881.
*h* "Standard" and "News" consolidated during census year.
*i* Edition of Bodie "Chronicle".
*j* Suspended June, 1880.

## CALIFORNIA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| PLACER CO.—*Population:* 14,232. | | | | | |
| Auburn | Placer Herald | Weekly | News and politics | 1852 | $4 00 |
| | Placer Argus | do | do | 1872 | 3 00 |
| Dutch Flat | Dutch Flat Forum | do | do | 1875 | 4 00 |
| Rocklin | Mountain Echo (*a*) | do | do | | |
| PLUMAS CO.—*Population:* 6,180. | | | | | |
| Quincy | Plumas National | Weekly | News and politics | 1866 | 4 00 |
| SACRAMENTO CO.—*Population:* 34,390. | | | | | |
| Folsom | Folsom Telegraph | Weekly | News and politics | 1856 | 2 00 |
| Sacramento | Bee | Daily (*evening*) | do | 1837 | 6 00 |
| | Bee | Weekly | do | 1837 | 2 00 |
| | Record-Union | Daily (*morning*) | do | 1851 | 10 00 |
| | Record-Union | Semi-weekly | do | 1869 | 2 00 |
| | Sacramento Journal | do | News and politics (*German*) | 1868 | 5 00 |
| | Sacramento Valley Agriculturist (*a*) | Weekly | Agricultural | 1873 | 2 50 |
| | Sacramento Leader | Sunday | News and politics | 1879 | 3 00 |
| | Sacramento Sunday Times (*b*) | do | do | | |
| | Sacramento Capitol Gazette (*b*) | Weekly | do | | |
| | Advertiser | Daily (*evening*) | do | 1880 | 3 65 |
| | Advertiser | Sunday | do | 1880 | 1 00 |
| | Advertiser | Semi-weekly | do | 1880 | 2 00 |
| | Advertiser | Monthly | do | 1880 | 1 50 |
| | Democrat (*c*) | Daily (*morning*) | do | | |
| | New Era (*d*) | Weekly | do | | |
| SAN BENITO CO.—*Population:* 5,584. | | | | | |
| Hollister | San Benito Advance | Weekly | News and politics | 1872 | 3 00 |
| | Hollister Enterprise (*e*) | do | do | 1873 | 3 00 |
| | Pacific Coast | do | do | 1874 | 3 00 |
| | Hollister Telegraph (*f*) | do | do | 1876 | 3 00 |
| SAN BERNARDINO CO.—*Population:* 7,786. | | | | | |
| Colton | Colton Semi-Tropic | Weekly | News and politics | 1876 | 3 00 |
| Riverside | Press and Horticulturist | do | Agricultural | 1878 | 2 50 |
| San Bernardino | San Bernardino Valley Index | do | News and politics | 1873 | 3 00 |
| | San Bernardino Times | Daily (*evening*) | do | 1875 | 10 00 |
| | San Bernardino Times | Weekly | do | 1875 | 3 00 |
| SAN DIEGO CO.—*Population:* 8,618. | | | | | |
| San Diego | Union | Daily (*morning*) | News and politics | 1868 | 10 00 |
| | Union | Weekly | do | 1868 | 3 00 |
| | News | Daily (*morning*) | do | 1870 | 10 00 |
| | News | Weekly | do | 1870 | 3 00 |
| SAN FRANCISCO CO.—*Population:* 233,959. | | | | | |
| San Francisco | Alta California | Daily (*morning*) | News and politics | 1849 | 8 00 |
| | Alta California | Sunday | do | 1849 | 2 75 |
| | California Christian Advocate | Weekly | Religious (*Methodist*) | 1851 | 2 70 |
| | Pacific | do | Religious (*Congregational*) | 1851 | 2 50 |
| | California Demokrat | Daily (*morning*) | News and politics (*German*) | 1852 | 10 00 |
| | California Demokrat | Weekly | News and politics (*German*) | 1852 | 2 50 |
| | Courrier de San Francisco | Daily (*morning*) | News and politics (*French*) | 1852 | 24 00 |
| | Courrier de San Francisco | Weekly | News and politics (*French*) | 1852 | 10 00 |
| | Courrier de San Francisco | Semi-monthly | News and politics (*French*) | 1852 | 6 00 |
| | Golden Era | Weekly | Literary | 1852 | 3 00 |
| | California Spirit of the Times | do | Sporting | 1854 | 5 00 |
| | Evening Bulletin | Daily (*evening*) | News and politics | 1855 | 12 00 |
| | Weekly Bulletin | Weekly | do | 1855 | 2 50 |
| | California Farmer | do | Agricultural | 1855 | 4 00 |
| | Morning Call | Daily (*morning*) | News and politics | 1856 | 6 00 |
| | Morning Call | Sunday | do | 1856 | 1 25 |
| | Pacific Methodist | Weekly | Religious (*Methodist*) | 1856 | 3 00 |
| | San Francisco News-Letter | do | News and politics | 1856 | 5 00 |
| | Monitor | do | Religious (*Catholic*) | 1857 | 4 00 |
| | Pacific Medical and Surgical Journal | Monthly | Medicine and surgery | 1858 | 3 00 |
| | Hebrew Observer | Weekly | Religious (*Jewish; Eng. and Germ.*) | 1859 | 6 00 |
| | La Voce del Popolo | do | News and politics (*Italian*) | 1859 | 5 50 |
| | Abend-Post | Daily (*evening*) | News and politics (*German*) | 1860 | 10 00 |
| | Abend-Post | Weekly | News and politics (*German*) | 1860 | 3 00 |
| | Mining and Scientific Press | do | Science and mechanics | 1860 | 4 00 |
| | Pacific Appeal (*a*) | do | News and politics | 1862 | 4 00 |
| | Stock Report | Daily (*evening*) | Financial | 1863 | 10 00 |
| | Stock Report | Weekly | do | 1863 | 5 00 |
| | Hebrew | do | Religious (*Jewish; Eng. and Germ.*) | 1863 | 5 00 |
| | Elevator | do | News and politics | 1864 | 4 00 |
| | Chronicle | Daily (*morning*) | do | 1865 | 6 70 |
| | Chronicle | Sunday | do | 1865 | 2 00 |
| | Chronicle | Weekly | do | 1865 | 2 00 |
| | Examiner | Daily (*morning*) | do | 1865 | 7 50 |
| | Examiner | Sunday | do | 1865 | 3 00 |
| | San Francisco Guide | Tri-weekly | Commercial | 1865 | 6 00 |
| | New Age | Weekly | Secret society | 1865 | 3 50 |
| | Pacific Churchman | Semi-monthly | Religious (*Protestant Episcopal*) | 1865 | 1 50 |
| | La Voz del Nuevo Mundo | Semi-weekly | News and politics (*Spanish*) | 1866 | 10 00 |
| | Evangel | Weekly | Religious (*Baptist*) | 1866 | 3 00 |
| | Commercial Herald | do | Commerce | 1867 | 9 00 |
| | San Francisco Market Review (*g*) | do | do | 1867 | 5 00 |
| | Real Estate Circular | Monthly | Miscellaneous | 1867 | 1 00 |
| | Occident | Weekly | Religious (*Presbyterian*) | 1868 | 2 50 |
| | La Sociedad | Semi-weekly | News and politics (*Spanish*) | 1869 | 10 00 |
| | Heald's College Journal | Monthly | Collegiate | 1867 | 1 00 |
| | Railroad Gazetteer | do | Railroads | 1869 | 1 00 |
| | California Journal | Weekly | News and politics (*German*) | 1870 | 3 00 |
| | Humorist | Sunday | Humor (*German*) | 1870 | 5 00 |
| | Pacific Rural Press (*h*) | Weekly | Agricultural | 1870 | 3 00 |
| | Thistleton's Illustrated Jolly Giant | do | Miscellaneous | 1870 | 4 00 |
| | Resources of California | Monthly | do | 1870 | 2 00 |
| | Evening Post | Daily (*evening*) | News and politics | 1871 | 6 70 |
| | San Francisco Post | Weekly | do | 1871 | 2 00 |

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*a* Suspended, 1880.
*b* Suspended.
*c* A campaign paper.
*d* Established and suspended in census year.
*e* Consolidated with "Telegraph", and both called "South Coast", January, 1881.
*f* Consolidated with "Pacific Coast".
*g* Printed at office of "Commercial Herald".
*h* Printed at office of "Mining and Scientific Press".

## CALIFORNIA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| SAN FRANCISCO CO.—Continued. | | | | | |
| San Francisco—Continued | Coast Review | Monthly | Insurance | 1871 | $2 50 |
| | San Francisco Western Lancet | do | Medicine and surgery | 1871 | 2 00 |
| | Wine Dealers' Gazette | do | Trade | 1871 | 2 00 |
| | Le Petit Journal | Weekly | News and politics (*French*) | 1872 | 5 00 |
| | San Francisco Tribune | do | News and politics | 1872 | 1 50 |
| | San Francisco Star | Monthly | General literature | 1873 | 25 |
| | Grocer and Country Merchant | Weekly | Trade | 1874 | 2 50 |
| | Jewish Progress | do | News and politics | 1874 | 5 00 |
| | Pacific Life | do | Sporting | 1874 | 5 00 |
| | El Tecolote | Daily (*morning*) | News and politics (*Spanish*) | 1875 | 11 00 |
| | Exchange | do (*noon*) | Finance and local news | 1875 | 9 00 |
| | Exchange | do (*evening*) | do | 1875 | 9 00 |
| | Exchange | Weekly | do | 1875 | 4 00 |
| | Pacific Board List | Daily (*noon*) | Lists of price of stocks | 1875 | 30 00 |
| | Pacific Board List | do (*evening*) | do | 1875 | 30 00 |
| | Commercial News and Shipping List | do (*morning*) | Commercial | 1875 | 6 00 |
| | Commercial News and Shipping List | Weekly | do | 1875 | 3 00 |
| | Breviate of Records | Daily (*morning*) | Law | 1875 | 12 00 |
| | California Patron | Weekly | Agricultural | 1875 | 1 00 |
| | Pacific Price Current | do | Commercial | 1875 | [a]2 00 |
| | Freight Circular (*b*) | Monthly | do | 1875 | 2 50 |
| | Pacific Coast Wine and Liquor Herald (*b*) | do | Trade | 1875 | 4 00 |
| | Hotel Gazette | Daily (*evening*) | Miscellaneous | 1876 | 5 00 |
| | Chinese Newspaper | Weekly | Miscellaneous (*Chinese*) | 1876 | 5 50 |
| | Commercial Advocate | do | Commerce | 1876 | 3 00 |
| | La Scintilla Italiana | do | News and politics (*Italian*) | 1876 | 4 00 |
| | San Francisco Wasp | do | Humorous | 1876 | 4 50 |
| | California Horticultural and Floral Magazine (*b*). | Monthly | Agricultural | 1876 | 2 50 |
| | Law Journal | Daily (*morning*) | Law | 1877 | 12 00 |
| | Argonaut | Weekly | News and politics | 1877 | 4 00 |
| | Mission Mirror | do | do | 1877 | 1 50 |
| | Pacific Coast Law Journal | do | Law | 1877 | 6 50 |
| | Saturday Local | do | News and politics | 1877 | 2 00 |
| | Engineer of the Pacific | Monthly | Science and mechanics | 1877 | 1 50 |
| | Pacific School and Home Journal | do | Educational | 1877 | 2 00 |
| | San Francisco Footlight (*c*) | Weekly | Dramatic | 1877 | 2 00 |
| | City Argus | do | News and politics | 1878 | 4 00 |
| | Golden Gate | do | Miscellaneous | 1878 | 1 00 |
| | Hayes Valley Advertiser | do | News and politics | 1878 | 1 00 |
| | Oriental | do | Miscellaneous (*Chinese*) | 1878 | 5 00 |
| | Valkyrien | do | News and politics (*Danish*) | 1878 | 2 25 |
| | Pacific State Watchman | Semi-monthly | Secret society | 1878 | 2 00 |
| | Masonic Monthly | Monthly | do | 1878 | 2 50 |
| | Medico-Literary Journal | do | Medical | 1878 | 3 00 |
| | Pacific Coast Postal Index (*d*) | Quarterly | Miscellaneous | 1878 | 1 00 |
| | Pacific Land Journal | Monthly | do | 1878 | 1 00 |
| | Reporter | do | Temperance | 1878 | 1 00 |
| | Bond and Stock Herald | Weekly | Financial | 1879 | 6 00 |
| | California Freie Presse | do | News and politics (*German*) | 1879 | 2 50 |
| | California Independent (*e*) | do | News and politics | 1879 | 3 00 |
| | L'Elvezia | do | News and politics (*Italian*) | 1879 | 5 50 |
| | San Francisco Merchant | do | Commercial | 1879 | 3 00 |
| | Standard (*f*) | do | Society | 1879 | 2 50 |
| | Stilla-Hafs-Posten | do | News and politics (*Swedish*) | 1879 | 2 00 |
| | American Druid's Journal (*e*) | Monthly | Secret society | 1879 | 1 50 |
| | Avalanche (*e*) | do | Commercial | 1879 | 3 00 |
| | La Revista del Comercio (*e*) | do | Commercial (*Spanish*) | 1879 | 2 50 |
| | Olympian | do | Miscellaneous | 1879 | 2 00 |
| | Weekly Gossip and Matrimonial Advocate | do | do | 1879 | 1 25 |
| | San Francisco Public School Record | do | Educational | 1879 | 1 00 |
| | San Francisco Journal of Commerce (*g*) | Weekly | Commercial | 1872 | 5 00 |
| | Globe (*h*) | Daily (*evening*) | News and politics | 1879 | 7 20 |
| | San Francisco Traders' Directory | Tri-weekly | Commercial | 1880 | 3 00 |
| | Jewish Times | Weekly | News and family | 1880 | 3 00 |
| | Pacific Pilot | do | News and politics (*German*) | 1880 | 2 50 |
| | Alaska Appeal (*e*) | Semi-monthly | News and politics | 1880 | 1 00 |
| | Anglo-Spanish Merchant (*e*) | do | Commercial (*Spanish and English*) | 1880 | 3 00 |
| | California Architects' and Builders' Review | Monthly | Scientific and mechanics | 1880 | 1 50 |
| | Californian | do | General literature | 1880 | 3 00 |
| | Light for All | do | Religious (*Spiritualist*) | 1880 | 1 00 |
| | Morning Herald (*i*) | Daily (*morning*) | News and politics | ........ | ........ |
| SAN JOAQUIN CO.—*Population:* 24,349. | | | | | |
| Lodi | Lodi Valley Review | Weekly | News and politics | 1878 | 2 50 |
| Stockton | Independent | Daily (*morning*) | do | 1861 | 10 00 |
| | Independent | Weekly | do | 1856 | 3 00 |
| | Evening Herald | Daily (*evening*) | do | 1865 | 10 00 |
| | Herald | Weekly | do | 1865 | 3 00 |
| | Stockton Banner | do | News and politics (*Germ. and Eng*). | 1877 | 3 00 |
| | People's Advocate (*j*) | do | News and politics | ........ | ........ |
| SAN LUIS OBISPO CO.—*Population:* 9,142. | | | | | |
| San Luis Obispo | San Luis Obispo Tribune | Weekly | News and politics | 1869 | 3 00 |
| | Southern California Advocate (*k*) | do | do | 1879 | 2 00 |
| SAN MATEO CO.—*Population:* 8,669. | | | | | |
| Redwood City | Times and Gazette | Weekly | News and politics | 1859 | 4 00 |
| | San Mateo County Journal | do | do | 1879 | 2 50 |
| SANTA BARBARA CO.—*Population:* 9,513. | | | | | |
| Guadalupe | Guadalupe Telegraph | Weekly | News and politics | 1875 | 3 00 |
| Lompoc | Lompoc Record | do | do | 1875 | 3 00 |
| Santa Barbara | Press | Daily (*evening*) | do | 1868 | 8 00 |
| | Press | Weekly | do | 1868 | 3 00 |
| | Santa Barbara Independent | Semi-weekly | do | 1878 | 3 00 |
| | Santa Barbara Advertiser (*l*) | Weekly | do | ........ | ........ |

[a] Per 100.
[b] Printed at office of "Commercial Herald".
[c] Issued daily as a programme, also monthly.
[d] Changed to monthly March, 1880.
[e] Suspended in 1880.
[f] Weekly from June 1, 1879, to October 31, 1879, and monthly from November 1, 1879, to April 30, 1880.
[g] Special edition of weekly published for Mexico, Central America, China, Japan, Australia, and Honolulu on steamer days.
[h] Suspended since census year.
[i] Suspended.
[j] Suspended September, 1879.
[k] Suspended June, 1880.
[l] Suspended June, 1879.

## CALIFORNIA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| SANTA CLARA CO.—*Population:* 35,039. | | | | | |
| Gilroy | Gilroy Advocate | Weekly | News and politics | 1868 | $3 00 |
| Santa Clara | Santa Clara Journal | do | do | 1879 | 2 50 |
| San José | Mercury | Daily (*morning*) | do | 1871 | 6 00 |
| | Mercury | Weekly | do | 1854 | 2 50 |
| | Herald | Daily (*evening*) | do | 1866 | 6 00 |
| | Herald | Weekly | do | 1866 | 2 50 |
| | San José Courier | do | News and politics (*German*) | 1876 | 3 00 |
| | San José Pioneer | do | News and politics | 1877 | 2 50 |
| | Morning Times | Daily (*morning*) | do | 1879 | 6 00 |
| | New Era (*a*) | Daily (*evening*) | do | 1879 | 5 00 |
| SANTA CRUZ CO.—*Population:* 12,802. | | | | | |
| Santa Cruz | Santa Cruz Sentinel | Weekly | News and politics | 1855 | 3 00 |
| | Santa Cruz Courier and Local Item | do | do | 1875 | 3 00 |
| Watsonville | Watsonville Pajaronian | do | do | 1868 | 3 00 |
| | Watsonville Transcript | Semi-weekly | do | 1876 | 3 00 |
| | California Transcript | Weekly | do | 1879 | 1 00 |
| | Pajaro Valley Sun (*a*) | do | do | 1879 | 2 50 |
| SHASTA CO.—*Population:* 9,492. | | | | | |
| Millville | Shasta County Democrat (*b*) | Weekly | News and politics | 1878 | 3 00 |
| Redding | Redding Independent | do | do | 1877 | 4 00 |
| Shasta | Shasta Courier | do | do | 1857 | 5 00 |
| SIERRA CO.—*Population:* 6,623. | | | | | |
| Downieville | Mountain Messenger | Weekly | News and politics | 1853 | 5 00 |
| SISKIYOU CO.—*Population:* 8,610. | | | | | |
| Fort Jones | Scott Valley News | Weekly | News and politics | 1878 | 3 00 |
| Yreka | Yreka Union (*c*) | do | do | 1852 | 5 00 |
| | Semi-weekly Journal | Semi-weekly | do | 1856 | 4 00 |
| SOLANO CO.—*Population:* 18,475. | | | | | |
| Benicia | Benicia New Era | Weekly | News and politics | 1877 | 3 50 |
| Dixon | Dixon Tribune | do | do | 1874 | 3 00 |
| Suisun | Solano Republican | do | do | 1854 | 3 00 |
| Vallejo | Evening Chronicle | Daily (*evening*) | do | 1867 | 6 00 |
| | Vallejo Chronicle | Weekly | do | 1867 | 2 50 |
| | Solano Times | Daily (*morning*) | do | 1875 | 6 00 |
| | Solano Times (*d*) | Weekly | do | 1875 | 2 00 |
| | Evening News | Daily (*evening*) | do | 1880 | ...... |
| SONOMA CO.—*Population:* 25,926. | | | | | |
| Cloverdale | Cloverdale Reveille | Weekly | News and politics | 1879 | 2 00 |
| Healdsburg | Healdsburg River Flag | do | do | 1868 | 3 00 |
| | Healdsburg Enterprise | do | do | 1876 | 3 00 |
| Petaluma | Petaluma Argus | do | do | 1855 | 3 00 |
| | Petaluma Courier | do | do | 1876 | 3 00 |
| | Sonoma County Presse (*e*) | do | News and politics (*German*) | 1878 | 3 00 |
| Santa Rosa | Sonoma County Democrat | do | News and politics | 1857 | 3 00 |
| | Santa Rosa Republican | Daily (*evening*) | do | 1880 | 6 00 |
| | Santa Rosa Republican | Weekly | do | 1880 | 3 00 |
| | Santa Rosa Times (*f*) | do | do | ...... | ...... |
| | Santa Rosa News (*f*) | do | do | ...... | ...... |
| Sonoma | Sonoma Index | do | do | 1879 | 3 00 |
| STANISLAUS CO.—*Population:* 8,751. | | | | | |
| Modesto | Stanislaus County News | Weekly | News and politics | 1868 | 4 00 |
| | Modesto Herald | do | do | 1874 | 4 00 |
| SUTTER CO.—*Population:* 5,159. | | | | | |
| Yuba City | Sutter Banner | Weekly | News and politics | 1867 | 3 00 |
| | Yuba City Journal | do | do | 1880 | 3 00 |
| TEHAMA CO.—*Population:* 9,301. | | | | | |
| Red Bluff | People's Cause | Daily (*evening*) | News and politics | 1860 | 5 00 |
| | People's Cause | Weekly | do | 1860 | 2 50 |
| | Daily Evening Sentinel | Daily (*evening*) | do | 1867 | 5 00 |
| | Red Bluff Sentinel | Weekly | do | 1867 | 4 00 |
| Tehama | Tehama Tocsin | do | do | 1875 | 4 00 |
| TRINITY CO.—*Population:* 4,999. | | | | | |
| Weaverville | Trinity Journal | Weekly | News and politics | 1856 | 5 00 |
| TULARE CO.—*Population:* 11,281. | | | | | |
| Visalia | Visalia Delta | Weekly | News and politics | 1859 | 2 00 |
| | Tulare Times | do | do | 1865 | 2 00 |
| TUOLUMNE CO.—*Population:* 7,848. | | | | | |
| Sonora | Union Democrat | Weekly | News and politics | 1854 | 3 00 |
| | Tuolumne Independent | do | do | 1872 | 3 50 |
| VENTURA CO.—*Population:* 5,073. | | | | | |
| San Buena Ventura | Ventura Signal | Weekly | News and politics | 1871 | 3 00 |
| | Ventura Free Press | do | do | 1875 | 3 00 |
| YOLO CO.—*Population:* 11,772. | | | | | |
| Woodland | Daily Democrat | Daily (*morning*) | News and politics | 1877 | 6 00 |
| | Yolo Democrat | Weekly | do | 1867 | 3 00 |
| | Yolo Mail | do | do | 1868 | 3 00 |
| | Woodland Standard (*g*) | do | do | 1879 | ...... |
| | Woodland Republican | do | do | 1880 | 2 00 |
| YUBA CO.—*Population:* 11,284. | | | | | |
| Marysville | Daily Appeal | Daily (*morning*) | News and politics | 1859 | 10 00 |
| | Marysville Appeal | Weekly | do | 1862 | 2 50 |
| Wheatland | Bear River News | do | do | ...... | 2 00 |

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*a* Suspended October, 1879.
*b* Removed to Redding in April, 1881.
*c* Suspended April, 1880.
*d* Suspended September 30, 1880.
*e* Suspended November 30, 1880.
*f* Suspended 1880.
*g* Merged into "The Mail", 1880.

## COLORADO.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **ARAPAHOE CO.**—*Population:* 38,644. | | | | | |
| Denver | Rocky Mountain News | Daily (*morning*) | News and politics | 1859 | $10 00 |
| | Rocky Mountain News | Weekly | do | 1859 | 2 00 |
| | Rocky Mountain Herald | do | do | 1860 | 3 00 |
| | Tribune | Daily (*morning*) | do | 1866 | 12 00 |
| | Tribune | Weekly | do | 1866 | 2 00 |
| | Times | Daily (*evening*) | News and politics | 1871 | 6 00 |
| | Times | Weekly | do | 1871 | 1 25 |
| | Colorado Journal | Daily (*evening*) | News and politics (*German*) | 1872 | 8 00 |
| | Colorado Journal | Weekly | News and politics (*German*) | 1872 | 3 25 |
| | Rocky Mountain Presbyterian | Monthly | Religious (*Presbyterian*) | 1872 | 1 00 |
| | Colorado Farmer | Weekly | Agricultural | 1873 | 2 00 |
| | Colorado Bulletin (*a*) | Monthly | Advertising | 1878 | 50 |
| | Daily Mining Hotel Reporter | Daily (*evening*) | Mining and hotel news | 1879 | 5 00 |
| | Republican | do (*morning*) | News and politics | 1879 | 8 00 |
| | Republican | Weekly | do | 1879 | 2 00 |
| | Rocky Mountain Mining Review | do | Mining news | 1879 | 3 00 |
| | Colorado Post (*b*) | Semi-weekly | News and politics (*German*) | 1879 | 2 00 |
| | Gazette Advocate (*c*) | Weekly | Temperance | 1879 | ........ |
| | Argus (*d*) | do | News and politics | 1880 | 2 00 |
| | Journal of Commerce (*d*) | do | Commercial | 1879 | ........ |
| **BENT CO.**—*Population:* 1,654. | | | | | |
| West Las Animas | Las Animas Leader | Weekly | News and politics | 1873 | 2 00 |
| **BOULDER CO.**—*Population:* 9,723. | | | | | |
| Boulder | Boulder News and Courier | Weekly | News and politics | 1869 | 2 00 |
| | Colorado Banner | do | do | 1875 | 2 00 |
| | Boulder County Herald | do | do | 1880 | 2 00 |
| Longmont | Longmont Press | do | do | 1871 | 2 00 |
| | Longmont Ledger | do | do | 1879 | 1 50 |
| **CHAFFEE CO.**—*Population:* 6,512. | | | | | |
| Buena Vista | Chaffee County Times | Weekly | News and politics | 1880 | 3 00 |
| **CLEAR CREEK CO.**—*Population:* 7,823. | | | | | |
| Georgetown | Colorado Miner | Weekly | News and politics | 1867 | 2 50 |
| | Courier | do | do | 1877 | 2 50 |
| Idaho Springs | Iris | do | do | 1879 | 2 00 |
| **CONEJOS CO.**—*Population:* 5,605. | | | | | |
| Alamosa | Colorado Independent | Weekly | News and politics | 1875 | 2 50 |
| **CUSTER CO.**—*Population:* 8,080. | | | | | |
| Rosita | Sierra Journal | Weekly | News and politics | 1874 | 2 50 |
| Silver Cliff | Miner | Daily (*morning*) | do | 1878 | 6 00 |
| | Miner | Weekly | do | 1878 | 2 00 |
| | Prospector | Daily (*morning*) | do | 1879 | 10 00 |
| | Prospector | Weekly | do | 1880 | 2 50 |
| **DOUGLAS CO.**—*Population:* 2,486. | | | | | |
| Castle Rock | Castle Rock Independent | Weekly | News and politics | 1880 | 2 00 |
| | Castle Rock Journal | do | do | 1880 | 1 50 |
| **EL PASO CO.**—*Population:* 7,949. | | | | | |
| Colorado Springs | Daily Gazette | Daily (*morning*) | News and politics | 1878 | 10 00 |
| | Weekly Gazette | Weekly | do | 1872 | 2 00 |
| | Colorado Mountaineer | Sunday | do | 1872 | 1 50 |
| | Congregrational News | Monthly | Religious (*Congregational*) | 1879 | 25 |
| | Occident | do | Collegiate | 1880 | 75 |
| | Monument Journal (*e*) | Weekly | News and politics | 1880 | 1 50 |
| | Mentor | do | do | 1878 | 1 50 |
| **FREMONT CO.**—*Population:* 4,735. | | | | | |
| Cañon City | Fremont County Record | Weekly | News and politics | 1878 | 2 00 |
| **GILPIN CO.**—*Population:* 6,489. | | | | | |
| Black Hawk | Post | Weekly | News and politics | 1876 | 2 50 |
| Central City | Register-Call | Daily (*evening*) | do | 1862 | 9 00 |
| | Register-Call | Weekly | do | 1862 | 3 00 |
| **GUNNISON CO.**—*Population:* 8,235. | | | | | |
| Gunnison | News | Weekly | News and politics | 1880 | 1 50 |
| **HINSDALE CO.**—*Population:* 1,487. | | | | | |
| Lake City | Silver World | Weekly | News and politics | 1875 | 3 00 |
| **JEFFERSON CO.**—*Population:* 6,804. | | | | | |
| Golden | Colorado Transcript | Weekly | News and politics | 1866 | 2 50 |
| | Golden Globe | do | do | 1873 | 2 00 |
| **LAKE CO.**—*Population:* 23,563. | | | | | |
| Leadville | Chronicle | Daily (*evening*) | News and politics | 1879 | 12 00 |
| | Chronicle | Weekly | do | 1879 | 3 00 |
| | Herald | Daily (*morning*) | do | 1879 | 12 00 |
| | Herald | Weekly | do | 1879 | 4 00 |
| | Reveille (*f*) | Daily (*morning*) | do | 1879 | 10 00 |
| | Reveille | Weekly | do | 1879 | 3 00 |
| | Eclipse (*g*) | Daily (*morning*) | do | 1879 | 10 00 |
| | Eclipse | Weekly | do | 1879 | 3 00 |
| | Evening Times (*h*) | Daily (*evening*) | do | ........ | ........ |
| | Democrat | do (*morning*) | do | 1880 | 12 00 |
| | Democrat | Weekly | do | 1880 | 4 00 |
| **LA PLATA CO.**—*Population:* 1,110. | | | | | |
| Durango | South West | Weekly | News and politics | 1879 | 3 00 |
| **LARIMER CO.**—*Population:* 4,892. | | | | | |
| Fort Collins | Express | Weekly | News and politics | 1873 | 2 00 |
| | Courier | do | do | 1878 | 2 00 |
| | Temperance Gazette (*i*) | do | do | ........ | ........ |

*a* Suspended about April, 1880.
*b* Suspended November, 1880.
*c* Suspended.
*d* Suspended November, 1880.
*e* Suspended June 24, 1880.
*f* Merged into "Herald"
*g* Suspended in September or October, 1879.
*h* Succeeded "Eclipse", and suspended shortly after.
*i* Consolidated with "Denver Advocate".

## COLORADO—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **Las Animas** co.—*Population:* 8,903. | | | | | |
| Trinidad | Trinidad News | Weekly | News and politics | 1878 | $2 50 |
| | Republican (*a*) | Daily (*morning*) | do | 1880 | 12 00 |
| | Republican | Weekly | do | 1880 | 1 00 |
| **Ouray** co.—*Population:* 2,669. | | | | | |
| Ouray | Ouray Times | Weekly | News and politics | 1877 | 2 00 |
| | Solid Muldoon | do | do | 1879 | 2 50 |
| Rico | Dolores News | do | do | 1879 | 3 00 |
| **Park** co.—*Population:* 3,970. | | | | | |
| Fairplay | Fairplay Flume | Weekly | News and politics | 1879 | 3 00 |
| **Pueblo** co.—*Population:* 7,617. | | | | | |
| Pueblo | Colorado Chieftain | Daily (*morning*) | News and politics | 1868 | 10 00 |
| | Colorado Chieftain | Weekly | do | 1868 | 3 00 |
| | Democrat | Daily (*evening*) | do | 1877 | 10 00 |
| | Democrat | Weekly | do | 1877 | 2 50 |
| | South Pueblo Banner | do | do | 1879 | 2 50 |
| **Rio Grande** co.—*Population:* 1,944. | | | | | |
| Del Norte | San Juan Prospector | Weekly | News and politics | 1874 | 3 00 |
| **Saguache** co.—*Population:* 1,973. | | | | | |
| Saguache | Saguache Chronicle | Weekly | News and politics | 1874 | 3 00 |
| **San Juan** co.—*Population:* 1,087. | | | | | |
| Silverton | La Plata Miner | Weekly | News and politics | 1875 | 3 00 |
| **Summit** co.—*Population:* 5,459. | | | | | |
| Kokomo | Summit County Times | Weekly | News and politics | 1879 | 3 00 |
| **Weld** co.—*Population:* 5,646. | | | | | |
| Evans | Journal | Weekly | News and politics | 1871 | 2 00 |
| Greeley | Greeley Tribune | do | do | 1870 | 2 00 |
| | Colorado Sun | do | do | 1872 | 2 00 |

## CONNECTICUT.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **Fairfield** co.—*Population:* 112,042. | | | | | |
| **Bethel** | Ledger | Weekly | News and politics | 1874 | $1 50 |
| **Bridgeport** | Evening Farmer | Daily (*evening*) | do | 1854 | 7 00 |
| | Republican Farmer | Weekly | do | 1790 | 2 00 |
| | Standard | Daily (*evening*) | do | 1854 | 7 00 |
| | Republican Standard | Weekly | do | 1840 | 2 00 |
| | Leader | Semi-weekly | do | 1872 | 2 00 |
| | Zeitung (*b*) | Weekly | News and politics (*German*) | 1873 | 2 00 |
| | Morning News | Daily (*morning*) | News and politics | 1879 | 5 00 |
| | Journal (*c*) | Weekly | do | ...... | ...... |
| **Danbury** | News | do | do | 1835 | 2 00 |
| | Globe | do | do | 1872 | 2 00 |
| | Democrat | do | do | 1877 | 2 00 |
| | Republican | do | do | 1879 | 1 50 |
| **Georgetown** | Star (*c*) | do | do | ...... | ...... |
| **Greenwich** | Observer | do | do | 1877 | 1 50 |
| **New Canaan** | Messenger | do | do | 1876 | 1 50 |
| **Newtown** | Bee | do | do | 1877 | 1 50 |
| | Chronicle | do | do | 1880 | 1 50 |
| **Norwalk** | Gazette | do | do | 1800 | 2 00 |
| | Hour | do | do | 1871 | 1 00 |
| | Democrat | do | do | 1877 | 1 00 |
| | Eagle (*d*) | do | do | ...... | ...... |
| **Ridgefield** | Press | do | do | 1873 | 1 25 |
| **South Norwalk** | Sentinel | do | do | 1870 | 2 00 |
| | Citizen Leader (*e*) | do | do | 1880 | ...... |
| | Old Well Local (*c*) | do | do | ...... | ...... |
| **Southport** | Times | do | do | 1878 | 1 00 |
| **Stamford** | Advocate | do | do | 1829 | 2 00 |
| | Herald | do | do | 1875 | 2 00 |
| **Westport** | Advertiser (*f*) | do | do | 1871 | ...... |
| | Westporter | do | do | 1876 | 1 00 |
| **Wilton** | Reporter (*g*) | do | do | 1873 | 1 00 |
| **Hartford** co.—*Population:* 125,382. | | | | | |
| **Bristol** | Weekly Press | Weekly | News and politics | 1871 | 2 00 |
| **Hartford** | Courant | Daily (*morning*) | do | 1764 | 8 00 |
| | Courant | Weekly | do | 1764 | 2 00 |
| | Times | Daily (*evening*) | do | 1841 | 8 00 |
| | Times | Weekly | do | 1817 | 1 50 |
| | Christian Secretary | do | Religious (*Baptist*) | 1822 | 2 00 |
| | Religious Herald | do | Religious (*Congregational*) | 1843 | 2 10 |
| | American Journal of Education | Quarterly | Educational | 1855 | 4 00 |
| | Evening Post | Daily (*evening*) | News and politics | 1858 | 8 00 |
| | Connecticut Post | Weekly | do | 1858 | 1 50 |
| | Sunday Journal | Sunday | do | 1867 | 2 50 |
| | Trinity Tablet | Every three weeks | Collegiate | 1869 | 2 00 |
| | Poultry World | Monthly | Poultry | 1872 | 1 25 |
| | Globe | Sunday | News and politics | 1876 | 2 00 |
| | Connecticut Catholic | Weekly | Religious (*Catholic*) | 1876 | 2 00 |
| | Quarterly Journal of Inebriety | Quarterly | Medical and scientific | 1876 | 2 00 |
| | American Poultry Yard | Weekly | Poultry | 1878 | 1 50 |
| | Connecticut Farmer | do | Agricultural | 1879 | 2 00 |
| | New England Review | Monthly | Literary | 1880 | 50 |
| | Sunday Argus (*c*) | Sunday | News and politics | 1879 | ...... |
| | Fanciers' Journal (*h*) | Monthly | Poultry | 1873 | 1 50 |

*a* "Republican" succeeded the "News" May, 1880.
*b* Suspended January, 1881.
*c* Suspended.
*d* Suspended February, 1880.
*e* Suspended May 21, 1880.
*f* An edition of the "Norwalk Hour".
*g* An edition of the "Ridgefield Press".
*h* Suspended September, 1880.

## CONNECTICUT—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| HARTFORD CO.—Continued. | | | | | |
| New Britain | Record | Weekly | News and politics | 1865 | $2 00 |
| | Observer | do | do | 1876 | 2 00 |
| | Herald | do | do | 1880 | 2 00 |
| | Times | do | do | 1880 | 2 00 |
| Plainville | News (*a*) | do | do | 1874 | 2 00 |
| Southington | Weekly Phœnix | do | do | 1873 | 2 00 |
| Thompsonville | Press | do | do | 1880 | 1 50 |
| Windsor Locks | Journal | do | do | 1880 | 1 50 |
| LITCHFIELD CO.—*Population:* 52,044. | | | | | |
| Litchfield | Enquirer | Weekly | News and politics | 1826 | 2 00 |
| New Milford | Housatonic Ray | do | do | 1872 | 2 00 |
| | Gazette | do | do | 1877 | 1 50 |
| North Canaan | Connecticut Western News | do | do | 1871 | 1 50 |
| West Winsted | Winsted Herald | do | do | 1853 | 2 00 |
| Winsted | Winsted Press | do | do | 1873 | 2 00 |
| | Times and News | do | do | 1875 | 1 50 |
| Woodbury | Reporter | do | do | 1877 | 1 00 |
| Wolcottville | Register | do | do | 1873 | 1 50 |
| MIDDLESEX CO.—*Population:* 35,589. | | | | | |
| Essex | Gazette | Weekly | News and politics | 1879 | 1 25 |
| Middletown | Sentinel and Witness | do | do | 1823 | 1 50 |
| | Constitution | do | do | 1837 | 1 50 |
| | State Temperance Journal | Monthly | Temperance | 1866 | 35 |
| | College Argus | Tri-monthly | Collegiate | 1867 | 1 50 |
| Moodus | Connecticut Valley Advertiser | Weekly | News and politics | 1869 | 1 50 |
| Saybrook (Deep River post-office) | New Era | do | do | 1874 | 1 25 |
| NEW HAVEN CO.—*Population:* 156, 523. | | | | | |
| Ansonia | Naugatuck Valley Sentinel | Weekly | News and politics | 1871 | 2 00 |
| Birmingham | Derby Transcript | do | do | 1867 | 2 00 |
| Cheshire | Oracle | Monthly | Collegiate | 1877 | 1 00 |
| Meriden | Meriden Recorder | Daily (*evening*) | News and politics | 1863 | 8 00 |
| | Riggs' Meriden Literary Recorder | Weekly | do | 1863 | 2 50 |
| | Meriden Recorder | Semi-weekly | do | 1863 | 3 00 |
| | Republican | Daily (*evening*) | do | 1868 | 8 00 |
| | Republican | Weekly | do | 1868 | 2 00 |
| New Haven | Journal and Courier | Daily (*morning*) | do | 1732 | 8 00 |
| | Journal and Courier | Weekly | do | 1766 | 2 00 |
| | Register | Daily (*evening*) | do | 1812 | 8 00 |
| | Register | Sunday | do | 1812 | 2 00 |
| | Register | Weekly | do | 1812 | 1 50 |
| | American Journal of Science | Monthly | Scientific | 1818 | 6 00 |
| | Palladium | Daily (*morning*) | News and politics | 1829 | 8 00 |
| | Palladium | Weekly | do | 1829 | 2 00 |
| | Yale Literary Magazine | Monthly | Collegiate | 1836 | 3 00 |
| | New Englander | Every two months | Literary | 1843 | 4 00 |
| | Yale Courant | Semi-monthly | Collegiate | 1864 | 1 50 |
| | Reveille | Monthly | do | 1865 | 75 |
| | Connecticut Republikaner | Daily (*morning*) | News and politics (*German*) | 1879 | 6 50 |
| | Connecticut Republikaner | Weekly | News and politics (*German*) | 1867 | 2 00 |
| | Loomis' Musical and Masonic Journal | Monthly | Music and secret society | 1867 | 1 00 |
| | Union | Daily (*evening*) | News and politics | 1871 | 8 00 |
| | Union | Sunday | do | 1871 | 2 00 |
| | Union | Weekly | do | 1871 | 1 00 |
| | Critic | Monthly | Collegiate | 1872 | 75 |
| | Yale Record | Semi-monthly | do | 1872 | 1 50 |
| | Hubbard's Printer-Advertiser | Monthly | Typographical | 1875 | 50 |
| | Connecticut Botschafter | Weekly | News and politics (*German*) | 1876 | 1 60 |
| | Yale News | Daily (*morning*) | Collegiate | 1877 | 4 00 |
| | New England Anzeiger | Weekly | News and politics (*German*) | 1877 | 2 00 |
| | Shore Line Times | do | News and politics | 1877 | 1 00 |
| | Hibernian Record | Monthly | Secret society | 1878 | 60 |
| | Sea World Fishing Gazette | Weekly | Fishery | 1879 | 2 00 |
| | Tablet (*b*) | Monthly | Collegiate | ........ | ........ |
| Naugatuck | Enterprise | Weekly | News and politics | 1877 | 1 00 |
| Seymour | Record | do | do | 1871 | 1 00 |
| Wallingford | Windermere Forum | do | do | 1877 | 1 50 |
| Waterbury | American | Daily (*evening*) | do | 1866 | 6 00 |
| | American | Weekly | do | 1844 | 2 00 |
| | Monitor | do | do | 1869 | 1 50 |
| NEW LONDON CO.—*Population:* 73,152. | | | | | |
| Mystic River | Mystic Journal | Weekly | News and politics | 1859 | 2 00 |
| | Mystic Press | do | do | 1873 | 2 00 |
| New London | Telegram | Daily (*evening*) | do | 1873 | 8 00 |
| | Connecticut Gazette | Weekly | do | 1873 | 1 50 |
| Norwich | Morning Bulletin | Daily (*morning*) | do | 1757 | 8 00 |
| | Weekly Bulletin | Weekly | do | 1796 | 50 |
| | Cooley's Weekly | do | do | 1876 | 50 |
| | Weekly Observer (*c*) | do | do | 1879 | 50 |
| | American Conflict (*d*) | do | Temperance | 1879 | ........ |
| Stonington | Mirror | do | News and politics | 1869 | 2 00 |
| TOLLAND CO.—*Population:* 24, 112. | | | | | |
| Rockville | Tolland County Journal | Weekly | News and politics | 1867 | 1 50 |
| | Tolland County Leader | do | do | 1879 | 1 00 |
| South Coventry | Coventry Local Register (*e*) | do | do | 1868 | 1 50 |
| Stafford Springs | Tolland County Press | do | do | 1858 | 1 50 |
| WINDHAM CO.—*Population:* 43,856. | | | | | |
| Danielsonville | Windham County Transcript | Weekly | News and politics | 1854 | 2 00 |
| | Sentinel | do | do | 1870 | 1 50 |
| | Eastern Knight (*f*) | Monthly | Secret society | 1878 | 75 |
| Putnam | Patriot | Weekly | News and politics | 1872 | 2 00 |
| Willimantic | Journal | do | do | 1848 | 1 50 |
| | Chronicle | do | do | 1879 | 1 50 |

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*a* An edition of the "Bristol Press".
*b* Suspended.
*c* Suspended May 22, 1880.
*d* Suspended spring of 1880.
*e* An edition of "Stafford Springs Press".
*f* Suspended August 1, 1880.

## DAKOTA TERRITORY.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| BARNES CO.—*Population:* 1,585. | | | | | |
| Valley City | Northern Pacific Times | Weekly | News and politics | 1879 | $2 00 |
| BEADLE CO.—*Population:* 1,290. | | | | | |
| Huron | Beadle County Settler | Weekly | News and politics | 1880 | 2 00 |
| | Dakota Central | do | do | 1880 | 2 00 |
| BONHOMME CO.—*Population:* 5,468. | | | | | |
| Scotland | Dakota Citizen | Weekly | News and politics | 1877 | 2 00 |
| Springfield | Springfield Times | do | do | 1871 | 2 00 |
| BROOKINGS CO.—*Population:* 4,965. | | | | | |
| Brookings | Brookings County Press | Weekly | News and politics | 1879 | 1 50 |
| | Sioux Valley Journal | do | do | 1880 | 1 50 |
| BURLEIGH CO.—*Population:* 3,246. | | | | | |
| Bismarck | Bismarck Tribune | Weekly | News and politics | 1872 | 2 50 |
| | Champion (*a*) | Daily (*morning*) | do | | |
| | Bismarck Sun | Weekly | do | 1880 | 2 50 |
| Mandan | Criterion | do | do | 1879 | 2 00 |
| CASS CO.—*Population:* 8,998. | | | | | |
| Fargo | Fargo Times | Weekly | News and politics | 1874 | 2 00 |
| | Fargo Republican | do | do | 1878 | 2 00 |
| | Fargo Republican | Semi-weekly | do | 1878 | 3 00 |
| | Daily Argus | Daily (*morning*) | do | 1879 | 10 00 |
| | Argus | Weekly | do | 1879 | 1 00 |
| | Red River Posten | do | News and politics (*Norwegian*) | 1879 | 2 00 |
| CLAY CO.—*Population:* 5,001. | | | | | |
| Vermillion | Dakota Republican | Weekly | News and politics | 1860 | 2 00 |
| | Vermillion Standard | do | do | 1876 | 2 00 |
| CODINGTON CO.—*Population:* 2,156. | | | | | |
| Watertown | Dakota News | Weekly | News and politics | 1879 | 2 00 |
| | Codington County Courier | do | do | 1879 | 2 00 |
| DEUEL CO.—*Population:* 2,302. | | | | | |
| Gary | Inter-State | Weekly | News and politics | 1878 | 2 00 |
| GRAND FORKS CO.—*Population:* 6,248. | | | | | |
| Grand Forks | Plaindealer | Weekly | News and politics | 1875 | 2 00 |
| | Grand Forks Herald | do | do | 1879 | 2 00 |
| GRANT CO.—*Population:* 3,010. | | | | | |
| Big Stone City | Grant County Herald | Weekly | News and politics | 1879 | 2 00 |
| HANSON CO.—*Population:* 1,301. | | | | | |
| Alexandria | Alexandria Herald | Weekly | News and politics | 1880 | 2 00 |
| HUTCHINSON CO.—*Population:* 5,573. | | | | | |
| Meno | Chronicle | Weekly | News and politics | 1878 | 1 00 |
| KINGSBURY CO.—*Population:* 1,102. | | | | | |
| De Smet | Kingsbury County News | Weekly | News and politics | 1880 | 1 50 |
| LAKE CO.—*Population:* 2,657. | | | | | |
| Herman | Lake County Leader | Weekly | News and politics | 1878 | 2 00 |
| Madison | Sentinel | do | do | 1879 | 2 00 |
| LAWRENCE CO.—*Population:* 13,248. | | | | | |
| Central City | Black Hills Herald | Daily (*evening*) | News and politics | 1876 | 10 00 |
| Deadwood | Daily Pioneer | Daily (*morning*) | do | 1876 | 12 00 |
| | Pioneer | Weekly | do | 1876 | 5 00 |
| | Black Hills Daily Times | Daily (*morning*) | do | 1877 | 18 00 |
| | Black Hills Times | Weekly | do | 1877 | 4 00 |
| | Evening Press | Daily (*evening*) | do | 1879 | 10 00 |
| | Evening News (*b*) | do (*evening*) | do | 1880 | |
| Lead City | Western Enterprise | do (*evening*) | do | 1879 | 12 00 |
| LINCOLN CO.—*Population:* 5,896. | | | | | |
| Canton | Sioux Valley News | Weekly | News and politics | 1872 | 2 00 |
| | Canton Advocate | do | do | 1876 | 2 00 |
| Eden | Eden Sun | do | do | 1880 | 1 50 |
| McCOOK CO.—*Population:* 1,283. | | | | | |
| Bridgewater | Bridgewater Echo | Weekly | News and politics | 1880 | 1 50 |
| Cameron | Cameron Pioneer (*c*) | do | do | 1879 | 2 00 |
| Salem | Salem Register | do | do | 1879 | 1 50 |
| | Pioneer | do | do | 1879 | 1 50 |
| MINNEHAHA CO.—*Population:* 8,251. | | | | | |
| Dell Rapids | Dell Rapids Exponent | Weekly | News and politics | 1879 | 2 00 |
| Sioux Falls | Dakota Pantagraph | do | do | 1872 | 2 00 |
| | Sioux Falls Independent | do | do | 1873 | 2 00 |
| | Sioux Falls Times | do | do | 1878 | 2 00 |
| | Scandinavian (*d*) | do | do | 1880 | |
| MOODY CO.—*Population:* 3,915. | | | | | |
| Egan | Egan Express | Weekly | News and politics | 1880 | 2 00 |
| Flandreau | Moody County Enterprise | do | do | 1878 | 2 00 |
| PEMBINA CO.—*Population:* 4,862. | | | | | |
| Pembina | Pembina Pioneer | Weekly | News and politics | 1879 | 2 00 |
| PENNINGTON CO.—*Population:* 2,244. | | | | | |
| Rapid City | Black Hills Journal | Weekly | News and politics | 1878 | 4 00 |
| Rochford | Rochford Central (*e*) | do | do | 1878 | 4 00 |
| | Black Hills Miner | do | do | 1880 | 4 00 |
| RICHLAND CO.—*Population:* 3,597. | | | | | |
| Wahpeton | Richland County Gazette | Weekly | News and politics | 1879 | 2 00 |
| STUTSMAN CO.—*Population:* 1,007. | | | | | |
| Jamestown | Jamestown Alert | Weekly | News and politics | 1878 | 2 00 |

*a* Suspended in January, 1880. *b* Suspended November, 1880. *c* Suspended August, 1880; removed to Salem. *d* Suspended August, 1880. *e* Suspended.

## DAKOTA TERRITORY—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **TRAILL CO.**—*Population:* 4,123. | | | | | |
| Caledonia | Traill County Argus (*a*) | Weekly | News and politics | 1879 | $2 00 |
| **TURNER CO.**—*Population:* 5,320. | | | | | |
| Marion | Marion Gazette (*b*) | Weekly | News and politics | 1879 | 1 50 |
| Parker | New Era | ....do | ......do | 1878 | 1 50 |
| **UNION CO.**—*Population:* 6,813. | | | | | |
| Elk Point | Union County Courier | Weekly | News and politics | 1871 | 2 00 |
| | Elk Point Tribune | ....do | ......do | 1880 | 1 50 |
| **YANKTON CO.**—*Population:* 8,390. | | | | | |
| Yankton | Daily Press and Dakotian | Daily (*evening*) | News and politics | 1875 | 10 00 |
| | Press and Dakotian | Weekly | ......do | 1861 | 2 00 |
| | Dakota Herald | ....do | ......do | 1872 | 2 00 |
| | Dakota Freie Presse | ....do | News and politics (*German*) | 1874 | 2 00 |

## DELAWARE.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **KENT CO.**—*Population:* 32,874. | | | | | |
| Dover | Delawarean | Weekly | News and politics | 1859 | $2 00 |
| | State Sentinel | ....do | ......do | 1874 | 2 00 |
| Milford | News and Advertiser | ....do | ......do | 1857 | 1 00 |
| | Chronicle | ....do | ......do | 1878 | 1 00 |
| Smyrna | Times | ....do | ......do | 1854 | 2 00 |
| **NEW CASTLE CO.**—*Population:* 77,716. | | | | | |
| Middletown | Transcript | Weekly | News and politics | 1868 | 2 00 |
| Newark | Ledger | ....do | ......do | 1877 | 1 50 |
| New Castle | Enquirer (*c*) | ....do | ......do | 1879 | 1 50 |
| Wilmington | Gazette | Daily (*evening*) | ......do | 1872 | 3 00 |
| | Gazette | Weekly | ......do | 1784 | 2 00 |
| | Every Evening | Daily (*evening*) | ......do | 1871 | 5 00 |
| | Delaware State Journal | Weekly | ......do | 1831 | 1 00 |
| | Republican | Daily (*evening*) | ......do | 1836 | 3 00 |
| | Republican | Weekly | ......do | 1836 | 2 00 |
| | Daily Herald (*d*) | Daily (*morning*) | ......do | ........ | ........ |
| | Delaware Pionier | Weekly | News and politics (*German*) | 1869 | 2 50 |
| | Rugby Monthly | Monthly | Collegiate | 1874 | 25 |
| | Conference Worker | Weekly | Religious (*Methodist*) | 1875 | 1 00 |
| | Argus | ....do | News and politics | 1878 | 1 50 |
| | Sunday Dispatch (*e*) | Sunday | ......do | 1879 | 1 50 |
| | Advertiser (*f*) | Weekly | ......do | 1879 | 50 |
| | News | Daily (*morning*) | ......do | 1880 | 3 00 |
| **SUSSEX CO.**—*Population:* 36,018. | | | | | |
| Georgetown | Sussex Journal | Weekly | News and politics | 1867 | 2 00 |
| | Delaware Inquirer | ....do | ......do | 1879 | 1 00 |
| Lewes | Breakwater Light | ....do | ......do | 1871 | 1 00 |
| Seaford | Sussex County Index | ....do | ......do | 1877 | 1 50 |

## DISTRICT OF COLUMBIA.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **DIST. OF COLUMBIA.**—*Population:* 177,624. | | | | | |
| Georgetown | College Journal | Monthly | Collegiate | 1872 | $1 00 |
| Washington | African Repository | ....do | Interests of the colored man | 1825 | 1 00 |
| | American Annals of Deaf and Dumb | Quarterly | Educational | 1847 | 2 00 |
| | Evening Star | Daily (*evening*) | News and politics | 1852 | 6 00 |
| | Star | Weekly | ......do | 1852 | 2 00 |
| | National Republican | Daily (*morning*) | ......do | 1860 | 6 00 |
| | Forney's Sunday Chronicle | Sunday | ......do | 1861 | 2 50 |
| | Sunday Herald | ....do | ......do | 1865 | 2 50 |
| | Gazette | ....do | ......do | 1865 | 2 00 |
| | Evening Critic | Daily (*evening*) | ......do | 1868 | 3 00 |
| | Post-Office Gazette | Monthly | Post-Office Department | 1870 | 1 00 |
| | Capital | Sunday | News and literature | 1871 | 2 00 |
| | Official Gazette | Weekly | Patent Office | 1872 | 5 00 |
| | Washington Sentinel | ....do | News and politics | 1873 | 3 00 |
| | Washington Journal | Daily (*morning*) | News and politics (*German*) | 1873 | 7 00 |
| | Washington Journal | Sunday | News and politics (*German*) | 1873 | 2 00 |
| | United States Record and Gazette | Monthly | Law | 1873 | 85 |
| | Washington Law Reporter | Weekly | ....do | 1874 | 3 00 |
| | Sovereign Bulletin | Monthly | Industry | 1874 | 50 |
| | Copp's Landowner | ....do | Real estate | 1874 | 2 00 |
| | Alpha | ....do | Medical science | 1875 | 1 00 |
| | Der Volks-Tribun | Weekly | News and politics (*German*) | 1875 | 2 00 |
| | People's Advocate | ....do | News and politics | 1876 | 1 50 |
| | National Weekly | ....do | Literary | 1876 | 1 50 |
| | Washington World and Citizen Soldier | ....do | Interests of soldiers and sailors | 1876 | 1 00 |
| | Washington Post | Daily (*morning*) | News and politics | 1877 | 8 00 |
| | Washington Post | Sunday | ......do | 1877 | 2 00 |
| | Washington Commercial | Weekly | ......do | 1877 | 2 00 |
| | Republic | ....do | ......do | 1877 | 2 50 |
| | Boyce's Saturday Anvil | ....do | Temperance | 1877 | 1 00 |
| | National Tribune | Monthly | Soldiers' and sailors' interests | 1877 | 50 |
| | Council Fire | do | Indian interests | 1878 | 1 00 |
| | National View | Weekly | News and politics | 1879 | 1 00 |
| | Departmental Review | Monthly | Miscellaneous | 1879 | 1 00 |
| | Knights of Pythias Magazine | ....do | Secret society | 1879 | 1 00 |
| | Soldier's True Friend | ....do | Soldiers' interests | 1879 | 50 |
| | Scientific Record | ....do | Science | 1879 | 25 |
| | Vedette | ....do | Political and historical | 1879 | 1 00 |
| | Truth | Weekly | Literary | 1879 | 1 75 |
| | Army and Navy Register | ....do | Army and navy | 1879 | 3 00 |
| | Mechanics' Advocate | Monthly | Secret society | 1880 | 70 |
| | National Free Press (*g*) | Weekly | News and politics | 1880 | 2 00 |
| | East Washington Press | ....do | ......do | 1880 | 1 00 |
| | Market Gazette (*h*) | ....do | Trade | ........ | ........ |

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*a* Removed to Comstock and called "Northern Signal".
*b* Suspended October, 1880.
*c* Suspended February 1, 1881.
*d* Suspended February 23, 1880.
*e* Suspended in November, 1880.
*f* Suspended March 9, 1880.
*g* Suspended July, 1880.
*h* Suspended January, 1880.

## FLORIDA.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| ALACHUA CO.—*Population:* 16,462. | | | | | |
| Gainesville | Gainesville Sun and Bee | Weekly | News and politics | 1876 | $2 00 |
| | Gainesville Times (*a*) | do | do | | |
| BRADFORD CO.—*Population:* 6,112. | | | | | |
| Starke | Florida Telegraph | Weekly | News and politics | 1879 | 2 00 |
| COLUMBIA CO.—*Population:* 9,589. | | | | | |
| Lake City | Lake City Reporter | Weekly | News and politics | 1875 | 2 00 |
| | Savannah Florida Drummer | do | Commercial | 1879 | 50 |
| DUVAL CO.—*Population:* 19,431. | | | | | |
| Jacksonville | Florida Union | Daily (*morning*) | News and politics | 1870 | 10 00 |
| | Florida Union | Weekly | do | 1865 | 2 00 |
| | Sun and Press (*b*) | Daily (*morning*) | do | 1876 | 8 00 |
| | Sun and Press | Weekly | do | 1876 | 2 00 |
| | Florida Dispatch | do | Agriculture, etc | 1876 | 50 |
| | Telephone (*c*) | Daily (*morning*) | News and politics | 1878 | 4 00 |
| | Telephone | Weekly | do | 1878 | 1 00 |
| ESCAMBIA CO.—*Population:* 12,156. | | | | | |
| Pensacola | Pensacola Gazette | Semi-weekly | News and politics | 1874 | 4 00 |
| | Pensacola Advance | do | do | 1878 | 4 00 |
| GADSDEN CO.—*Population:* 12,169. | | | | | |
| Quincy | Quincy Herald | Weekly | News and politics | 1877 | 2 00 |
| | Quincy Star | do | do | 1879 | 1 50 |
| HAMILTON CO.—*Population:* 6,790. | | | | | |
| Jasper | Hamilton County Times | Weekly | News and politics | 1879 | 2 00 |
| HILLSBOROUGH CO.—*Population:* 5,814. | | | | | |
| Tampa | Tampa Guardian | Weekly | News and politics | 1875 | 2 00 |
| | Sunland Tribune | do | do | 1878 | 2 00 |
| JACKSON CO.—*Population:* 14,372. | | | | | |
| Marianna | Marianna Courier | Weekly | News and politics | 1865 | 2 00 |
| JEFFERSON CO.—*Population:* 16,065. | | | | | |
| Monticello | Weekly Constitution | Weekly | News and politics | 1874 | 2 00 |
| LEON CO.—*Population:* 19,662. | | | | | |
| Tallahassee | Weekly Floridian | Weekly | News and politics | 1828 | 2 00 |
| | Florida Patriot | do | do | 1876 | 2 00 |
| | Florida Immigrant (*d*) | do | do | | |
| LEVY CO.—*Population:* 5,767. | | | | | |
| Cedar Keys | Florida State Journal | Weekly | News and politics | 1875 | 2 00 |
| MADISON CO.—*Population:* 14,798. | | | | | |
| Madison | Madison Recorder | Weekly | News and politics | 1873 | 1 50 |
| | Sun (*d*) | do | do | | |
| MARION CO.—*Population:* 13,046. | | | | | |
| Ocala | East Florida Banner | Weekly | News and politics | 1866 | 2 00 |
| | Republican | do | do | 1880 | 1 50 |
| MONROE CO.—*Population:* 10,940. | | | | | |
| Key West | Key West Dispatch (*e*) | Weekly | News and politics | 1867 | 3 00 |
| | Key of the Gulf | do | do | 1874 | 3 00 |
| NASSAU CO.—*Population:* 6,635. | | | | | |
| Fernandina | Fernandina Express | Weekly | News and politics | 1877 | 2 00 |
| | Florida Mirror | do | do | 1878 | 2 00 |
| ORANGE CO.—*Population:* 6,618. | | | | | |
| Apopka | South Florida Citizen | Weekly | News and politics | 1879 | 2 00 |
| | Florida Pioneer (*d*) | do | do | | |
| Hawkinsville | Pen and Press (*f*) | do | Literary | 1880 | |
| Orlando | Orange County Reporter | do | News and politics | 1878 | 2 00 |
| Sandford | South Florida Journal | do | do | 1874 | 2 00 |
| PUTNAM CO.—*Population:* 6,261. | | | | | |
| Palatka | Eastern Herald | Weekly | News and politics | 1869 | 2 50 |
| SAINT JOHN'S CO.—*Population:* 4,535. | | | | | |
| Saint Augustine | Florida Press | Weekly | News and politics | 1870 | 2 00 |
| SANTA ROSA CO.—*Population:* 6,645. | | | | | |
| Milton | Milton Standard | Weekly | News and politics | 1878 | 2 00 |
| SUMTER CO.—*Population:* 4,686. | | | | | |
| Leesburg | Sumter County Advance | Weekly | News and politics | 1877 | 2 00 |
| SUWANNEE CO.—*Population:* 7,161. | | | | | |
| Live Oak | Florida Bulletin | Weekly | News and politics | 1879 | 2 00 |
| VOLUSIA CO.—*Population:* 3,294. | | | | | |
| De Land | Florida Agriculturist | Weekly | Agricultural | 1874 | 2 00 |
| Orange | Volusia County News | do | News and politics | 1879 | 1 00 |

## GEORGIA.

| | | | | | |
|---|---|---|---|---|---|
| APPLING CO.—*Population:* 5,276. | | | | | |
| Baxley | Gazette (*g*) | Weekly | News and politics | 1878 | $1 25 |
| BALDWIN CO.—*Population:* 13,806. | | | | | |
| Milledgeville | Union and Recorder | Weekly | News and politics | 1819 | 2 00 |

*a* Consolidated with "Sun and Bee".
*b* Suspended January 4, 1881, and merged into "Florida Union".
*c* Suspended December 9, 1880; merged into the "Florida Union".
*d* Suspended.
*e* Suspended May, 1880.
*f* Suspended; succeeded by the "Waverly", a quarterly literary journal.
*g* Suspended September, 1880.

## GEORGIA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **BARTOW CO.**—*Population*: 18,690. | | | | | |
| Cartersville | Express | Weekly | News and politics | 1857 | $1 50 |
| | Free Press | do | do | 1878 | 2 00 |
| **BERRIEN CO.**—*Population*: 6,619. | | | | | |
| Allapaha | Berrien County News | Weekly | News and politics | 1875 | 1 50 |
| **BIBB CO.**—*Population*: 27,147. | | | | | |
| Macon | Telegraph and Messenger | Daily (*morning*) | News and politics | 1826 | 10 00 |
| | Telegraph and Messenger | Weekly | do | 1826 | 2 00 |
| | Wesleyan Christian Advocate | do | Religious (*M. E. Church South*) | 1837 | 2 50 |
| | Kind Words | do | Religious (*Baptist Sunday School*) | 1863 | 1 00 |
| | Kind Words | Monthly | do | 1863 | 50 |
| | Kind Words | Semi-monthly | do | 1863 | 75 |
| | Herald | Daily (*evening*) | News and politics | 1880 | 6 00 |
| | Herald | Weekly | do | 1872 | 2 00 |
| | Baptist Gem | do | Religious (*Baptist Sunday School*) | 1879 | 50 |
| **BROOKS CO.**—*Population*: 11,727. | | | | | |
| Quitman | Reporter | Weekly | News and politics | 1873 | 2 00 |
| | Free Press | do | do | 1877 | 1 00 |
| | Star (*a*) | do | do | 1879 | 1 50 |
| **BURKE CO.**—*Population*: 27,128. | | | | | |
| Waynesboro' | Expositor (*b*) | Weekly | News and politics | 1870 | 2 00 |
| | Burke County Herald | do | do | 1878 | 2 00 |
| **BUTTS CO.**—*Population*: 8,311. | | | | | |
| Indian Springs | Middle Georgia Argus | Weekly | News and politics | 1873 | 1 50 |
| **CALHOUN CO.**—*Population*: 7,024. | | | | | |
| Arlington | Advance | Weekly | News and politics | 1879 | 2 00 |
| **CAMPBELL CO.**—*Population*: 9,970. | | | | | |
| Fairburn | Star (*c*) | Weekly | News and politics | ........ | ........ |
| **CARROLL CO.**—*Population*: 16,901. | | | | | |
| Carrollton | Carroll County Times | Weekly | News and politics | 1872 | 1 50 |
| **CATOOSA CO.**—*Population*: 4,739. | | | | | |
| Ringgold | Catoosa Courier | Weekly | News and politics | 1872 | 2 00 |
| **CHATHAM CO.**—*Population*: 45,023. | | | | | |
| Savannah | Savannah News | Daily (*morning*) | News and politics | 1850 | 10 00 |
| | Savannah News | do (*evening*) | do | 1850 | 10 00 |
| | Savannah News | Weekly | do | 1850 | 2 00 |
| | Savannah News | Tri-weekly | do | 1850 | 6 00 |
| | Abend-Zeitung | Weekly | News and politics (*German*) | 1871 | 3 50 |
| | Southern Musical Journal | Monthly | Musical | 1871 | 1 25 |
| | Sunday Morning Telegram | Sunday | News and politics | 1875 | 2 00 |
| | Daily Recorder | Daily (*evening*) | do | 1877 | 5 00 |
| | Penny Local | Weekly | do | 1877 | 60 |
| | Southern Farmers' Monthly | Monthly | Agricultural | 1878 | 2 00 |
| **CHATTOOGA CO.**—*Population*: 10,021. | | | | | |
| Summerville | Gazette | Weekly | News and politics | 1870 | 1 75 |
| **CHEROKEE CO.**—*Population*: 14,325. | | | | | |
| Canton | Georgia Advocate (*d*) | Weekly | News and politics | 1875 | ........ |
| | Cherokee Advance | do | do | 1880 | 1 00 |
| **CLARKE CO.**—*Population*: 11,702. | | | | | |
| Athens | Daily Banner | Daily (*morning*) | News and politics | 1879 | 6 00 |
| | Southern Banner | Weekly | do | 1815 | 1 50 |
| | Southern Watchman | do | do | 1854 | 2 00 |
| | Weekly Chronicle | do | do | 1878 | 1 00 |
| **CLAY CO.**—*Population*: 6,650. | | | | | |
| Fort Gaines | Tribune | Weekly | News and politics | 1879 | 1 50 |
| **CLAYTON CO.**—*Population*: 8,027. | | | | | |
| Jonesboro' | News | Weekly | News and politics | 1874 | 1 50 |
| **CLINCH CO.**—*Population*: 4,138. | | | | | |
| Du Pont | Okefenokean (*e*) | Weekly | News and politics | 1878 | 1 00 |
| **COBB CO.**—*Population*: 20,748. | | | | | |
| Marietta | Marietta Journal | Weekly | News and politics | 1866 | 1 50 |
| **COFFEE CO.**—*Population*: 5,070. | | | | | |
| Pierson | Coffee County Gazette | Weekly | News and politics | 1874 | 1 25 |
| **COLUMBIA CO.**—*Population*: 10,465. | | | | | |
| Harlem | Columbian (*f*) | Weekly | News and politics | 1879 | 1 00 |
| **COWETA CO.**—*Population*: 21,109. | | | | | |
| Newnan | Herald | Weekly | News and politics | 1865 | 2 00 |
| | Farm and Home | do | do | 1877 | 2 00 |
| | Leader (*g*) | do | do | 1879 | 1 50 |
| **DADE CO.**—*Population*: 4,702. | | | | | |
| Rising Fawn | Dade County Gazette | Weekly | News and politics | 1879 | 1 00 |
| **DAWSON CO.**—*Population*: 5,837. | | | | | |
| Dawsonville | Mountain Chronicle | Weekly | News and politics | 1879 | 1 00 |
| **DECATUR CO.**—*Population*: 19,072. | | | | | |
| Bainbridge | Democrat | Weekly | News and politics | 1871 | 2 00 |
| **DE KALB CO.**—*Population*: 14,497. | | | | | |
| Decatur | De Kalb News | Weekly | News and politics | 1876 | 1 50 |

*a* Suspended June, 1879.
*b* Consolidated with "Herald" in 1880.
*c* Suspended November, 1879.
*d* Removed to Atlanta, January, 1880; there suspended in October, 1880.
*e* Suspended since census year.
*f* Suspended February, 1880.
*g* Suspended September, 1880.

## GEORGIA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **DODGE CO.**—*Population:* 5,358. | | | | | |
| Eastman | Eastman Times | Weekly | News and politics | 1872 | $2 00 |
| **DOUGHERTY CO.**—*Population:* 12,622. | | | | | |
| Albany | News and Advertiser | Daily (*morning*) | News and politics | 1880 | 5 00 |
| | News and Advertiser | Weekly | do | 1835 | 2 00 |
| | Albany News (*a*) | do | do | 1845 | 2 00 |
| **DOUGLAS CO.**—*Population:* 6,934. | | | | | |
| Douglasville | Weekly Star | Weekly | News and politics | 1879 | 1 25 |
| **EARLY CO.**—*Population:* 7,611. | | | | | |
| Blakely | Early County News | Weekly | News and politics | 1859 | 2 00 |
| **ELBERT CO.**—*Population:* 12,957. | | | | | |
| Elberton | Gazette | Weekly | News and politics | 1859 | 2 00 |
| | Elberton News | do | do | 1880 | 2 00 |
| **EMANUEL CO.**—*Population:* 9,759. | | | | | |
| Swainsboro' | Swainsboro' Herald | Weekly | News and politics | 1876 | 1 50 |
| **FLOYD CO.**—*Population:* 24,418. | | | | | |
| Cave Spring | Congregational Methodist | Semi-monthly | Religious (*Congregational Methodist*) | 1877 | 2 00 |
| Rome | Rome Courier | Weekly | News and politics | 1843 | 1 50 |
| | Rome Courier | Tri-weekly | do | 1843 | 4 00 |
| | Daily Bulletin | Daily (*morning*) | do | 1870 | 6 00 |
| | Daily Bulletin | Weekly | do | 1870 | 2 00 |
| | Tribune | Daily (*morning*) | do | 1876 | 6 00 |
| | Tribune | Weekly | do | 1876 | 1 50 |
| | Sunday Visitor (*b*) | Sunday | do | | |
| **FORSYTH CO.**—*Population:* 10,559. | | | | | |
| Cumming | Clarion | Weekly | News and politics | 1874 | 1 00 |
| | Baptist Banner (*c*) | do | Religious (*Baptist*) | 1878 | |
| **FRANKLIN CO.**—*Population:* 11,453. | | | | | |
| Carnesville | Franklin County Register | Weekly | News and politics | 1875 | 1 50 |
| **FULTON CO.**—*Population:* 49,137. | | | | | |
| Atlanta | Christian Index and Southern Baptist | Weekly | Religious (*Baptist*) | 1819 | 2 60 |
| | Southern Cultivator | Monthly | Agricultural | 1842 | 1 50 |
| | Constitution | Daily (*morning*) | News and politics | 1868 | 10 00 |
| | Constitution | Weekly | do | 1868 | 1 50 |
| | Methodist Advocate | do | Religious (*Methodist Episcopal*) | 1809 | 2 00 |
| | Southern Medical Record | Monthly | Medical | 1870 | 2 00 |
| | Dixie Farmer (*d*) | Weekly | Agricultural | 1872 | 1 50 |
| | Sunny South | do | Literary | 1874 | 2 50 |
| | Atlanta Republican | do | News and politics | 1874 | 2 00 |
| | Post-Appeal | Daily (*evening*), except Saturday, and Sunday a. m. | do | 1876 | 6 00 |
| | Post-Appeal | Semi-weekly | do | 1876 | 1 50 |
| | Southern Enterprise | Monthly | Agricultural | 1876 | 1 50 |
| | Sunday Gazette | Sunday | News and politics | 1877 | 2 00 |
| | Boys and Girls of the South | Semi-monthly | Literary | 1877 | 1 00 |
| | Acanthus | Monthly | Juvenile | 1877 | 75 |
| | Georgia Independent | Weekly | News and politics | 1877 | 50 |
| | Southern Templar | Monthly | Temperance | 1877 | 50 |
| | New Medicines (*e*) | do | Medical | 1878 | 1 00 |
| | Georgia Eclectic Medical Journal | do | do | 1879 | 2 00 |
| | Atlanta Globe | Weekly | News and politics | 1879 | 2 00 |
| | Sunday Phonograph | Sunday | do | 1879 | 2 00 |
| | Atlanta Universalist | Weekly | Religious (*Universalist*) | 1879 | 2 00 |
| **GILMER CO.**—*Population:* 8,386. | | | | | |
| Ellijay | Ellijay Courier | Weekly | News and politics | 1875 | 1 50 |
| **GLYNN CO.**—*Population:* 6,497. | | | | | |
| Brunswick | Brunswick Advertiser | Weekly | News and politics | 1875 | 2 00 |
| | Brunswick Seaport Appeal | do | do | 1879 | 2 00 |
| **GORDON CO.**—*Population:* 11,171. | | | | | |
| Calhoun | Calhoun Times | Weekly | News and politics | 1870 | 1 50 |
| **GREENE CO.**—*Population:* 17,547. | | | | | |
| Greensboro' | Herald | Weekly | News and politics | 1860 | 2 00 |
| | Georgia Home Journal | do | do | 1872 | 2 00 |
| **GWINNETT CO.**—*Population:* 19,531. | | | | | |
| Lawrenceville | Gwinnett Herald | Weekly | News and politics | 1871 | 1 50 |
| **HABERSHAM CO.**—*Population:* 8,718. | | | | | |
| Toccoa City | Toccoa News | Weekly | News and politics | 1873 | 1 50 |
| **HALL CO.**—*Population:* 15,298. | | | | | |
| Belton | North Georgian | Weekly | News and politics | 1877 | 1 00 |
| Gainesville | Eagle | do | do | 1867 | 2 00 |
| | The Southron | do | do | 1875 | 2 00 |
| | North Georgia Argus (*f*) | do | do | | |
| **HANCOCK CO.**—*Population:* 16,989. | | | | | |
| Sparta | Times and Planter | Weekly | News and politics | 1864 | 1 50 |
| | The Ishmaelite | do | do | 1879 | 2 00 |
| **HARRIS CO.**—*Population:* 15,758. | | | | | |
| Hamilton | Hamilton Journal | Weekly | News and politics | 1873 | 1 00 |
| **HART CO.**—*Population:* 9,094. | | | | | |
| Hartwell | Sun | Weekly | News and politics | 1876 | 1 50 |
| **HEARD CO.**—*Population:* 8,769. | | | | | |
| Franklin | Franklin News | Weekly | News and politics | 1871 | 1 00 |

*a* Consolidated with "Advertiser" during census year.
*b* Suspended March, 1880.
*c* Suspended November, 1880.
*d* Printed also at Montgomery, Ala., and Nashville, Tenn.
*e* Suspended.
*f* Suspended February, 1880.

## GEORGIA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **Henry co.**—*Population:* 14,193. | | | | | |
| Hampton | Henry County Weekly | Weekly | News and politics | 1876 | $1 50 |
| **Houston co.**—*Population:* 22,414. | | | | | |
| Fort Valley | Fort Valley Mirror | Weekly | News and politics | 1870 | 2 00 |
| | Sunday Advertiser (*a*) | Sunday | do | 1879 | 1 50 |
| Perry | Home Journal | Weekly | do | 1870 | 2 00 |
| **Jackson co.**—*Population:* 16,297. | | | | | |
| Harmony Grove | Northeastern Progress (*b*) | Weekly | News and politics | | |
| Jefferson | Forest News | do | do | 1875 | 1 50 |
| **Jefferson co.**—*Population:* 15,671. | | | | | |
| Louisville | News and Farmer | Weekly | News and politics | 1870 | 1 50 |
| | Louisville Courier | do | do | 1877 | 1 50 |
| Stellaville | Medium (*c*) | do | do | | |
| **Laurens co.**—*Population:* 10,053. | | | | | |
| Dublin | Dublin Gazette | Weekly | News and politics | 1876 | 1 50 |
| | Dublin Post | do | do | 1878 | 1 50 |
| **Liberty co.**—*Population:* 10,649. | | | | | |
| Hinesville | Hinesville Gazette | Weekly | News and politics | 1871 | 1 10 |
| **Lowndes co.**—*Population:* 11,049. | | | | | |
| Valdosta | Times | Weekly | News and politics | 1867 | 2 00 |
| **Lumpkin co.**—*Population:* 6,526. | | | | | |
| Dahlonega | Mountain Signal | Weekly | News and politics | 1845 | 1 50 |
| **McDuffie co.**—*Population:* 9,449. | | | | | |
| Thomson | McDuffie Weekly Journal | Weekly | News and politics | 1871 | 1 00 |
| **McIntosh co.**—*Population:* 6,241. | | | | | |
| Darien | Timber Gazette | Weekly | News and politics | 1874 | 2 50 |
| **Macon co.**—*Population:* 11,675. | | | | | |
| Montezuma | Weekly | Weekly | News and politics | 1873 | 1 50 |
| **Madison co.**—*Population:* 7,978. | | | | | |
| Danielsville | Madison Yeoman | Weekly | News and politics | 1880 | 1 50 |
| **Marion co.**—*Population:* 8,598. | | | | | |
| Buena Vista | Buena Vista Argus | Weekly | News and politics | 1875 | 2 00 |
| **Meriwether co.**—*Population:* 17,651. | | | | | |
| Greenville | Meriwether County Vindicator | Weekly | News and politics | 1872 | 2 00 |
| **Mitchell co.**—*Population:* 9,392. | | | | | |
| Camilla | Dispatch | Weekly | News and politics | 1880 | 2 00 |
| **Monroe co.**—*Population:* 18,808. | | | | | |
| Forsyth | Monroe Advertiser | Weekly | News and politics | 1855 | 2 00 |
| **Morgan co.**—*Population:* 14,032. | | | | | |
| Madison | Madisonian | Weekly | News and politics | 1870 | 2 00 |
| **Murray co.**—*Population:* 8,269. | | | | | |
| Spring Place | North Georgia Times | Weekly | News and politics | 1880 | 1 00 |
| **Muscogee co.**—*Population:* 19,322. | | | | | |
| Columbus | Enquirer-Sun | Daily (*morning*) | News and politics | 1828 | 7 00 |
| | Enquirer-Sun | Sunday | do | 1828 | 1 00 |
| | Enquirer-Sun | Weekly | do | 1828 | 1 10 |
| | Times | Daily (*morning*) | do | 1875 | 7 00 |
| | Times | Weekly | do | 1875 | 1 10 |
| | Times | Semi-weekly | do | 1875 | 1 50 |
| **Newton co.**—*Population:* 13,623. | | | | | |
| Covington | Georgia Enterprise | Weekly | News and politics | 1865 | 2 00 |
| | Covington Star | do | do | 1874 | 1 50 |
| **Oconee co.**—*Population:* 6,351. | | | | | |
| Watkinsville | Watkinsville Advance | Weekly | News and politics | 1880 | 1 00 |
| **Oglethorpe co.**—*Population:* 15,400. | | | | | |
| Lexington | Oglethorpe Echo | Weekly | News and politics | 1874 | 2 00 |
| **Pierce co.**—*Population:* 4,538. | | | | | |
| Blackshear | Blackshear News | Weekly | News and politics | 1878 | 1 00 |
| **Pike co.**—*Population:* 15,849. | | | | | |
| Barnesville | Barnesville Gazette | Weekly | News and politics | 1868 | 2 00 |
| **Polk co.**—*Population:* 11,952. | | | | | |
| Cedartown | Cedartown Advertiser | Weekly | News and politics | 1878 | 1 50 |
| **Pulaski co.**—*Population:* 14,058. | | | | | |
| Cochran | Cochran Enterprise | Weekly | News and politics | 1879 | 2 00 |
| Hawkinsville | Hawkinsville Dispatch | do | do | 1866 | 2 00 |
| **Putnam co.**—*Population:* 14,539. | | | | | |
| Eatonton | Eatonton Messenger | Weekly | News and politics | 1867 | 1 50 |

*a* Merged into "Mirror" July, 1880.   *b* Suspended January, 1880.   *c* Suspended December, 1879.

## GEORGIA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| RANDOLPH CO.—*Population:* 13,341. | | | | | |
| Cuthbert | Cuthbert Appeal | Weekly | News and politics | 1866 | $2 00 |
| | Journal of Progress | do | do | 1880 | 1 50 |
| | True Southron (*a*) | do | do | 1874 | 1 00 |
| RICHMOND CO.—*Population:* 34,665. | | | | | |
| Augusta | Chronicle and Constitutionalist | Daily (*morning*) | News and politics | 1785 | 10 00 |
| | Chronicle and Constitutionalist | Weekly | do | 1785 | 2 00 |
| | Chronicle and Constitutionalist | Tri-weekly | do | 1785 | 5 00 |
| | Evening News | Daily (*evening*) | do | 1877 | 5 00 |
| | Weekly News | Weekly | do | 1877 | 1 50 |
| ROCKDALE CO.—*Population:* 6,838. | | | | | |
| Conyers | Conyers Examiner | Weekly | News and politics | 1865 | 1 50 |
| | Conyers Weekly | do | do | 1878 | 1 25 |
| Rockdale | Register (*b*) | do | do | ...... | ...... |
| SCREVEN CO.—*Population:* 12,786. | | | | | |
| Sylvania | Sylvania Telephone | Weekly | News and politics | 1879 | 1 50 |
| SPALDING CO.—*Population:* 12,585. | | | | | |
| Griffin | News | Daily (*morning*) | News and politics | 1871 | 5 00 |
| | News | Weekly | do | 1871 | 1 50 |
| | Griffin Sun | Sunday | do | 1877 | 1 50 |
| STEWART CO.—*Population:* 13,998. | | | | | |
| Lumpkin | Independent | Weekly | News and politics | 1872 | 1 50 |
| SUMTER CO.—*Population:* 18,239. | | | | | |
| Americus | Sumter Republican | Weekly | News and politics | 1854 | 2 00 |
| | Sumter Republican | Semi-weekly | do | 1854 | 5 00 |
| | Americus Recorder | Weekly | do | 1879 | 2 00 |
| | Americus Recorder | Tri-weekly | do | 1879 | 4 00 |
| TALBOT CO.—*Population:* 14,115. | | | | | |
| Talbotton | Talbotton Standard | Weekly | News and politics | 1859 | 1 25 |
| | Georgia Register | do | do | 1877 | 1 00 |
| TALIAFERRO CO.—*Population:* 7,034. | | | | | |
| Crawfordsville | Democrat | Weekly | News and politics | 1876 | 2 00 |
| TATTNALL CO.—*Population:* 6,988. | | | | | |
| Reidsville | Reidsville Democrat | Weekly | News and politics | 1879 | 2 50 |
| TAYLOR CO.—*Population:* 8,597. | | | | | |
| Butler | Butler Herald | Weekly | News and politics | 1876 | 1 50 |
| | Gospel Messenger | Monthly | Religious (*Baptist*) | 1878 | 1 00 |
| TELFAIR CO.—*Population:* 4,828. | | | | | |
| McVille | South Georgian | Weekly | News and politics | 1877 | 2 00 |
| TERRELL CO.—*Population:* 10,451. | | | | | |
| Dawson | Dawson Journal | Weekly | News and politics | 1866 | 2 00 |
| THOMAS CO.—*Population:* 20,597. | | | | | |
| Thomasville | Southern Enterprise | Weekly | News and politics | 1854 | 2 00 |
| | Thomasville Times | do | do | 1873 | 2 00 |
| | Thomasville Post | do | do | 1879 | ...... |
| TROUP CO.—*Population:* 20,565. | | | | | |
| La Grange | La Grange Reporter | Weekly | News and politics | 1844 | 2 00 |
| West Point | State Line Press | do | do | 1874 | 2 00 |
| UPSON CO.—*Population:* 12,400. | | | | | |
| Thomaston | Middle Georgia Times | Weekly | News and politics | 1879 | 2 00 |
| WALKER CO.—*Population:* 11,056. | | | | | |
| La Fayette | Walker County Messenger | Weekly | News and politics | 1877 | 1 50 |
| WALTON CO.—*Population:* 15,622. | | | | | |
| Monroe | Walton County Vidette | Weekly | News and politics | 1877 | 1 50 |
| WARREN CO.—*Population:* 10,885. | | | | | |
| Warrenton | Warrenton Clipper | Weekly | News and politics | 1865 | 1 50 |
| | Our Country | do | do | 1879 | 1 00 |
| WASHINGTON CO.—*Population:* 21,964. | | | | | |
| Sandersville | Herald and Georgian | Weekly | News and politics | 1841 | 2 00 |
| | Mercury | do | do | 1880 | 1 50 |
| WAYNE CO.—*Population:* 5,980. | | | | | |
| Jessup | Jessup Sentinel | Weekly | News and politics | 1876 | 2 00 |
| WHITE CO.—*Population:* 5,341. | | | | | |
| Cleveland | Cleveland Advertiser | Weekly | News and politics | 1880 | 1 00 |
| WHITFIELD CO.—*Population:* 11,900. | | | | | |
| Dalton | North Georgia Citizen | Weekly | News and politics | 1850 | 2 00 |
| | Independent Head Light | do | do | 1878 | 1 00 |
| | Enterprise (*c*) | do | do | ...... | ...... |
| WILKES CO.—*Population:* 15,985. | | | | | |
| Washington | Washington Gazette | Weekly | News and politics | 1865 | 1 50 |
| WILKINSON CO.—*Population:* 12,061. | | | | | |
| Irwinton | Southerner and Appeal | Weekly | News and politics | 1875 | 1 50 |

*a* Suspended.

*b* Consolidated with "Conyers Weekly".

*c* Merged in the "Head Light", 1880.

## IDAHO TERRITORY.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **ADA CO.**—*Population:* 4,674. | | | | | |
| Boisé City | Boisé City Republican | Weekly | News and politics | 1879 | $5 00 |
| | Idaho Statesman | do | do | 1864 | 5 00 |
| | Idaho Statesman | Tri-weekly | do | 1864 | 10 00 |
| | Idaho Democrat (*a*) | Semi-weekly | do | 1877 | 5 00 |
| **BOISÉ CO.**—*Population:* 3,214. | | | | | |
| Idaho City | Idaho World | Semi-weekly | News and politics | 1875 | 6 50 |
| | Idaho World | Weekly | do | 1863 | 4 00 |
| **LEMHI CO.**—*Population:* 2,230. | | | | | |
| Bonanza City | Yankee Fork Herald | Weekly | News and politics | 1879 | 7 00 |
| **NEZ PERCÉ CO.**—*Population:* 3,965. | | | | | |
| Lewiston | Lewiston Teller | Weekly | News and politics | 1876 | 3 00 |
| **ONEIDA CO.**—*Population:* 6,964. | | | | | |
| Oxford | Idaho Enterprise | Weekly | News and politics | 1879 | 4 00 |
| **OWYHEE CO.**—*Population:* 1,426. | | | | | |
| Silver City | Idaho Avalanche | Weekly | News and politics | 1864 | 5 00 |

## ILLINOIS.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **ADAMS CO.**—*Population:* 59,135. | | | | | |
| Camp Point | Camp Point Journal | Weekly | News and politics | 1873 | $1 50 |
| Clayton | Clayton Enterprise | do | do | 1879 | 1 25 |
| Mendon | Mendon Dispatch | do | do | 1878 | 1 25 |
| Quincy | Herald | Daily (*morning*) | do | 1834 | 8 00 |
| | Herald | Weekly | do | 1834 | 1 50 |
| | Herald | Tri-weekly | do | 1834 | 4 00 |
| | Whig | Daily (*evening*) | do | 1838 | 10 00 |
| | Whig | Weekly | do | 1838 | 1 25 |
| | Germania | Daily (*evening*) | News and politics (*German*) | 1860 | 8 00 |
| | Germania | Weekly | News and politics (*German*) | 1860 | 2 50 |
| | Erz-Druide | Monthly | Secret society (*German*) | 1866 | 2 00 |
| | Western Agriculturist | do | Agricultural | 1868 | 1 10 |
| | Commercial Review | Weekly | Commerce and trade | 1872 | 1 00 |
| | News | Daily (*evening*) | News and politics | 1877 | 6 00 |
| | Modern Argo | Weekly | do | 1878 | 2 00 |
| | Greenback Post | do | do | 1879 | 1 00 |
| | Quincy Enterprise | do | do | 1879 | 1 00 |
| | Manufacturers' Exchange | Monthly | Commerce and trade | 1880 | 1 00 |
| **ALEXANDER CO.**—*Population:* 14,808. | | | | | |
| Cairo | Bulletin | Daily (*morning*) | News and politics | 1868 | 10 00 |
| | Bulletin | Weekly | do | 1868 | 2 00 |
| | Daily Argus | Daily (*evening*) | do | 1878 | 7 00 |
| | Weekly Argus | Weekly | do | 1878 | 1 50 |
| | Radical Republican | do | do | 1878 | 1 50 |
| | News (*b*) | Daily (*evening*) | do | 1880 | 6 00 |
| | News | Weekly | do | 1880 | 1 00 |
| **BOND CO.**—*Population:* 14,866. | | | | | |
| Greenville | Greenville Advocate | Weekly | News and politics | 1857 | 1 50 |
| | Greenville Sun | do | do | 1876 | 1 50 |
| **BOONE CO.**—*Population:* 11,508. | | | | | |
| Belvidere | Belvidere Standard | Weekly | News and politics | 1851 | 2 00 |
| | Belvidere Northwestern | do | do | 1867 | 2 00 |
| | Recorder | Semi-weekly | do | 1878 | 1 50 |
| **BROWN CO.**—*Population:* 13,041. | | | | | |
| Mount Sterling | Brown County Democrat | Weekly | News and politics | 1848 | 1 50 |
| | Illinois Message | do | do | 1872 | 1 50 |
| **BUREAU CO.**—*Population:* 33,172. | | | | | |
| Buda | Home Guard | Weekly | News and politics | 1879 | 1 25 |
| | Call (*c*) | do | do | | |
| Princeton | Bureau County Republican | do | do | 1858 | 2 00 |
| | Bureau County Tribune | do | do | 1872 | 2 00 |
| Walnut | Motor | do | do | 1876 | 2 00 |
| **CALHOUN CO.**—*Population:* 7,467. | | | | | |
| Batchtown | Calhoun Pilot | Weekly | News and politics | 1880 | 1 50 |
| Hardin | Calhoun Herald | do | do | 1872 | 1 50 |
| **CARROLL CO.**—*Population:* 16,976. | | | | | |
| Lanark | Lanark Gazette | Weekly | News and politics | 1863 | 1 50 |
| | Brethren at Work | do | Religious (*Baptist*) | 1876 | 1 50 |
| Mount Carroll | Carroll County Mirror | do | News and politics | 1859 | 1 50 |
| | Oread | Quarterly | Collegiate | 1859 | 50 |
| | Carroll County Herald | Weekly | News and politics | 1876 | 1 50 |
| Savanna | Savanna Times | do | do | 1875 | 1 50 |
| Shannon | Shannon Express | do | do | 1879 | 1 50 |
| **CASS CO.**—*Population:* 14,493. | | | | | |
| Ashland | Ashland News (*a*) | Weekly | News and politics | 1879 | 1 50 |
| Beardstown | Central Illinoian | do | do | 1847 | 2 00 |
| | Cass County Messenger | do | do | 1875 | 2 00 |
| | Beardstown Wochenblatt | do | News and politics (*German*) | 1878 | 2 00 |
| Chandlerville | Chandlerville Independent | do | News and politics | 1875 | 1 50 |
| Virginia | Virginia Gazette | do | do | 1872 | 2 00 |
| | Enquirer | do | do | 1875 | 2 00 |
| **CHAMPAIGN CO.**—*Population:* 40,863. | | | | | |
| Champaign | Champaign Republican (*d*) | Weekly | News and politics | 1851 | 1 50 |
| | Champaign County Gazette | do | do | 1856 | 2 00 |
| | Illini | Monthly (9 mos.) | Collegiate | 1871 | 1 00 |
| | Champaign Times | Weekly | News and politics | 1872 | 1 50 |
| | Bulletin of Y. M. C. A. | Monthly | Religious | 1879 | 25 |
| | Champaign Signal | Weekly | News and politics | 1880 | 2 00 |

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*a* Suspended.

*b* Succeeded "Evening Sun".

*c* Suspended October, 1879.

*d* Merged in "Herald", Urbana.

## ILLINOIS—Continued.

| Period of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| CHAMPAIGN CO.—Continued. | | | | | |
| Homer | Homer Enterprise | Weekly | News and politics | 1877 | $1 50 |
| Mahomet | Sucker State | do | do | 1878 | 1 50 |
| Rantoul | Rantoul Press | do | do | 1874 | 1 50 |
| Tolono | Tolono Herald | do | do | 1875 | 1 50 |
| Urbana | Champaign County Herald | do | do | 1877 | 2 00 |
| | Urbana Bulletin (*a*) | do | do | 1879 | 1 50 |
| CHRISTIAN CO.—*Population:* 28,227. | | | | | |
| Morrisonville | Morrisonville Times | Weekly | News and politics | 1875 | 1 50 |
| Pana | Pana Gazette | do | do | 1865 | 1 50 |
| | Pana Palladium | do | do | 1868 | 1 50 |
| | Pana Argus | do | do | 1879 | 1 50 |
| | Pana Democrat | do | do | 1880 | ...... |
| Taylorville | Illinois Republican | Semi-weekly | do | 1864 | 2 00 |
| | Taylorville Democrat | Weekly | do | 1868 | 1 50 |
| | Farmers' Journal | do | do | 1876 | 1 50 |
| CLARK CO.—*Population:* 21,894. | | | | | |
| Casey | Casey Banner | Weekly | News and politics | 1879 | 1 00 |
| Marshall | Marshall Messenger | do | do | 1865 | 2 00 |
| | Clark County Herald | do | do | 1868 | 2 00 |
| | Church Progress | Tri-monthly | Religious (*Catholic*) | 1878 | 1 00 |
| | Eastern Illinoisan | Weekly | News and politics | 1878 | 2 00 |
| | Independent (*b*) | do | do | 1879 | 1 50 |
| Martinsville | Martinsville Express | do | do | 1871 | 2 00 |
| Westfield | Westfield Pantagraph | do | do | 1879 | 1 50 |
| CLAY CO.—*Population:* 16,192. | | | | | |
| Flora | Southern Illinois Journal | Weekly | News and politics | 1870 | 1 50 |
| | Clay County Gazette | do | do | 1879 | 1 50 |
| Louisville | Ledger-Democrat | do | do | 1868 | 1 50 |
| CLINTON CO.—*Population:* 18,714. | | | | | |
| Carlyle | Union Banner | Weekly | News and politics | 1863 | 1 50 |
| | Constitution and Union | do | do | 1863 | 1 50 |
| | Sued-Illinois Zeitung | do | News and politics (*German*) | 1876 | 2 00 |
| Clement | Clement Register (*c*) | do | News and politics | 1863 | 1 50 |
| COLES CO.—*Population:* 27,042. | | | | | |
| Charleston | Plaindealer | Weekly | News and politics | 1840 | 1 50 |
| | Courier | do | do | 1840 | 1 50 |
| Loxa | Youth's Home Journal | Monthly | Children's periodical | 1880 | 1 00 |
| Mattoon | Gazette | Weekly | News and politics | 1858 | 1 75 |
| | { Journal | Daily (*morning*) | do | 1865 | 3 00 |
| | { Journal | Weekly | do | 1865 | 2 00 |
| | Mattoon Commercial | do | do | 1871 | 2 00 |
| Oakland | Oakland Herald | do | do | 1875 | 1 50 |
| | Oakland Ledger | do | do | 1878 | 1 00 |
| COOK CO.—*Population:* 607,524. | | | | | |
| Arlington Heights | Cook County Herald | Weekly | News and politics | 1872 | 1 50 |
| Barrington | Herald | do | do | 1878 | 1 00 |
| Chicago | Prairie Farmer | do | Agricultural | 1841 | 2 00 |
| | American Bee Journal | Monthly | do | 1861 | 1 50 |
| | Western Rural | Weekly | do | 1868 | 1 65 |
| | National Live Stock Journal | Monthly | do | 1870 | 2 15 |
| | American Poultry Journal | do | do | 1874 | 1 25 |
| | Farmers' Review | Weekly | do | 1877 | 1 00 |
| | Farm and Garden | Semi-monthly | do | 1878 | 50 |
| | Freedom and Right | Weekly | Trade (*German and English*) | 1878 | 2 50 |
| | Commercial Report | Daily (*evening*) | Commerce and trade | 1859 | 3 00 |
| | Journal of Commerce | Weekly | do | 1862 | 3 00 |
| | Merchants' Reporter | do | do | 1871 | 1 00 |
| | Furniture Trade Journal | do | do | 1874 | 1 00 |
| | Bankers' Directory of the United States and Canada. | Semi-annually | do | 1876 | 3 00 |
| | Western Shoe and Leather Review | Weekly | do | 1876 | 3 00 |
| | Western Brewers' Journal | Semi-monthly | do | 1876 | 5 00 |
| | Grocer and Mercantile Review | Weekly | do | 1877 | 1 50 |
| | Tobacco Leaf | do | do | 1877 | 2 50 |
| | Commercial Bulletin | do | do | 1878 | 1 00 |
| | North Western Commercial Traveler | Monthly | do | 1878 | 1 00 |
| | Commercial Graphic | Weekly | do | 1879 | 3 00 |
| | Wine and Spirit Review | do | do | ...... | ...... |
| | Volanti | Monthly | Collegiate | 1871 | 1 50 |
| | Educational News Gleaner | do | Educational | 1875 | 50 |
| | American Home | Weekly | do | 1877 | 1 50 |
| | Educational Weekly | do | do | 1877 | 2 00 |
| | Practical Teacher | Semi-monthly | do | 1877 | 1 25 |
| | Plattduetsche Zeitung | Weekly | Miscellaneous (*German*) | 1878 | 2 00 |
| | Tilskueren (*d*) | Monthly | Miscellaneous (*Scandinavian*) | 1878 | 50 |
| | Western Educational Journal | do | Educational | 1880 | 50 |
| | Chicago Letter | do | Miscellaneous | 1880 | 1 00 |
| | Chicago Ledger | Weekly | General literature | 1872 | 1 00 |
| | Western Magazine | Monthly | do | 1876 | 1 00 |
| | Sunset Chimes | do | do | 1876 | 50 |
| | Weekly Call | Weekly | do | 1878 | 2 00 |
| | Hours of Recreation | Monthly | do | 1879 | 50 |
| | Nickel Library | Weekly | do | ...... | ...... |
| | Rand-McNally Official Railway Guide and Hand-Book. | Monthly | Insurance, railroads, etc | 1861 | 3 00 |
| | Railway Age | Weekly | do | 1866 | 4 00 |
| | Railway Review | do | do | 1868 | 3 00 |
| | Western Postal Record | Monthly | do | 1868 | 1 00 |
| | Argus | do | do | 1871 | 2 50 |
| | Travelers', Shippers', and Mail Guide | Weekly | do | 1872 | 6 00 |
| | Investigator | Monthly | do | 1874 | 2 50 |
| | Railway Purchasing Agent | do | do | 1878 | 1 50 |
| | Railway Age and Railway Service | do | do | 1880 | 2 00 |
| | Insurance Herald (*e*) | Weekly | do | ...... | ...... |

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*a* Suspended April, 1880.
*b* Suspended February, 1881.
*c* Edition of "Union Banner", Carlyle.
*d* Suspended.
*e* Merged in "Western Shoe and Leather Review", July, 1880.

## ILLINOIS—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | Where established. | Price per year. |
|---|---|---|---|---|---|
| Cook co.—Continued. | | | | | |
| Chicago—Continued | Law Bulletin | Daily (*evening*) | Law | 1853 | $12 00 |
| | Legal Adviser | Monthly | do | 1861 | 1 00 |
| | Legal News | Weekly | do | 1868 | 2 00 |
| | Medical Journal and Examiner | Monthly | Medicine and surgery | 1844 | 4 00 |
| | Medical Times | do | do | 1868 | 2 00 |
| | United States Medical Investigator | Semi-monthly | do | 1872 | 3 00 |
| | Medical Counselor | Monthly | do | 1879 | 2 00 |
| | Medical Gazette | Semi-monthly | do | 1880 | 2 00 |
| | Medical Review | do | do | 1880 | ...... |
| | Home Visitor | Monthly | General literature | 1859 | 60 |
| | Reporter | do | do | 1868 | 1 50 |
| | Sun | Weekly | News and politics | 1868 | 1 00 |
| | West Chicago Banner | do | Miscellaneous | 1869 | 1 00 |
| | Crusader (*a*) | Monthly | Temperance | 1869 | 50 |
| | Young Folks' Rural | do | Agricultural | 1870 | 1 00 |
| | National Hotel Reporter | Daily (*morning*) | Hotel news | 1871 | 9 60 |
| | Eulenspiegel | Weekly | Miscellaneous (*German*) | 1872 | 3 00 |
| | Humane Journal | Monthly | Miscellaneous | 1872 | 1 00 |
| | Alliance | Weekly | Religious (*Unsectarian*) | 1872 | 2 00 |
| | Gazeta Polska | do | Miscellaneous (*Polish*) | 1873 | 2 00 |
| | Carl Pretzel's National Illustrated Weekly | do | Miscellaneous (*German*) | 1874 | 2 00 |
| | Norden | do | Miscellaneous (*Danish and Norweg*) | 1874 | 2 00 |
| | Occident | do | Miscellaneous | 1874 | 3 00 |
| | Chicago Pilot | do | Religious (*Catholic*) | 1874 | 1 50 |
| | Irish Tribune | do | Miscellaneous | 1876 | 2 00 |
| | Journal of Science | Semi-monthly | Scientific | 1876 | 1 25 |
| | National Laundry Journal | do | Miscellaneous | 1878 | 1 00 |
| | Verdens Gang | Weekly | Miscellaneous (*Norwegian*) | 1878 | 1 00 |
| | Picture Gallery | Monthly | Juvenile | 1878 | 75 |
| | Folksbladet | Weekly | Miscellaneous (*Danish and Norweg*) | 1878 | 1 50 |
| | Chicago Witness | do | Miscellaneous | 1878 | 1 00 |
| | Farm, Field, and Fireside | Monthly | do | 1878 | 1 00 |
| | Western Fireman | do | do | 1880 | 1 50 |
| | Tablet | Weekly | do | 1880 | 1 50 |
| | American Mercantile Register | Monthly | Commerce and trade | 1880 | 1 00 |
| | Young Folks' Monthly (*b*) | do | Juvenile | ...... | ...... |
| | Jokinello | Weekly | Miscellaneous | ...... | ...... |
| | Our New Empire (*c*) | do | do | ...... | ...... |
| | Figaro (*c*) | Sunday | Miscellaneous (*German*) | 1879 | 2 25 |
| | Matrimonial News (*c*) | Weekly | Miscellaneous | ...... | ...... |
| | Lakeside Watch (*c*) | Monthly | Mechanics | 1879 | 50 |
| | Business Man's Magazine (*c*) | Weekly | Miscellaneous | ...... | ...... |
| | Chicago Field | do | Sporting | 1874 | 4 00 |
| | Dunton's Spirit of the Turf | do | do | 1876 | 4 00 |
| | American Chess Journal | Quarterly | Chess interests | 1879 | 1 00 |
| | Budget (*c*) | Monthly | Miscellaneous | ...... | ...... |
| | Arbeiter-Zeitung | Daily (*evening*) | News and politics (*Socialistic; Germ*) | 1876 | 7 50 |
| | Die Fackel | Sunday | News and politics (*Socialistic; Germ*) | 1879 | 2 00 |
| | Vorbote | Weekly | News and politics (*German*) | 1874 | 2 00 |
| | Chicagoer Volksfreund | Daily (*morning*) | News and politics (*German*) | 1878 | 10 00 |
| | Chicagoer Volksfreund | Sunday | News and politics (*German*) | 1878 | 2 00 |
| | Chicagoer Volksfreund | Weekly | News and politics (*German*) | 1878 | 2 00 |
| | Voice of Masonry and Family Magazine | Monthly | Secret society | 1862 | 3 00 |
| | Svenska Amerikanaren | Weekly | News and family (*Swedish*) | 1864 | 2 40 |
| | Weekly Novelist | do | General literature | 1874 | 3 00 |
| | North Side Reporter | do | News and family | 1878 | 1 00 |
| | Monthly Visitor | Monthly | do | 1879 | 30 |
| | Chicago Express | Weekly | News and politics | 1841 | 1 00 |
| | Evening Journal | Daily (*evening*) | do | 1843 | 10 00 |
| | Chicago Journal | Weekly | do | 1843 | 1 25 |
| | Chicago Journal | Tri-weekly | do | 1843 | 4 00 |
| | Tribune | Daily (*morning*) | do | 1847 | 12 00 |
| | Tribune | Sunday | do | 1847 | 2 00 |
| | Tribune | Weekly | do | 1847 | 1 50 |
| | Illinois Staats-Zeitung | Daily (*morning*) | News and politics (*German*) | 1848 | 12 00 |
| | Illinois Staats-Zeitung | Weekly | News and politics (*German*) | 1848 | 2 00 |
| | Der Westen | Sunday | News and politics (*German*) | 1848 | 2 00 |
| | Times | Daily (*morning*) | News and politics | 1854 | 13 00 |
| | Times | Sunday | do | 1854 | 2 75 |
| | Times | Weekly | do | 1854 | 1 25 |
| | Times | Tri-weekly | do | 1854 | 6 50 |
| | Gamla Och Nya Hemlandit | Weekly | News and politics (*Swedish*) | 1854 | 2 50 |
| | Skandinaven | Daily (*morning*) | News and politics (*Norw. and Dan.*) | 1865 | 5 00 |
| | Skandinaven | Weekly | News and politics (*Norw. and Dan.*) | 1865 | 2 00 |
| | Skandinaven | Bi-weekly | News and politics (*Norw. and Dan.*) | 1865 | 2 00 |
| | Demokrat | Weekly | News and politics (*German*) | 1870 | 2 00 |
| | Neue Freie Presse | Daily (*evening*) | News and politics (*German*) | 1871 | 7 80 |
| | Neue Freie Presse | Sunday | News and politics (*German*) | 1871 | 2 00 |
| | Neue Freie Presse | Weekly | News and politics (*German*) | 1871 | 2 00 |
| | Chicago Democrat | do | News and politics | 1871 | 2 00 |
| | Inter-Ocean | Daily (*morning*) | do | 1872 | 10 00 |
| | Inter-Ocean | Weekly | do | 1872 | 1 15 |
| | Inter-Ocean | Semi-weekly | do | 1872 | 2 50 |
| | Chicagoer Handels-Zeitung (*d*) | Weekly | News and politics (*German*) | 1873 | 2 00 |
| | Chicagsky Vestnik (*e*) | do | News and politics (*Swedish*) | 1873 | 2 00 |
| | Gazeta Polska Katolicka | do | News and politics (*Polish*) | 1874 | 2 00 |
| | Watchman | Semi-monthly | News and politics | 1874 | 1 00 |
| | Svornost | Daily (*morning*) | News and politics (*Bohemian*) | 1875 | 7 50 |
| | Svornost | Sunday | News and politics (*Bohemian*) | 1875 | Free. |
| | Svornost | Weekly | News and politics (*Bohemian*) | 1875 | 2 50 |
| | Daily News | Daily (*morning*) | News and politics | 1875 | 3 00 |
| | Daily News | do (*evening*) | do | 1875 | 3 00 |
| | Chicago News | Weekly | do | 1875 | 75 |
| | Amerikan | do | News and politics (*Bohemian*) | 1875 | 2 50 |
| | Svenska Tribune | do | News and politics (*Swedish*) | 1877 | 2 25 |
| | Irish-American Freeman | do | News and politics | 1877 | 2 00 |
| | Telegraph | Daily (*morning*) | do | 1878 | 6 00 |

*a* No copies published during the census year.
*b* Merged in the "Young Folks' Rural".
*c* Suspended.
*d* Merged into "Democrat" after census year.
*e* Suspended April, 1880.

## ILLINOIS—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| COOK CO.—Continued. | | | | | |
| Chicago—Continued | Telegraph | Sunday | News and politics | 1878 | $0 75 |
| | Deutsche Warte | Semi-weekly | News and politics (*German*) | 1878 | 2 00 |
| | Sentinel | Weekly | News and politics | 1878 | 1 00 |
| | Der Beobachter | do | News and politics (*German*) | 1878 | 2 00 |
| | Den Nye Tid | do | News and politics (*Norw. and Dan.*) | 1878 | 2 00 |
| | Leader (*a*) | do | News and politics | 1879 | |
| | Review (*b*) | do | do | 1879 | |
| | Cosmopolitan (*b*) | Monthly | do | 1879 | |
| | Westliche Schuetzen- und Jagd-Zeitung (*b*) | do | News and politics (*German*) | 1879 | |
| | Union Park Banner (*b*) | Weekly | News and politics | 1879 | |
| | Republican Advocate (*c*) | do | do | 1880 | 2 00 |
| | American Critic | Monthly | do | 1880 | 1 50 |
| | Commercial Chronicle | Weekly | Commerce and trade | 1880 | 1 00 |
| | Economist | do | News and politics | | |
| | Standard | do | Religious (*Baptist*) | 1853 | 2 50 |
| | Katholisches Wochenblatt | do | Religious (*Catholic; German*) | 1859 | 2 50 |
| | Western Catholic | do | do | 1868 | 2 50 |
| | Katholischer Jugend-Freund | Bi-weekly | Religious (*Catholic; Germ. and Eng.*) | 1877 | 1 00 |
| | Advance | Weekly | Religious (*Congregational*) | 1867 | 3 00 |
| | Evangelist | do | Religious (*Disciples*) | 1855 | 2 00 |
| | Appeal | Semi-monthly | Religious (*Reformed Episcopal*) | 1876 | 1 50 |
| | Living Church | Weekly | Religious (*Protestant Episcopal*) | 1878 | 2 00 |
| | Jewish Advance | do | Religious (*Jewish; Germ. and Eng.*) | 1878 | 3 00 |
| | Der Lutherische Kirchenfreund | do | Religious (*Lutheran; German*) | 1869 | 1 50 |
| | Northwestern Christian Advocate | do | Religious (*Methodist*) | 1852 | 2 00 |
| | Sandebudet | do | Religious (*Methodist; Swedish*) | 1862 | 2 00 |
| | Free Methodist | do | Religious (*Methodist*) | 1868 | 2 00 |
| | Den Christelige Talsmand | do | Religious (*Methodist; Norwegian*) | 1869 | 1 60 |
| | Christian Instructor | do | Religious (*Presbyterian*) | 1832 | 2 00 |
| | Interior | do | do | 1871 | 2 50 |
| | New Church Independent | Monthly | Religious (*Swedenborgian*) | 1852 | 2 10 |
| | Our Rest and Sign of the Times | Semi-monthly | Religious (*Second Advent*) | 1874 | 1 50 |
| | Religio-Philosophical Journal | Weekly | Religious (*Spiritualist*) | 1865 | 2 50 |
| | New Covenant | do | Religious (*Universalist*) | 1847 | 2 00 |
| | Manford Magazine | Monthly | do | 1857 | 1 50 |
| | Y. M. C. A. Watchman | Semi-monthly | Religious (*Unsectarian*) | 1874 | 1 00 |
| | Chicago Bladet | Weekly | Religious (*Unsectarian; Swedish*) | 1877 | 1 50 |
| | Bundes-Banner | Monthly | Religious (*Unsectarian; German*) | 1879 | 50 |
| | Christian Monitor | do | Religious (*Unsectarian*) | | |
| | Christian Voices | Weekly | do | | |
| | Church and Home | do | do | | |
| | Oriental and Biblical Journal (*d*) | Quarterly | do | 1880 | |
| | Church and School (*b*) | Monthly | do | | |
| | Illustrated Bible Studies (*b*) | Weekly | do | | |
| | Israelitische Presse (*e*) | do | Religious (*Unsectarian; German*) | | |
| | Youth's Evangelist and Little Preacher | do | Sunday school | 1858 | 80 |
| | National Sunday School Teacher | Monthly | do | 1866 | 1 25 |
| | Christian Cynosure | Weekly | Miscellaneous | 1868 | 2 00 |
| | Pearl | Monthly | Sunday school | 1870 | 25 |
| | Words of Life | do | do | 1874 | 30 |
| | Barn Vannen | do | Sunday school (*Swedish*) | 1874 | 50 |
| | International Lesson (*f*) | do | Sunday school | 1875 | 1 00 |
| | Lily | do | do | 1876 | 12 |
| | Dayspring | do | do | 1878 | 30 |
| | Olive Plants | Weekly | do | 1880 | 25 |
| | Young Christian | Semi-monthly | do | 1880 | 40 |
| | Christian Sunday School Teacher | Monthly | do | 1876 | |
| | Little Christian | do | do | | |
| | Duplicate Lesson Leaf | Weekly | do | | |
| | Sunday School News and Bible Study | do | do | | |
| | Advanced Scholar | Quarterly | do | | |
| | Abridged Juvenile Scholar | do | do | | |
| | Advanced Teacher | do | do | | |
| | Bible Class Teacher | do | do | 1879 | |
| | Bible Class Scholar | do | do | 1879 | |
| | Conquerors' Herald | Monthly | do | | |
| | Careful Builders | do | do | | |
| | Carol | do | do | | |
| | Dew Drops | do | do | | |
| | Gracious Words | do | do | | |
| | Giant Killer | do | do | | |
| | His Jewels | do | do | | |
| | Juvenile Teacher | Quarterly | do | | |
| | Juvenile Scholars | do | do | | |
| | Little Folks' Quarterly | do | do | | |
| | Primary Teacher | do | do | | |
| | Scholar's Quarterly | do | do | | |
| | Scholar's Quarterly Abridged | do | do | | |
| | Teacher's Quarterly | do | do | 1876 | |
| | Our Sabbath Home | Monthly | do | | |
| | Royal Road | do | do | | |
| | Sunday School Gem | do | do | | |
| | Truth Seeker | do | do | | |
| | Young Folks' Friend | do | do | | |
| | Our Own Sabbath School Paper | do | do | | |
| | Little Learners' Papers | Weekly | do | | |
| | Weekly Magnet | do | do | | |
| | Primary Class Illuminated Lessons | do | do | | |
| | Sabbath Library | do | do | | |
| | Drover's Journal | Daily (*evening*) | Commerce and trade | 1865 | 4 00 |
| | Drover's Journal | Weekly | do | 1865 | 1 50 |
| | Drover's Journal | Semi-weekly | do | 1865 | 2 00 |
| | Specimen | Quarterly | do | 1868 | 50 |
| | Chicago Dry Goods Price List | Weekly | do | 1870 | 4 00 |
| | Industrial World and Commercial Advertiser | do | do | 1873 | 3 00 |

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*a* Suspended June 30, 1880.
*b* Suspended.
*c* Prior to January, 1880, called the "Conservator".
*d* Merged in the "Antiquarian".
*e* Suspended August, 1879.
*f* Suspended December, 1880.

## ILLINOIS—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **COOK CO.—Continued.** | | | | | |
| **Chicago—Continued** | Electrotyper | Quarterly | Commerce and trade | 1873 | $0 25 |
| | West End Advocate | Weekly | do | 1873 | 50 |
| | Northwest Lumberman | do | do | 1873 | 3 00 |
| | Agents' Guide | Monthly | do | 1873 | 25 |
| | American Miller | do | do | 1873 | 1 00 |
| | Grain and Provision Review | Weekly | do | 1874 | 2 00 |
| | Grocers' Criterion | do | do | 1874 | 1 20 |
| | National Weekly | do | do | 1874 | 2 50 |
| | Electrotype Journal | Quarterly | do | 1874 | 1 00 |
| | Furniture Trade Journal | Semi-monthly | do | 1874 | 1 00 |
| | Watch Maker and Metal Worker | Monthly | do | 1874 | 1 00 |
| | Hotel World | Weekly | Hotel news | 1875 | 5 00 |
| | Western Paper Trade | Monthly | Commerce and trade | 1875 | 1 00 |
| | Western Trade and Export Journal | do | do | 1876 | 2 00 |
| | Deutsch-Amerikanische Mueller | do | Commerce and trade (*German*) | 1877 | 1 00 |
| | Western Clothing, Furnishing and Hat Reporter. | do | Commerce and trade | 1878 | 1 00 |
| | { American Stockman | Daily (*evening*) | do | 1878 | 5 00 |
| | { American Stockman | Weekly | do | 1878 | 2 00 |
| | { American Stockman | Semi-weekly | do | 1878 | 3 00 |
| | Confectioner and Baker | Monthly | do | 1879 | 2 00 |
| | Bookseller and Stationer | do | do | 1879 | 1 50 |
| | Stationer and Printer | Weekly | do | 1880 | 2 00 |
| | Western Carriage, Wagon and Harness Journal (*a*). | Monthly | do | 1880 | 1 00 |
| | Merchants' Bulletin (*a*) | Weekly | do | | |
| | Real Estate and Building Journal (*b*) | do | do | | |
| | Rounds' Printers' Cabinet | Quarterly | Typographic | 1856 | 3 00 |
| | The Pharmacist | Monthly | Commerce and trade | 1868 | 1 50 |
| | Western Manufacturer | do | Science and mechanics | 1873 | 2 00 |
| | American Horse-Shoer and Hardware Journal | do | Commerce and trade | 1876 | 1 00 |
| | Social Science Journal | do | Miscellaneous | 1877 | 1 00 |
| | Mining Investigator and Financier | do | Mining | 1878 | 2 00 |
| | American Antiquarian | Quarterly | Historical | 1878 | 3 00 |
| | Mining Review | Weekly | Mining | 1879 | 3 00 |
| | The Druggist | Monthly | Commerce and trade | 1879 | 1 00 |
| | Jeweler's Journal | do | do | 1879 | 1 50 |
| | Sewing-Machine Advance | do | do | 1879 | 1 00 |
| | American Engineer | do | Science and mechanics | 1880 | 2 00 |
| | American Economist | Weekly | Financial | 1880 | 5 00 |
| | Chicago World | do | Society, art, &c | 1870 | 2 00 |
| | Musical and Art Journal | do | do | 1872 | 5 00 |
| | Saturday Evening Herald | do | do | 1875 | 2 00 |
| | Musical and Literary Review (*c*) | Monthly | do | | |
| | Editor's Eye | Weekly | do | 1876 | 1 00 |
| | Illusteret Familieblad | Monthly | Society, art, &c. (*Dan. and Norw.*) | 1878 | 1 00 |
| | Mentor of Fashion | Weekly (8 mos.) | Society, art, &c | 1880 | 2 00 |
| | Guardian | Monthly | Secret society | 1875 | 1 00 |
| | Washingtonian | do | Temperance | 1875 | 50 |
| | Fribetoch Fangenskap | do | Temperance (*Swedish*) | 1878 | 60 |
| | Illustrated Temperance Tales | do | Temperance | 1879 | 30 |
| | Signal | Weekly | do | 1880 | 1 50 |
| | Ancient Order of Hibernian Emerald | do | Secret society | 1879 | 2 00 |
| Des Plaines | Cook County Record | do | News and politics | 1878 | 1 50 |
| Englewood | Town of Lake Eye | do | do | 1878 | 1 50 |
| Evanston | Tripod | Bi-weekly | Collegiate | 1871 | 1 50 |
| | Evanston Index | Weekly | News and politics | 1872 | 2 00 |
| | Vidette | Semi-monthly | Collegiate | 1878 | 1 50 |
| Lemont | Lemont Phœnix (*d*) | Weekly | News and politics | 1877 | 1 00 |
| Mount Forest | New Era | do | do | 1879 | 1 25 |
| Palatine | Enterprise | do | do | 1877 | 1 00 |
| **CRAWFORD CO.**—*Population:* 16,197. | | | | | |
| Hutsonville | Hutsonville Herald | Weekly | News and politics | 1880 | |
| Robinson | Robinson Argus | do | do | 1863 | 1 50 |
| | Constitution | do | do | 1864 | 1 50 |
| | Crawford County Democrat (*b*) | do | do | 1879 | 1 50 |
| **CUMBERLAND CO.**—*Population:* 13,759. | | | | | |
| Majority Point | Cumberland Democrat | Weekly | News and politics | 1859 | 1 25 |
| | Republican | do | do | 1872 | 1 50 |
| Neoga | Neoga News | do | do | 1875 | 1 25 |
| **DE KALB CO.**—*Population:* 26,768. | | | | | |
| De Kalb | De Kalb County News | Weekly | News and politics | 1867 | 1 50 |
| | De Kalb County Chronicle | do | do | 1878 | 2 00 |
| Hinckley | Hinckley Review | do | do | 1878 | 1 25 |
| Malta | Malta Mail | do | do | 1877 | 2 00 |
| Sandwich | Sandwich Gazette | Semi-weekly | do | 1862 | 2 00 |
| | Free Press | Weekly | do | 1873 | 1 50 |
| Shabbona | Express | do | do | 1876 | 1 00 |
| Somonauk | Reveille | do | do | 1875 | 1 50 |
| Sycamore | True Republican | do | do | 1858 | 2 00 |
| | Sycamore City Weekly | do | do | 1872 | 1 50 |
| | Free Press | Daily (*evening*) | do | 1878 | 3 60 |
| Waterman | Waterman Leader | Weekly | do | 1880 | |
| **DE WITT CO.**—*Population:* 17,010. | | | | | |
| Clinton | Clinton Public | Weekly | News and politics | 1856 | 1 50 |
| | Clinton Register | do | do | 1868 | 1 50 |
| Farmer City | Farmer City Journal | do | do | 1872 | 1 50 |
| | Public Reaper | do | do | 1879 | 1 50 |
| **DOUGLAS CO.**—*Population:* 15,853. | | | | | |
| Arcola | Arcola Record | Weekly | News and politics | 1866 | 1 50 |
| | Douglas County Democrat | do | do | 1870 | 2 00 |
| Newman | Newman Independent | do | do | 1875 | 2 00 |
| Tuscola | Saturday Journal | do | do | 1860 | 2 00 |
| | Douglas County Review | do | do | 1875 | 1 50 |

*a* Suspended in 1879. *b* Suspended. *c* Merged in "Musical Art Journal". *d* Edition of the "Commercial Advertiser", Lockport.

## ILLINOIS—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **Du Page** co.—*Population:* 19,161. | | | | | |
| Naperville | Clarion | Weekly | News and politics | 1862 | $2 00 |
| | Du Page County Volks-Zeitung (*a*) | do | News and politics (*German*) | 1879 | 2 00 |
| Turner Junction | Turner Junction News | do | News and politics | 1871 | 2 00 |
| Wheaton | Wheaton Illinoian | do | do | 1861 | 2 00 |
| | College Record | Monthly | Collegiate | 1875 | 1 00 |
| | Der Beobachter (*a*) | Weekly | News and politics (*German*) | 1878 | 2 00 |
| **Edgar** co.—*Population:* 25,499. | | | | | |
| Chrisman | Chrisman Advance | Weekly | News and politics | 1879 | 1 50 |
| Kansas | Kansas Sun | do | do | 1877 | 2 00 |
| | Kansas News (*b*) | do | do | | |
| Paris | Paris Beacon and Valley Blade | do | do | 1842 | 1 50 |
| | Paris Gazette | do | do | 1873 | 2 00 |
| | Paris Times | do | do | 1874 | 2 00 |
| | Paris Republican | do | do | 1877 | 1 50 |
| | Edgar County Reporter | Monthly | do | 1877 | 3 00 |
| **Edwards** co.—*Population:* 8,597. | | | | | |
| Albion | Independent | Weekly | News and politics | 1863 | 1 25 |
| | Albion Journal | do | do | 1869 | 1 25 |
| **Effingham** co.—*Population:* 18,920. | | | | | |
| Altamont | Telegram | Weekly | News and politics | 1878 | 1 25 |
| Effingham | Effingham Democrat | do | do | 1856 | 1 50 |
| | Republican | do | do | 1872 | 1 50 |
| | Volksblatt | do | News and politics (*German*) | 1878 | 2 00 |
| | Southern Illinois Farmer | Monthly | Agricultural | 1879 | 1 00 |
| **Fayette** co.—*Population:* 23,241. | | | | | |
| Saint Elmo | Saint Elmo News | Weekly | News and politics | 1876 | 1 25 |
| Vandalia | Fayette County Democrat | do | do | 1859 | 1 50 |
| | Vandalia Union | do | do | 1864 | 1 50 |
| | Fayette County News | do | do | 1878 | 1 50 |
| **Ford** co.—*Population:* 15,099. | | | | | |
| Gibson City | Gibson Courier | Weekly | News and politics | 1873 | 1 50 |
| | Ford County Democrat (*a*) | do | do | | |
| Paxton | Paxton Record | do | do | 1865 | 2 00 |
| | Paxton Standard (*c*) | do | do | | |
| | Paxton Appeal | do | do | 1879 | 1 00 |
| | Loda Times | do | do | 1879 | 1 50 |
| Piper City | Advertiser | do | do | 1876 | 1 25 |
| Sibley | Sibley Index | do | do | 1879 | 1 50 |
| **Franklin** co.—*Population:* 16,129. | | | | | |
| Benton | Benton Standard | Weekly | News and politics | 1874 | 1 50 |
| | Baptist Banner | do | Religious (*Baptist*) | 1874 | 1 50 |
| | Franklin Chronicle | do | News and politics | 1880 | 1 50 |
| **Fulton** co.—*Population:* 41,240. | | | | | |
| Astoria | Astoria Patriot (*c*) | Weekly | News and politics | | |
| Avon | Avon Sentinel | do | do | 1879 | 1 50 |
| Canton | Canton Register | do | do | 1838 | 2 00 |
| | Fulton County Ledger | do | do | 1849 | 2 00 |
| | Canton Times | do | do | 1879 | 1 00 |
| Farmington | Farmington People (*d*) | do | do | 1879 | 1 50 |
| Ipava | Stream of Light (*c*) | do | do | | |
| Lewistown | Lewistown Democrat | do | do | 1855 | 2 00 |
| | Lewistown News | do | do | 1875 | 1 50 |
| Vermont | Vermont Chronicle (*c*) | do | do | 1870 | 1 50 |
| **Gallatin** co.—*Population:* 12,861. | | | | | |
| Omaha | Omaha Journal (*e*) | Weekly | News and politics | 1879 | 1 50 |
| Shawneetown | Shawnee News | do | do | 1873 | 1 25 |
| | Shawnee Herald | do | do | 1876 | 1 25 |
| | Local Record (*a*) | do | do | | |
| **Greene** co.—*Population:* 23,010. | | | | | |
| Carrollton | Carrollton Gazette | Weekly | News and politics | 1846 | 2 00 |
| | Carrollton Patriot | do | do | 1863 | 2 00 |
| Greenfield | Greenfield Argus | do | do | 1878 | 1 50 |
| Kane | Kane Times | do | do | 1873 | 2 00 |
| Roodhouse | Roodhouse Review | do | do | 1877 | 1 50 |
| | Roodhouse Journal (*a*) | do | do | 1879 | 1 00 |
| Whitehall | Whitehall Register | do | do | 1869 | 2 00 |
| | Whitehall Republican | do | do | 1877 | 2 00 |
| **Grundy** co.—*Population:* 16,732. | | | | | |
| Morris | Morris Herald | Weekly | News and politics | 1855 | 2 00 |
| | Independent | Semi-weekly | do | 1878 | 2 00 |
| | Morris Democrat | Weekly | do | 1880 | 1 50 |
| **Hamilton** co.—*Population:* 16,712. | | | | | |
| McLeansboro' | McLeansboro' Times | Weekly | News and politics | 1868 | 1 00 |
| | Golden Era | do | do | 1872 | 1 50 |
| **Hancock** co.—*Population:* 35,337. | | | | | |
| Augusta | Augusta Mail (*f*) | Weekly | News and politics | | |
| | Augusta Herald (*f*) | do | do | | |
| Carthage | Carthage Republican | do | do | 1853 | 2 00 |
| | Carthage Gazette | do | do | 1865 | 1 75 |
| | Carthaginian | Monthly | Collegiate | 1877 | 1 00 |
| Dallas City | Dallas City News | Weekly | News and politics | 1878 | 1 60 |
| La Harpe | La Harper | do | do | 1875 | 2 00 |
| Nauvoo | Nauvoo Independent | do | do | 1873 | 2 00 |
| Plymouth | Phonograph | do | do | 1879 | 1 50 |
| Warsaw | Warsaw Bulletin | do | do | 1865 | 2 00 |
| | Warsaw Independent (*g*) | Daily (*morning*) | do | 1880 | |
| **Hardin** co.—*Population:* 6,024. | | | | | |
| Elizabethtown | Hardin Gazette | Weekly | News and politics | 1870 | 1 50 |
| **Henderson** co.—*Population:* 10,722. | | | | | |
| Biggsville | Biggsville Clipper | Weekly | News and politics | 1875 | 1 50 |
| Oquawka | Oquawka Spectator | do | do | 1848 | 2 00 |
| | Henderson County Journal | do | do | 1878 | 1 50 |
| Raritan | Raritan Bulletin | do | do | 1876 | 1 00 |

*a* Suspended.
*b* Suspended October, 1879.
*c* Suspended, 1879.
*d* Suspended December, 1880.
*e* Suspended since the census year.
*f* Suspended, 1880.
*g* Suspended May 23, 1880.

## ILLINOIS—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| HENRY CO.—*Population:* 36,597. | | | | | |
| Cambridge | Cambridge Chronicle | Weekly | News and politics | 1858 | $2 00 |
| | Prairie Chief | ...do | ...do | 1867 | 1 50 |
| Galva | Galva Journal | ...do | ...do | 1872 | 2 00 |
| | Galva News | ...do | ...do | 1879 | 2 00 |
| Geneseo | Geneseo Republic | ...do | ...do | 1856 | 2 00 |
| | Henry County News | ...do | ...do | 1874 | 1 50 |
| | Geneseo Sun | ...do | ...do | 1879 | 2 00 |
| Kewanee | Kewanee Independent | ...do | ...do | 1870 | 2 00 |
| | Kewanee Courier | ...do | ...do | 1876 | 2 00 |
| Orion | Orion Times | ...do | ...do | 1877 | 2 00 |
| Woodhull | Woodhull Messenger | ...do | ...do | 1877 | 1 50 |
| IROQUOIS CO.—*Population:* 35,451. | | | | | |
| Buckley | Buckley Inquirer | Weekly | News and politics | 1878 | 1 50 |
| Chebanse | Chebanse Herald | ...do | ...do | 1869 | 1 50 |
| Gilman | Gilman Star | ...do | ...do | 1870 | 1 50 |
| Loda Village | Loda Register | ...do | ...do | 1875 | 1 50 |
| | Loda Times | ...do | ...do | 1879 | 1 50 |
| Milford | Milford Herald | ...do | ...do | 1876 | 1 50 |
| Onarga | Central Illinois Review | ...do | ...do | 1872 | 1 50 |
| Sheldon | Sheldon Journal | ...do | ...do | 1879 | 1 50 |
| | Sheldon Enterprise (*a*) | ...do | ...do | 1875 | 2 00 |
| Watseka | Watseka Republican | ...do | ...do | 1856 | 2 00 |
| | Iroquois County Times | ...do | ...do | 1870 | 2 00 |
| JACKSON CO.—*Population:* 22,505. | | | | | |
| Ava | Ava News | Weekly | News and politics | 1879 | 1 00 |
| | Ava Register | ...do | ...do | ........ | ........ |
| Carbondale | Carbondale Observer | ...do | ...do | 1871 | 2 00 |
| | Barton's Free Press (*b*) | ...do | ...do | 1877 | ........ |
| Murphysboro' | Jackson County Era and Southern Illinoisan | ...do | ...do | 1872 | 2 00 |
| | Independent | ...do | ...do | 1873 | 1 50 |
| | Friend of Progress | ...do | Miscellaneous | 1878 | 1 50 |
| JASPER CO.—*Population:* 14,515. | | | | | |
| Newton | Newton Press | Weekly | News and politics | 1864 | 1 50 |
| | Jasper County Times | ...do | ...do | 1874 | 1 50 |
| JEFFERSON CO.—*Population:* 20,686. | | | | | |
| Mount Vernon | Mount Vernon News | Weekly | News and politics | 1870 | 1 50 |
| | Weekly Exponent | ...do | ...do | 1876 | 1 50 |
| | Free Press (*c*) | ...do | ...do | 1866 | 1 25 |
| JERSEY CO.—*Population:* 15,542. | | | | | |
| Grafton | Grafton Independent | Weekly | News and politics | 1877 | 1 50 |
| Jerseyville | Jersey County Democrat | ...do | ...do | 1838 | 2 00 |
| | Jerseyville Examiner | ...do | ...do | 1878 | 2 00 |
| | Jerseyville Republican (*d*) | ...do | ...do | 1865 | ........ |
| JO DAVIESS CO.—*Population:* 27,528. | | | | | |
| Galena | Gazette | Daily (*evening*) | News and politics | 1834 | 8 00 |
| | Gazette | Weekly | ...do | 1834 | 1 50 |
| | Gazette | Tri-weekly | ...do | 1834 | 4 00 |
| | The Industrial Press | Weekly | ...do | 1868 | 1 50 |
| | Galena Volksfreund | ...do | News and politics (*German*) | 1868 | 2 00 |
| Warren | Warren Sentinel | ...do | News and politics | 1857 | 1 50 |
| JOHNSON CO.—*Population:* 13,078. | | | | | |
| New Burnside | Journal (*e*) | Weekly | News and politics | ........ | 2 00 |
| Vienna | Johnson County Journal | ...do | ...do | 1874 | 1 50 |
| | Vienna Times | ...do | ...do | 1879 | 1 50 |
| KANE CO.—*Population:* 44,939. | | | | | |
| Aurora | Aurora Beacon | Weekly | News and politics | 1846 | 2 00 |
| | Aurora Herald | ...do | ...do | 1866 | 2 00 |
| | Volksfreund | ...do | News and politics (*German*) | 1868 | 2 00 |
| | News | Daily (*evening*) | News and politics | 1874 | 5 00 |
| | News | Weekly | ...do | 1874 | 1 50 |
| | Evening Post | Daily (*evening*) | ...do | 1878 | 3 00 |
| Batavia | Batavia News | Weekly | ...do | 1869 | 1 50 |
| Blackberry | Blackberry Blade | ...do | ...do | 1880 | 1 00 |
| Elgin | Elgin Advocate | ...do | ...do | 1855 | 1 50 |
| | Leader | Daily (*evening*) | ...do | 1869 | 5 00 |
| | Leader | Weekly | ...do | 1860 | 2 00 |
| | Daily News | Daily (*evening*) | ...do | 1874 | 5 00 |
| | News | Weekly | ...do | 1874 | 1 00 |
| | Elgin Glocke (*f*) | ...do | News and politics (*German*) | 1878 | 2 00 |
| Geneva | Geneva Republican | ...do | News and politics | 1851 | 1 50 |
| Saint Charles | Saint Charles Review (*g*) | ...do | ...do | ........ | ........ |
| KANKAKEE CO.—*Population:* 25,047. | | | | | |
| Buckingham | Norton News | Weekly | News and politics | 1879 | 1 00 |
| Kankakee | Kankakee Gazette | ...do | ...do | 1853 | 2 00 |
| | Courrier de l'Illinois | ...do | News and politics (*French*) | 1868 | 2 00 |
| | Kankakee Times | ...do | News and politics | 1860 | 2 00 |
| | Kankakee Herald | ...do | ...do | 1872 | 1 50 |
| Momence | Momence Reporter | ...do | ...do | 1870 | 1 50 |
| KENDALL CO.—*Population:* 13,083. | | | | | |
| Millington | Millington Enterprise | Weekly | News and politics | 1872 | 1 50 |
| Plano | Saints' Herald | Semi-monthly | Religious (*Mormon*) | 1860 | 2 15 |
| | Plano Mirror | Weekly | News and politics | 1866 | 1 50 |
| | Zion's Hope | Semi-monthly | Sunday school | 1869 | 60 |
| Yorkville | Kendall County News | Weekly | News and politics | 1872 | 1 50 |
| | Kendall County Record | ...do | ...do | 1864 | 1 50 |
| KNOX CO.—*Population:* 38,344. | | | | | |
| Abingdon | Express | Weekly | News and politics | 1874 | 1 50 |
| Altona | Altona Journal | ...do | ...do | 1878 | 2 00 |
| Galesburg | Press | Daily (*evening*) | ...do | 1852 | 5 00 |
| | Press | Weekly | ...do | 1852 | 2 00 |
| | Republican-Register | Daily (*evening*) | ...do | 1865 | 6 00 |

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*a* Removed to Kentland, Ind.
*b* Suspended.
*c* Merged in the "News" February, 1880.
*d* Merged in "Examiner".
*e* Edition of "Johnson County Journal". Vienna.
*f* Suspended December, 1880.
*g* Suspended January, 1880.

## ILLINOIS—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| Knox co.—Continued. | | | | | |
| Galesburg—Continued | Republican Register | Weekly | News and politics | 1865 | $2 00 |
| | Plain Dealer | do | do | 1873 | 2 00 |
| | Knox Student | Monthly | Collegiate | 1878 | 1 00 |
| Knoxville | Knox County Republican | Weekly | News and politics | 1856 | 1 50 |
| | Zion Banner | do | Religious (*Lutheran; Swedish*) | 1871 | 1 50 |
| | Knox County Review | do | News and politics | 1879 | 1 00 |
| | Knoxville Palladium | Monthly | Collegiate | 1880 | ........ |
| | Oneida News (*a*) | Weekly | News and politics | 1879 | ........ |
| Oneida | Oneida Dispatch | do | do | 1880 | 1 50 |
| Yates City | Industrial Banner | do | do | 1879 | 1 00 |
| Lake co.—*Population:* 21,296. | | | | | |
| Waukegan | Waukegan Gazette | Weekly | News and politics | 1850 | 2 00 |
| | Lake County Patriot | do | do | 1860 | 1 50 |
| | Lake County Republican | do | do | 1880 | 1 00 |
| La Salle co.—*Population:* 70,403. | | | | | |
| Earlville | Earlville Gazette | Weekly | News and politics | 1868 | 2 00 |
| | Earlville Leader | do | do | 1880 | 1 50 |
| La Salle | La Salle County Press | do | do | 1856 | 2 00 |
| | La Salle Democrat | do | do | 1876 | 2 00 |
| Marseilles | Marseilles Register | do | do | 1879 | 1 50 |
| Mendota | Mendota Bulletin | do | do | 1862 | 1 50 |
| | Mendota Reporter | do | do | 1877 | 1 50 |
| | Mendota Woechentliche Post | do | News and politics (*German*) | 1879 | 1 50 |
| Ottawa | Ottawa Free Trader | do | News and politics | 1840 | 1 50 |
| | Ottawa Republican | do | do | 1841 | 2 00 |
| | Central Illinois Wochenblatt | do | News and politics (*German*) | 1868 | 2 00 |
| | Times | Daily (*evening*) | News and politics | 1877 | 5 00 |
| | Times | Weekly | do | 1877 | 1 00 |
| | Evening Journal (*b*) | Daily (*evening*) | do | 1880 | 5 00 |
| Peru | Peru Herald | Weekly | do | 1858 | 2 00 |
| | Twin City News | Semi-weekly | do | 1879 | 2 00 |
| Rutland | Rutland Home Journal | Weekly | do | 1865 | 1 50 |
| | Rutland Post | do | do | 1874 | 1 50 |
| Seneca | Seneca Record | do | do | 1878 | 1 00 |
| Sheridan | News Letter | do | do | 1871 | 1 50 |
| Streator | Streator Monitor | do | do | 1869 | 2 00 |
| | Streator Free Press | do | do | 1873 | 1 50 |
| Tonica | Tonica News | do | do | 1873 | 1 00 |
| Lawrence co.—*Population:* 13,663. | | | | | |
| Lawrenceville | Democratic Herald | Weekly | News and politics | 1871 | 1 50 |
| | Rural Republican | do | do | 1873 | 1 50 |
| Sumner | Lawrence County Press | do | do | 1876 | 1 50 |
| | Sumner Democrat (*c*) | do | do | 1880 | 1 50 |
| Lee co.—*Population:* 27,491. | | | | | |
| Amboy | Amboy Journal | Weekly | News and politics | 1855 | 2 00 |
| | Amboy News | do | do | 1878 | 1 50 |
| Ashton | Ashton Sentinel (*d*) | do | do | 1877 | 1 50 |
| Compton | Compton Record | do | do | 1878 | 1 50 |
| Dixon | Dixon Telegraph | do | do | 1851 | 2 00 |
| | Western Farmer | do | Agricultural | 1865 | 1 10 |
| | Dixon Sun | do | News and politics | 1868 | 2 00 |
| Franklin Grove | Franklin Reporter | do | do | 1869 | 1 50 |
| | Lee County Enterprise | do | do | 1879 | 1 50 |
| Lee | Lee Monitor | do | do | 1878 | 1 50 |
| Paw Paw | Paw Paw Herald | do | do | 1877 | 1 50 |
| | Lee County Times | do | do | 1878 | 1 50 |
| | News | do | do | 1880 | ........ |
| Livingston co.—*Population:* 38,450. | | | | | |
| Chatsworth | Chatsworth Plaindealer | Weekly | News and politics | 1873 | 1 50 |
| Dwight | Dwight Star | do | do | 1868 | 1 50 |
| | Western Postal Review | Monthly | Miscellaneous | 1875 | 1 00 |
| | Dwight Commercial | Weekly | News and politics | 1877 | 1 50 |
| Fairbury | Independent Blade | do | do | 1871 | 1 50 |
| Odell | Atlas (*e*) | do | do | ........ | ........ |
| Pontiac | Pontiac Sentinel | do | do | 1857 | 1 50 |
| | Pontiac Free Trader | do | do | 1870 | 1 50 |
| Logan co.—*Population:* 25,037. | | | | | |
| Atlanta | Atlanta Argus | Weekly | News and politics | 1869 | 1 50 |
| Lincoln | Lincoln Herald | do | do | 1856 | 2 00 |
| | Logan County Volksblatt | do | News and politics (*German*) | 1874 | 1 50 |
| | Lincoln Times | do | News and politics | 1874 | 1 50 |
| | Sentinel | Daily (*evening*) | do | 1878 | 4 50 |
| | Sentinel | Weekly | do | 1878 | 1 00 |
| | Leader (*c*) | Daily (*morning*) | do | 1879 | ........ |
| Mount Pulaski | Mount Pulaski Citizen | Weekly | do | 1876 | 1 00 |
| McDonough co.—*Population:* 27,970. | | | | | |
| Blandinsville | McDonough Democrat | Weekly | News and politics | 1877 | 2 00 |
| Bushnell | Bushnell Record | do | do | 1868 | 1 50 |
| | Bushnell Gleaner | do | do | 1876 | 1 50 |
| Colchester | Colchester Independent | do | do | 1873 | 2 00 |
| Macomb | Macomb Journal | do | do | 1855 | 2 00 |
| | Macomb Eagle | do | do | 1856 | 2 00 |
| Prairie City | Prairie City Herald | do | do | 1870 | 1 50 |
| McHenry co.—*Population:* 24,908. | | | | | |
| Harvard | Harvard Independent | Weekly | News and politics | 1865 | 1 50 |
| Marengo | Marengo Republican | do | do | 1868 | 1 50 |
| McHenry | McHenry Plaindealer | do | do | 1875 | 1 50 |
| Richmond | Richmond Gazette | do | do | 1876 | 1 50 |
| Woodstock | Woodstock Sentinel | do | do | 1856 | 1 50 |
| | McHenry County Democrat | do | do | 1877 | 1 50 |
| | New Era | do | do | 1878 | 1 50 |
| McLean co.—*Population:* 60,100. | | | | | |
| Bloomington | Pantagraph | Daily (*morning*) | News and politics | 1837 | 7 80 |
| | Pantagraph | Weekly | do | 1837 | 1 50 |

*a* Suspended during census year. *b* Changed to morning January, 1881. *c* Suspended. *d* Suspended November, 1880. *e* Suspended 1880.

## ILLINOIS—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| McLean co.—Continued. | | | | | |
| Bloomington—Continued | Leader | Daily (*evening*) | News and politics | 1868 | $7 50 |
| | Leader | Weekly | do | 1868 | 1 50 |
| | Deutsche Presse | do | News and politics (*German*) | 1871 | 2 00 |
| | Banner of Holiness | do | Religious (*Unsectarian*) | 1872 | 1 50 |
| | Bloomingtoner Journal | do | News and politics (*German*) | 1878 | 2 00 |
| | Sunday Eye | Sunday | News and politics | 1878 | 2 00 |
| | Weekly Courier | Weekly | do | 1879 | 1 50 |
| | Sunday Morning Star (*a*) | Sunday | do | | |
| | Western Advance (*b*) | Weekly | do | | |
| | Democratic News (*c*) | do | do | | |
| | Bloomington Jurist | do | Law | | |
| Chenoa | Chenoa Gazette | Semi-weekly | News and politics | 1865 | 1 50 |
| Danvers | Danvers Dispatch | Weekly | do | 1880 | 1 50 |
| | Danvers Independent (*a*) | do | do | | |
| Gridley | Gridley Home Journal | do | do | 1865 | 1 50 |
| Le Roy | Le Roy Enterprise | do | do | 1874 | 1 50 |
| Lexington | Local Leader | do | do | 1879 | 1 00 |
| McLean | McLean Lens | do | do | 1880 | 1 50 |
| Saybrook | Saybrook Herald | do | do | 1875 | 1 00 |
| Stanford | Stanford Tribune (*d*) | do | do | | |
| Macon co.—*Population:* 30,665. | | | | | |
| Decatur | Republican | Daily (*evening*) | News and politics | 1867 | 8 00 |
| | Republican | Weekly | do | 1867 | 1 50 |
| | Review | Daily (*morning*) | do | 1870 | 7 80 |
| | Review | Weekly | do | 1870 | 1 50 |
| | Herald | do | do | 1879 | 1 50 |
| Maroa | Maroa News | do | do | 1871 | 1 50 |
| Macoupin co.—*Population:* 37,692. | | | | | |
| Brighton | Brighton Advance (*a*) | Weekly | News and politics | 1871 | 2 00 |
| Bunker Hill | Gazette | do | do | 1866 | 2 00 |
| Carlinville | Macoupin County Enquirer | do | do | 1852 | 2 00 |
| | Carlinville Democrat | do | do | 1856 | 2 00 |
| | Carlinville Democrat | Semi-weekly | do | 1856 | 2 50 |
| | Macoupin County Herald (*e*) | Weekly | do | | |
| | Macoupin Anzeiger (*f*) | do | News and politics (*German*) | 1879 | 2 00 |
| Girard | Girard Gazette | do | News and politics | 1879 | 1 50 |
| Staunton | Staunton Times | do | do | 1878 | 1 50 |
| Virden | Virden Record | do | do | 1866 | 1 50 |
| | Virden Reporter | do | do | 1879 | 1 50 |
| Madison co.—*Population:* 50,126. | | | | | |
| Alton | Telegraph | Daily (*evening*) | News and politics | 1836 | 9 00 |
| | Telegraph | Weekly | do | 1836 | 1 50 |
| | Alton Banner | do | News and politics (*German*) | 1866 | 2 00 |
| | Democrat | Daily (*evening*) | News and politics | 1874 | 6 00 |
| | Democrat | Weekly | do | 1874 | 1 50 |
| | Madison County Sentinel | do | do | 1879 | 1 50 |
| Collinsville | Weekly Herald | do | do | 1879 | 1 25 |
| | Collinsville Argus (*f*) | do | do | | |
| Edwardsville | Edwardsville Intelligencer | do | do | 1862 | 1 50 |
| | Republican | do | do | 1869 | 1 50 |
| | Our Times | do | do | 1871 | 1 50 |
| Highland | Highland Union | do | News and politics (*German*) | 1863 | 2 00 |
| Troy | Bulletin | do | News and politics | 1873 | 1 25 |
| Upper Alton | College Review | Monthly | Collegiate | 1879 | 1 00 |
| Marion co.—*Population:* 23,686. | | | | | |
| Centralia | Centralia Sentinel | Weekly | News and politics | 1863 | 1 50 |
| | Centralia Democrat | do | do | 1868 | 2 00 |
| Kinmundy | Independent | do | do | 1867 | 1 50 |
| | Reform Leader | do | do | 1880 | 1 25 |
| | Register (*g*) | do | do | | |
| Salem | Salem Advocate (*h*) | do | do | 1858 | 1 50 |
| | Marion County Herald | do | do | 1876 | 1 50 |
| | Marion County Republican | do | do | 1879 | 1 50 |
| Marshall co.—*Population:* 15,055. | | | | | |
| Henry | Henry Republican | Weekly | News and politics | 1852 | 2 00 |
| Lacon | Lacon Home Journal | Semi-weekly | do | 1837 | 2 00 |
| | Marshall County Democrat | Weekly | do | 1876 | 1 50 |
| La Rose | La Rose Vidette | do | do | 1869 | 1 50 |
| Sparland | Sparland Chronicle | do | do | 1868 | 2 00 |
| Wenona | Wenona Index | do | do | 1865 | 2 00 |
| Mason co.—*Population:* 16,242. | | | | | |
| Havana | Mason County Democrat | Weekly | News and politics | 1849 | 2 00 |
| | Mason County Republican | do | do | 1873 | 2 00 |
| Mason City | Mason City Independent | do | do | 1867 | 1 50 |
| | Mason City Journal | do | do | 1870 | 1 50 |
| Massac co.—*Population:* 10,443. | | | | | |
| Metropolis | Massac Journal | Weekly | News and politics | 1865 | 2 00 |
| | Metropolis Democrat | do | do | 1880 | 1 50 |
| Menard co.—*Population:* 13,024. | | | | | |
| Petersburg | Petersburg Democrat | Weekly | News and politics | 1859 | 2 00 |
| | Petersburg Observer | do | do | 1876 | 1 50 |
| | Petersburg Republican | do | do | 1879 | 1 50 |
| | Church Visitor (*i*) | Monthly | Religious (*Methodist*) | 1880 | 1 00 |
| Mercer co.—*Population:* 19,502. | | | | | |
| Aledo | Aledo Record | Weekly | News and politics | 1859 | 2 00 |
| | Aledo Banner | do | do | 1869 | 2 00 |
| Keithsburg | Democratic Press (*j*) | do | do | 1879 | 2 00 |
| | Keithsburg News | do | do | 1874 | 2 00 |

*a* Suspended February, 1880.
*b* Suspended November, 1879.
*c* Consolidated with "Courier" November, 1879.
*d* Suspended March, 1880.
*e* Consolidated with Carlinville "Enquirer".
*f* Suspended.
*g* Suspended October, 1879.
*h* Merged in the "Herald".
*i* Suspended December, 1880.
*j* Suspended June, 1880.

## ILLINOIS—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| Monroe co.—*Population:* 13,682. | | | | | |
| Waterloo | Waterloo Dollar Advocate | Weekly | News and politics | 1858 | $1 00 |
| | Waterloo Times | do | do | 1872 | 1 25 |
| Montgomery co.—*Population:* 28,078. | | | | | |
| Hillsboro' | Montgomery News | Weekly | News and politics | 1869 | 1 50 |
| | Hillsborough Journal | do | do | 1869 | 1 00 |
| Litchfield | Litchfield Monitor | do | do | 1863 | 1 50 |
| | Montgomery County Democrat | do | do | 1874 | 1 25 |
| Nokomis | Free Press | do | do | 1877 | 1 50 |
| | Nokomis Gazette (*a*) | do | do | 1871 | 1 50 |
| Morgan co.—*Population:* 31,514. | | | | | |
| Jacksonville | Journal | Daily (*morning*) | News and politics | 1865 | 10 00 |
| | Journal | Weekly | do | 1831 | 1 50 |
| | Illinois Courier | do | do | 1854 | 1 50 |
| | Illinois Courier | Tri-weekly | do | 1854 | 4 00 |
| | Deaf Mute Advance | Weekly | Educational | 1870 | 1 00 |
| | College Rambler | Monthly | Collegiate | 1878 | 1 00 |
| | Illinois Legal Index | Quarterly | Law | 1878 | 25 |
| | Bugle Call | Monthly | Temperance | 1880 | 1 00 |
| | Morgan Monitor (*b*) | Weekly | News and politics | 1876 | 1 00 |
| Meredosia | Meredosia Enterprise | do | do | 1879 | 1 50 |
| Waverly | Waverly Journal | do | do | 1876 | 1 50 |
| | Prohibition Age (*c*) | do | Temperance | | |
| Moultrie co.—*Population:* 13,699. | | | | | |
| Lovington | Enterprise | Weekly | News and politics | 1879 | 1 50 |
| Sullivan | Sullivan Progress | do | do | 1857 | 2 00 |
| | Sullivan Journal | do | do | 1875 | 2 00 |
| Ogle co.—*Population:* 29,937. | | | | | |
| Byron | Byron Times | Weekly | News and politics | 1876 | 1 50 |
| | Byron Express | do | do | 1878 | 1 50 |
| Creston | Creston Times | do | do | 1872 | 2 00 |
| Forreston | Forreston Herald | do | do | 1875 | 2 00 |
| Mount Morris | Ogle County Democrat | do | do | 1876 | 1 50 |
| Oregon | Ogle County Reporter | do | do | 1851 | 2 00 |
| | Oregon Courier | do | do | 1866 | 2 00 |
| Polo | Ogle County Press | do | do | 1858 | 1 50 |
| | Christian Radical | Semi-monthly | Religious (*United Brethren*) | 1875 | 60 |
| | Olive Branch | Monthly | Religious (*Unsectarian*) | 1877 | 25 |
| Rochelle | Rochelle Register | Weekly | News and politics | 1863 | 2 00 |
| | Rochelle Telephone | do | do | 1879 | 1 00 |
| Peoria co.—*Population:* 55,355. | | | | | |
| Brimfield | Peoria County News | Weekly | News and politics | 1879 | 1 50 |
| Chillicothe | Chillicothe Independent | do | do | 1867 | 1 50 |
| | Chillicothe Reporter | do | do | 1874 | 2 00 |
| | Chillicothe Review (*d*) | do | do | 1879 | 1 00 |
| Elmwood | Messenger | do | do | 1874 | 2 00 |
| | Elmwood Gazette | Semi-weekly | do | 1879 | 1 50 |
| Peoria | Transcript | Daily (*morning*) | do | 1855 | 9 00 |
| | Transcript | Weekly | do | 1855 | 1 50 |
| | Transcript | Tri-weekly | do | 1855 | 5 00 |
| | Demokrat | Daily (*morning*) | News and politics (*German*) | 1860 | 10 00 |
| | Demokrat | Weekly | News and politics (*German*) | 1860 | 2 00 |
| | National Democrat | Daily (*morning*) | News and politics | 1865 | 5 00 |
| | National Democrat | Weekly | do | 1865 | 1 25 |
| | Evening Review | Daily (*evening*) | do | 1871 | 3 12 |
| | Peoria Sun (*e*) | Weekly | do | 1871 | 2 00 |
| | Journal | Daily (*evening*) | do | 1877 | 5 00 |
| | Journal | Sunday | do | 1877 | 1 00 |
| | Saturday Evening Call | Weekly | do | 1877 | 2 00 |
| | Die Sonne | Daily (*evening*) | News and politics (*German*) | 1879 | 7 00 |
| | Die Sonne | Weekly | News and politics (*German*) | 1879 | 1 75 |
| | Illinois Tradesman and Manufacturer | do | Trade | 1879 | 2 00 |
| | Bulletin of the Y. M. C. A | do | Religious (*Unsectarian*) | 1879 | 25 |
| | National Statesman | do | News and politics | 1880 | 1 50 |
| | Peoria Freeman | do | do | 1880 | 1 50 |
| | Peoria Medical Monthly | Monthly | Medicine | 1880 | 1 00 |
| Princeville | Princeville Independent | Weekly | News and politics | 1877 | 1 50 |
| Perry co.—*Population:* 16,007. | | | | | |
| Du Quoin | Tribune | Weekly | News and politics | 1867 | 2 00 |
| Pinckneyville | Democrat | do | do | 1877 | 1 50 |
| Tamaroa | Perry County Press | do | do | 1878 | 1 00 |
| Piatt co.—*Population:* 15,583. | | | | | |
| Bement | Bement Journal | Weekly | News and politics | 1880 | 1 00 |
| Monticello | Monticello Bulletin | do | do | 1862 | 2 00 |
| | Piatt County Herald | do | do | 1874 | 2 00 |
| Pike co.—*Population:* 33,751. | | | | | |
| Barry | Barry Adage | Weekly | News and politics | 1871 | 1 00 |
| | Unicorn Greenback | do | do | 1876 | 1 50 |
| Griggsville | Griggsville Reflector | do | do | 1871 | 1 50 |
| | Independent Press | do | do | 1879 | 1 50 |
| Milton | Milton Beacon | do | do | 1875 | 1 50 |
| Pittsfield | The Old Flag | do | do | 1848 | 2 00 |
| | Pike County Democrat | do | do | 1858 | 2 00 |
| Perry | Perry Paragraph (*c*) | do | do | 1878 | 1 00 |
| | Perry Transcript | do | do | 1880 | 1 50 |
| Pope co.—*Population:* 13,256. | | | | | |
| Golconda | Golconda Herald | Weekly | News and politics | 1857 | 1 50 |
| | Pope County Democrat (*f*) | do | do | 1878 | 1 50 |
| Pulaski co.—*Population:* 9,507. | | | | | |
| Mound City | Pulaski Patriot | Weekly | News and politics | 1871 | 2 00 |
| Putnam co.—*Population:* 5,554. | | | | | |
| Granville | Granville Gazette | Weekly | News and politics | 1877 | 2 00 |
| Hennepin | Putnam Record | do | do | 1869 | 1 50 |

*a* Consolidated with "Free Press".
*b* Removed to Slater, Saline co., Mo.
*c* Suspended April, 1880.
*d* Removed to White Cloud, Kansas, October, 1880.
*e* Suspended December, 1879, and re-established January, 1880.
*f* Suspended October, 1880.

## ILLINOIS—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| RANDOLPH CO.—*Population:* 25,690. | | | | | |
| Chester | Valley Clarion | Weekly | News and politics | 1867 | $1 50 |
| | Chester Tribune | Semi-weekly | do | 1872 | 1 50 |
| | Freie Blaetter | Weekly | News and politics (*German*) | 1873 | 1 50 |
| Coulterville | Coulterville Chronicle (*a*) | do | News and politics | 1879 | 1 25 |
| Red Bud | Red Bud Courier | do | do | 1877 | 1 50 |
| Sparta | Sparta Plaindealer | do | do | 1864 | 1 50 |
| RICHLAND CO.—*Population:* 15,545. | | | | | |
| Olney | Olney Times | Weekly | News and politics | 1871 | 1 50 |
| | Richland County Republican | do | do | 1872 | 1 50 |
| | Olney News | do | do | 1875 | 1 60 |
| ROCK ISLAND CO.—*Population:* 38,302. | | | | | |
| Moline | Augustana and Missionaren | Weekly | Religious (*Lutheran; Swedish*) | 1856 | 1 60 |
| | Moline Review | do | News and politics | 1870 | 2 00 |
| | Dispatch | Daily (*evening*) | do | 1878 | 5 00 |
| | Dispatch | Weekly | do | 1878 | 2 00 |
| | Grain Cleaner | Monthly | Trade | 1878 | 1 00 |
| Rock Island | Argus | Daily (*evening*) | News and politics | 1851 | 6 00 |
| | Argus | Weekly | do | 1851 | 1 50 |
| | Rock Islander | do | do | 1854 | 2 00 |
| | Daily Union | Daily (*morning*) | do | 1859 | 10 00 |
| | Rock Island Union | Weekly | do | 1859 | 2 00 |
| | Neue Volks Zeitung | Semi-weekly | News and politics (*German*) | 1875 | 2 50 |
| SAINT CLAIR CO.—*Population:* 61,806. | | | | | |
| Belleville | Advocate | Weekly | News and politics | 1839 | 1 50 |
| | Belleviller Zeitung | Daily (*evening*) | News and politics (*German*) | 1848 | 7 00 |
| | Belleviller Zeitung | Weekly | News and politics (*German*) | 1848 | 2 00 |
| | Democrat | do | News and politics | 1857 | 1 50 |
| | Der Stern | Daily (*evening*) | News and politics (*German*) | 1878 | 7 00 |
| | Der Stern | Weekly | News and politics (*German*) | 1878 | 2 00 |
| | Republican | do | News and politics | 1879 | 1 25 |
| | Das Journal | do | News and politics (*German*) | 1879 | 2 00 |
| | Morning Times (*b*) | Daily (*morning*) | News and politics | 1880 | |
| East Saint Louis | Gazette | Weekly | do | 1866 | 1 50 |
| | East Saint Louis Herald | do | do | 1878 | 1 50 |
| | Western Live-Stock Journal | do | Agricultural | 1879 | 1 50 |
| Lebanon | Lebanon Reveille | do | News and politics | 1879 | 1 50 |
| | Lebanon Journal | do | do | 1879 | 1 50 |
| Marissa | Marissa Monitor | do | do | 1880 | 1 50 |
| Mascoutah | Der Anzeiger | do | News and politics (*German*) | 1876 | 2 00 |
| SALINE CO.—*Population:* 15,940. | | | | | |
| Harrisburg | Harrisburg Chronicle | Weekly | News and politics | 1859 | 1 50 |
| | Saline County Sentinel | do | do | 1878 | 1 50 |
| SANGAMON CO.—*Population:* 52,894. | | | | | |
| Auburn | Auburn Citizen | Weekly | News and politics | 1874 | 1 50 |
| Illiopolis | Illiopolis Citizen | do | do | 1879 | 1 00 |
| Springfield | State Journal | Daily (*morning*) | do | 1831 | 8 00 |
| | State Journal | Weekly | do | 1831 | 1 50 |
| | State Register | Daily (*morning*) | do | 1835 | 8 00 |
| | State Register | Weekly | do | 1835 | 1 25 |
| | Illinois Freie Presse | do | News and politics (*German*) | 1872 | 2 00 |
| | Sangamon Monitor | Daily (*morning*) | News and politics | 1873 | 7 00 |
| | Sangamon Monitor | Weekly | do | 1873 | 2 00 |
| | Stalwart (*c*) | do | do | 1878 | 1 50 |
| | Springfield Bourbon (*c*) | do | do | 1878 | 1 50 |
| | Staats-Wochenblatt | do | News and politics (*German*) | 1878 | 1 50 |
| | Odd Fellows' Herald | do | Secret society | 1878 | 1 50 |
| | A. O. H. Emerald | do | do | 1879 | 2 00 |
| | Springfield News (*b*) | do | News and politics | 1879 | 1 50 |
| | Sunday Mail (*d*) | Sunday | Miscellaneous | 1879 | 2 00 |
| | Catholic News (*e*) | Weekly | Religious (*Catholic*) | | |
| | Sledge Hammer | do | News and politics | | 1 50 |
| | Daily Post | Daily (*evening*) | do | 1880 | 5 00 |
| SCHUYLER CO.—*Population:* 16,249. | | | | | |
| Rushville | Schuyler Citizen | Weekly | News and politics | 1856 | 1 75 |
| | Rushville Times | do | do | 1857 | 1 50 |
| SCOTT CO.—*Population:* 10,741. | | | | | |
| Manchester | Scott County Arrow | Weekly | News and politics | 1878 | 2 00 |
| Winchester | Winchester Times | do | do | 1865 | 2 00 |
| | Winchester Independent | do | do | 1870 | 1 50 |
| SHELBY CO.—*Population:* 30,270. | | | | | |
| Mowequa | Moweaqua Register | Weekly | News and politics | 1873 | 1 50 |
| Shelbyville | Shelby County Leader | do | do | 1850 | 1 50 |
| | Shelbyville Union | do | do | 1863 | 1 50 |
| | Shelbyville Democrat | do | do | 1874 | 1 00 |
| | Illustrated Baptist | Monthly | Religious (*Baptist*) | 1879 | 1 00 |
| | Greenback Herald | Weekly | News and politics | 1879 | 1 00 |
| Stewardson | Enterprise | do | do | 1877 | 1 00 |
| Windsor | Windsor Gazette | do | do | 1878 | 1 00 |
| | Windsor Dollar Sentinel (*f*) | do | do | 1876 | 1 00 |
| STARK CO.—*Population:* 11,207. | | | | | |
| Toulon | Stark County News | Weekly | News and politics | 1860 | 1 00 |
| | Toulon Herald | Semi-weekly | do | 1878 | 2 00 |
| Wyoming | Wyoming Post | Weekly | do | 1872 | 2 00 |
| STEPHENSON CO.—*Population:* 31,963. | | | | | |
| Davis | Davis Review | Weekly | News and politics | 1873 | 1 50 |
| Freeport | Bulletin | Daily (*evening*) | do | 1847 | 5 20 |
| | Bulletin | Weekly | do | 1847 | 1 50 |
| | Freeport Journal | do | do | 1848 | 1 50 |
| | Deutscher Anzeiger | do | News and politics (*German*) | 1853 | 2 00 |
| | Freeport News | Monthly | Miscellaneous | 1864 | 50 |
| | Freeport Budget | Weekly | News and politics | 1870 | 1 50 |
| | Herald (*g*) | Daily (*evening*) | do | 1877 | 5 20 |
| | Freeport Banner | Weekly | News and politics (*German*) | 1879 | 1 00 |
| | Freeport True Mission (*h*) | do | Miscellaneous | | |
| Lena | Lena Star | do | News and politics | 1866 | 1 50 |

*a* Suspended May, 1880.
*b* Suspended June, 1880.
*c* Suspended November, 1880.
*d* Suspended.
*e* Suspended July, 1879.
*f* Suspended October, 1879.
*g* Suspended January, 1881.
*h* Suspended January, 1880.

## ILLINOIS—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| TAZEWELL CO.—*Population:* 29,666. | | | | | |
| Delavan | Delavan Advertiser | Weekly | News and politics | 1868 | $1 50 |
| | Delavan Times | do | do | 1874 | 1 50 |
| Minier | Minier News | do | do | 1875 | 1 50 |
| Pekin | Pekin Times | do | do | 1840 | 2 00 |
| | Pekiner Freie Presse | do | News and politics (*German*) | 1876 | 2 00 |
| | Tazewell County Republican | do | News and politics | 1836 | 1 50 |
| Washington | Washington Herald | do | do | 1867 | 1 50 |
| | Washington Republican | do | do | 1876 | 1 50 |
| UNION CO.—*Population:* 18,102. | | | | | |
| Anna | Farmer and Fruit Grower | Weekly | Agricultural | 1877 | 1 25 |
| | Southern Illinois Advocate | do | News and politics | 1880 | 1 00 |
| | Missionary Sentinel | Monthly | Religious (*Reformed Church*) | 1880 | 50 |
| | American Medical Review | do | Medicine and surgery | 1880 | ...... |
| Jonesboro' | Jonesboro' Gazette | Weekly | News and politics | 1849 | 2 00 |
| VERMILION CO.—*Population:* 41,588. | | | | | |
| Danville | Commercial | Daily (*evening*) | News and politics | 1878 | 5 20 |
| | Commercial | Weekly | do | 1862 | 1 50 |
| | Times (*a*) | Daily (*evening*) | do | 1868 | 7 00 |
| | News | do (*morning*) | do | 1876 | 5 20 |
| | News | Weekly | do | 1876 | 1 50 |
| | Danville Deutsche Zeitung | do | News and politics (*German*) | 1877 | 2 00 |
| | Danville Post | do | News and politics | 1878 | 1 50 |
| | Sunday Bourbon (*b*) | Sunday | do | 1879 | 2 00 |
| Hoopeston | Hoopeston Chronicle | Weekly | do | 1872 | 2 00 |
| Rossville | Rossville Press | do | do | 1879 | 1 50 |
| WABASH CO.—*Population:* 9,945. | | | | | |
| Mount Carmel | Register | Weekly | News and politics | 1839 | 1 50 |
| | Republican | do | do | 1878 | 1 50 |
| WARREN CO.—*Population:* 22,933. | | | | | |
| Alexis | Alexis Visitor | Weekly | News and family | 1880 | 1 50 |
| Kirkwood | Enterprise | do | do | 1877 | 1 25 |
| Monmouth | Monmouth Atlas | do | do | 1846 | 2 00 |
| | Monmouth Review | do | do | 1856 | 2 00 |
| | College Courier | Monthly | Collegiate | 1869 | 1 00 |
| | Gazette and Paper | Weekly | News and politics | 1876 | 1 50 |
| Roseville | Roseville Times | do | do | 1875 | 1 50 |
| | Gazette and Paper (*c*) | do | do | 1876 | 1 50 |
| WASHINGTON CO.—*Population:* 21,112. | | | | | |
| Ashley | Ashley Gazette (*d*) | Weekly | News and politics | 1876 | 1 50 |
| Nashville | Nashville Journal | do | do | 1862 | 1 50 |
| | Nashville Democrat | do | do | 1865 | 1 50 |
| | Washington County Zeitung | do | News and politics (*German*) | 1874 | 2 00 |
| | Illinois Volksblatt | do | News and politics (*German*) | 1876 | 2 00 |
| WAYNE CO.—*Population:* 21,291. | | | | | |
| Fairfield | Wayne County Press | Weekly | News and politics | 1866 | 1 50 |
| | Wayne County Record | do | do | 1879 | 1 50 |
| | Fairfield Democrat (*e*) | do | do | 1868 | 1 50 |
| Jeffersonville | Evangelist at Work | do | Religious (*Disciples*) | 1879 | 1 00 |
| WHITE CO.—*Population:* 23,087. | | | | | |
| Carmi | Carmi Courier | Weekly | News and politics | 1869 | 1 50 |
| | Carmi Times | do | do | 1872 | 1 25 |
| Grayville | Grayville Independent | do | do | 1859 | 1 25 |
| WHITESIDE CO.—*Population:* 30,885. | | | | | |
| Erie | Erie Independent | Weekly | News and politics | 1879 | 1 50 |
| Fulton | Fulton Journal | do | do | 1854 | 1 50 |
| Morrison | Whitesides Sentinel | do | do | 1857 | 2 00 |
| | Whitesides Herald | do | do | 1878 | 1 50 |
| Prophetstown | Prophetstown Spike | do | do | 1871 | 1 50 |
| Sterling | Sterling Gazette | do | do | 1854 | 2 00 |
| | Sterling Standard | do | do | 1868 | 1 50 |
| | Sterling Observer | do | do | 1878 | 2 00 |
| | Sterling Beobachter | do | News and politics (*German*) | 1878 | 2 00 |
| | Poultry Banner | Monthly | Agricultural | 1879 | 50 |
| Tampico | Tampico Tornado | Weekly | News and politics | 1876 | 1 50 |
| WILL CO.—*Population:* 53,422. | | | | | |
| Beecher | Breeders' Live-Stock Journal | Monthly | Agricultural | 1880 | 1 00 |
| | Osten Illinoian | Weekly | News and politics | 1880 | 1 00 |
| Braidwood | Braidwood Republican | do | do | 1874 | 1 00 |
| | Braidwood Reporter | do | do | 1879 | 1 00 |
| Joliet | Joliet Signal | do | do | 1839 | 2 00 |
| | Republican | Daily (*morning*) | do | 1847 | 5 00 |
| | Republican | Weekly | do | 1847 | 2 00 |
| | Record | Daily (*morning*) | do | 1871 | 4 00 |
| | Record | Weekly | do | 1871 | 1 50 |
| | Sun | Daily (*evening*) | do | 1872 | 5 00 |
| | Sun | Weekly | do | 1872 | 1 50 |
| | News | Daily (*evening*) | do | 1877 | 3 00 |
| | News | Weekly | do | 1877 | 1 00 |
| | Wochenblatt | do | News and politics (*German*) | 1877 | 2 00 |
| | Joliet Phœnix (*f*) | do | News and politics | ...... | ...... |
| Lemont | Lemont Advertiser (*g*) | do | do | 1878 | ...... |
| Lockport | Phœnix | do | do | 1875 | 1 00 |
| | Will County Commercial Advertiser | do | do | 1878 | 75 |
| Plainfield | Plainfield Advertiser (*g*) | do | do | 1878 | ...... |
| | Plainfield Phœnix (*h*) | do | do | 1876 | ...... |
| Wilmington | Wilmington Advocate | do | do | 1870 | 2 00 |
| | Wilmington Review | do | do | 1876 | 1 50 |

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*a* Suspended February 15, 1880.
*b* Suspended October, 1879.
*c* Merged in "Monmouth Gazette and Paper".
*d* Merged in Franklin Grove, Lee county, "Enterprise".
*e* Merged in Fairfield, Wayne county, "Record".
*f* Suspended July, 1879.
*g* Edition of Lockport "Commercial Advertiser".
*h* Edition of Lockport "Phœnix".

## ILLINOIS—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| WILLIAMSON CO.—*Population:* 19,324. | | | | | |
| Marion | Marion Monitor | Weekly | News and politics | 1874 | $1 50 |
| | Egyptian Press | do | do | 1875 | 1 50 |
| WINNEBAGO CO.—*Population:* 30,505. | | | | | |
| Durand | Durand Patriot (*a*) | Weekly | News and politics | | |
| Pecatonica | Pecatonica News | do | do | 1872 | 1 50 |
| Rockford | Register | Daily (*evening*) | do | 1877 | 4 00 |
| | Register | Weekly | do | 1840 | 1 00 |
| | Gazette | Daily (*evening*) | do | 1879 | 4 00 |
| | Gazette | Weekly | do | 1866 | 1 00 |
| | Gazette | Semi-weekly | do | 1878 | 1 50 |
| | Rockford Journal | Weekly | do | 1866 | 1 50 |
| | Western Banner (*b*) | do | do | | |
| | Sunday Herald (*c*) | Sunday | do | | |
| | News | Daily (*morning*) | do | 1878 | 4 50 |
| | News | Weekly | do | 1878 | 50 |
| Rockton | Rockton Herald | do | do | 1875 | 1 50 |
| WOODFORD CO.—*Population:* 21,620. | | | | | |
| Benson | Benson Journal | Weekly | News and politics | 1865 | 1 50 |
| El Paso | El Paso Journal | do | do | 1864 | 1 50 |
| Eureka | Eureka Journal | do | do | 1868 | 1 50 |
| Low Point | Low Point Journal | do | do | 1880 | 1 50 |
| Metamora | Woodford Sentinel | do | do | 1854 | 1 50 |
| Minonk | Minonk Home Journal | do | do | 1865 | 1 50 |
| | Minonk Blade | do | do | 1874 | 1 50 |
| Roanoke | Roanoke News (*d*) | do | do | 1875 | 1 50 |
| Secor | Secor Journal (*e*) | do | do | 1865 | 1 50 |
| Washburn | Washburn Reveille | do | do | 1868 | 1 50 |
| | Washburn Sentinel (*f*) | do | do | 1876 | 2 00 |

## INDIANA.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| ADAMS CO.—*Population:* 15,385. | | | | | |
| Decatur | Decatur Democrat | Weekly | News and politics | 1857 | $1 50 |
| | Decatur Journal | do | do | 1879 | 1 25 |
| Geneva | Thompson's Geneva Triumph | do | do | 1879 | 75 |
| ALLEN CO.—*Population:* 54,763. | | | | | |
| Fort Wayne | Sentinel | Daily (*evening*) | News and politics | 1834 | 4 80 |
| | Sentinel | Weekly | do | 1834 | 1 00 |
| | Indiana Staats-Zeitung | Daily (*evening*) | News and politics (*German*) | 1877 | 4 00 |
| | Indiana Staats-Zeitung | Weekly | News and politics (*German*) | 1857 | 2 00 |
| | Gazette | Daily (*morning*) | News and politics | 1862 | 6 00 |
| | Gazette | Weekly | do | 1862 | 1 50 |
| | Fort Wayne Journal | do | do | 1867 | 50 |
| | Daily News | Daily (*evening*) | do | 1875 | 3 00 |
| | Christian Age | Weekly | Religious (*Christian*) | 1876 | 1 00 |
| | Sunday Morning Mail | Sunday | News and politics | 1879 | 1 75 |
| | Dispatch-Enterprise | Weekly | do | 1880 | 1 25 |
| | Railway Employé and Mechanics' Journal | Monthly | Mechanics | 1880 | 50 |
| Monroeville | Democrat | Weekly | News and politics | 1868 | 1 25 |
| BARTHOLOMEW CO.—*Population:* 22,777. | | | | | |
| Columbus | Democrat | Daily (*evening*) | News and politics | 1850 | 5 00 |
| | Democrat | Weekly | do | 1850 | 1 50 |
| | Republican | Daily (*evening*) | do | 1872 | 5 00 |
| | Republican | Weekly | do | 1872 | 1 50 |
| Hope | The Philomathean | do | do | 1872 | 1 00 |
| BENTON CO.—*Population:* 11,108. | | | | | |
| Boswell | Benton Telephone | Weekly | News and politics | 1878 | 1 00 |
| Fowler | Fowler Era | do | do | 1873 | 1 50 |
| | Greenback Herald (*g*) | do | do | 1873 | 1 50 |
| | Fowler Review | do | do | 1875 | 1 50 |
| Oxford | Oxford Tribune | do | do | 1853 | 1 50 |
| BLACKFORD CO.—*Population:* 8,020. | | | | | |
| Hartford City | Hartford City News | Weekly | News and politics | 1852 | 1 50 |
| | Telegram | do | do | 1877 | 1 50 |
| Montpelier | Enterprise | do | do | 1880 | 1 50 |
| BOONE CO.—*Population:* 25,922. | | | | | |
| Lebanon | Lebanon Weekly Pioneer | Weekly | News and politics | 1853 | 1 25 |
| | Lebanon Patriot | do | do | 1856 | 1 50 |
| | National Greenbacker | do | do | 1878 | 1 00 |
| Louisville | Louisville Times | do | do | 1870 | 1 00 |
| Thorntown | Thorntown Argus | do | do | 1878 | 1 25 |
| BROWN CO.—*Population:* 10,264. | | | | | |
| Georgetown | Republican (*h*) | Weekly | News and politics | | |
| Nashville | Nashville Jacksohian | do | do | 1870 | 1 25 |
| CARROLL CO.—*Population:* 18,345. | | | | | |
| Camden | Camden Expositor | Weekly | News and politics | 1880 | 1 25 |
| Delphi | Delphi Weekly Times | do | do | 1836 | 1 50 |
| | Delphi Journal | do | do | 1850 | 1 50 |
| | Delphi Enterprise | do | do | 1880 | 1 00 |
| CASS CO.—*Population:* 27,611. | | | | | |
| Galveston | Galveston Herald | Weekly | News and politics | 1875 | 1 25 |
| Logansport | Journal | Daily (*morning*) | do | 1841 | 6 00 |
| | Journal | Weekly | do | 1841 | 1 50 |

[a] Merged in "Exponent", Dell Rapids, Dakota.
[b] Suspended September, 1879.
[c] Suspended December, 1879.
[d] Edition of "Minonk Blade".
[e] Edition of "El Paso Journal".
[f] Edition of Metamora "Sentinel".
[g] Suspended in 1879.
[h] Suspended.

## INDIANA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| CASS CO.—Continued. | | | | | |
| Logansport—Continued | Pharos | Daily (*evening*) | News and politics | 1874 | $5 00 |
| | Pharos | Weekly | do | 1842 | 1 50 |
| | Chronicle | do | News and politics (*Eng. and Germ.*) | 1875 | 1 50 |
| | Our Young Men's Monthly (*a*) | Monthly | Religious (*Evangelical*) | 1879 | 50 |
| | Real Estate Journal (*b*) | do | Real estate | | |
| | Logansport Enterprise (*b*) | Weekly | News and politics | | |
| CLARK CO.—*Population:* 28,610. | | | | | |
| Charlestown | Clark County Record | Weekly | News and politics | 1869 | 2 00 |
| Jeffersonville | Evening News | Daily (*evening*) | do | 1872 | 5 00 |
| | National Democrat | Weekly | do | 1854 | 2 00 |
| | Evening Times | Daily (*evening*) | do | 1880 | 5 20 |
| | Jeffersonville Times | Weekly | do | 1880 | 1 25 |
| CLAY CO.—*Population:* 25,854. | | | | | |
| Bowling Green | Clay County Review | Weekly | News and politics | 1875 | 1 00 |
| Brazil | Brazil Miner | do | do | 1867 | 1 50 |
| | Clay County Enterprise | do | do | 1872 | 1 50 |
| | Brazil National Index (*c*) | do | do | 1878 | 1 50 |
| | Brazil Western Mirror (*d*) | do | do | 1873 | 2 00 |
| | Argus Magnet | do | do | 1880 | 1 50 |
| CLINTON CO.—*Population:* 23,472. | | | | | |
| Colfax | Colfax Chronicle | Weekly | News and politics | 1877 | 1 50 |
| Frankfort | Frankfort Crescent | do | do | 1851 | 1 50 |
| | Frankfort Banner | do | do | 1864 | 2 00 |
| Rossville | Rossville Examiner | do | do | 1875 | 1 00 |
| CRAWFORD CO.—*Population:* 12,356. | | | | | |
| Leavenworth | Crawford County Herald (*e*) | Weekly | News and politics | 1879 | 1 25 |
| | Crawford County Democrat | do | do | 1879 | 1 25 |
| DAVIESS CO.—*Population:* 21,552. | | | | | |
| Washington | Washington Gazette | Weekly | News and politics | 1865 | 1 25 |
| | Daviess County Democrat | do | do | 1867 | 1 25 |
| | National Ventilator (*f*) | do | do | 1879 | 75 |
| DEARBORN CO.—*Population:* 26,671. | | | | | |
| Aurora | Dearborn Independent | Weekly | News and politics | 1868 | 2 00 |
| | Saturday News | do | do | 1874 | 2 00 |
| Lawrenceburg | Lawrenceburg Register | do | do | 1836 | 1 50 |
| | Lawrenceburg Press | do | do | 1855 | 1 50 |
| DECATUR CO.—*Population:* 19,779. | | | | | |
| Greensburg | Greensburg Standard | Weekly | News and politics | 1835 | 2 00 |
| | Decatur News | do | do | 1868 | 1 50 |
| | Saturday Review | do | do | 1879 | 1 00 |
| Saint Paul | Saint Paul Register | do | do | 1879 | 1 25 |
| DE KALB CO.—*Population:* 20,225. | | | | | |
| Auburn | Auburn Courier | Weekly | News and politics | 1870 | 1 50 |
| | De Kalb County Republican | do | do | 1874 | 1 50 |
| Butler | Butler Record | do | do | 1877 | 1 00 |
| Garrett City | Garrett Herald | do | do | 1877 | 1 50 |
| Waterloo | Waterloo Press | do | do | 1859 | 1 50 |
| DELAWARE CO.—*Population:* 22,926. | | | | | |
| Muncie | Muncie Times | Weekly | News and politics | 1861 | 1 00 |
| | Muncie Democrat | do | do | 1870 | 1 50 |
| | Daily News | Daily (*evening*) | do | 1872 | 5 00 |
| | Muncie News | Weekly | do | 1872 | 1 00 |
| DUBOIS CO.—*Population:* 15,992. | | | | | |
| Huntingburg | Huntingburgh Signal | Weekly | News and politics (*German*) | 1867 | 1 50 |
| Ireland | Ireland Argus | do | News and politics | 1879 | 1 00 |
| Jasper | Jasper Courier | do | do | 1858 | 1 50 |
| | Jasper Times | do | do | 1876 | 1 50 |
| ELKHART CO.—*Population:* 33,454. | | | | | |
| Bristol | Bristol Banner | Weekly | News and politics | 1877 | 1 50 |
| Elkhart | Review | Daily (*evening*) | do | 1872 | 5 00 |
| | Review | Weekly | do | 1872 | 1 50 |
| | Herald of Truth | Monthly | Religious (*Mennonite*) | 1864 | 1 00 |
| | Herold de Wahrheit | do | Religious (*Mennonite; German*) | 1864 | 1 00 |
| | Words of Cheer | do | Religious | 1876 | 25 |
| | Christliche Jugendfreund | do | Religious (*Mennonite; German*) | 1878 | 25 |
| Goshen | Goshen Democrat | Weekly | News and politics | 1837 | 2 00 |
| | Goshen Times | do | do | 1856 | 2 00 |
| | Goshen Independent | do | do | 1876 | 1 50 |
| | Gospel Banner | Semi-monthly | Religious (*Mennonite*) | 1878 | 1 00 |
| | Evangeliums Panier | do | Religious (*Mennonite; German*) | 1878 | 1 00 |
| Middlebury | Middlebury Record | Weekly | News and politics | 1878 | 1 50 |
| Nappanee | Nappanee News | do | do | 1879 | 1 50 |
| FAYETTE CO.—*Population:* 11,394. | | | | | |
| Connersville | Connersville Times | Weekly | News and politics | 1850 | 2 00 |
| | Connersville News | do | do | 1866 | 1 50 |
| | Connersville Examiner | do | do | 1867 | 2 00 |
| FLOYD CO.—*Population:* 24,590. | | | | | |
| New Albany | Ledger-Standard | Daily (*evening*) | News and politics | 1849 | 7 50 |
| | Ledger-Standard | Weekly | do | 1849 | 1 50 |
| | Deutsche Zeitung | do | News and politics (*German*) | 1875 | 2 00 |
| | Das Echo der Gegenwart und der Zeitgeist | Bi-weekly | News and politics (*German*) | 1876 | 1 25 |
| FOUNTAIN CO.—*Population:* 20,228. | | | | | |
| Attica | Attica Ledger | Weekly | News and politics | 1851 | 1 75 |
| | Attica Journal (*b*) | do | do | | |
| Covington | People's Friend | do | do | 1842 | 2 00 |
| | Spence's People's Paper | do | do | 1873 | 1 50 |
| | Covington Journal | do | do | 1877 | 1 50 |
| Veedersburg | Veedersburg Reporter | do | do | 1876 | 1 50 |

*a* Suspended September, 1880.
*b* Suspended.
*c* Suspended July, 1879.
*d* Merged in "Brazil Miner".
*e* Suspended after census year.
*f* Suspended March, 1880.

## INDIANA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| FRANKLIN CO.—*Population: 20,092.* | | | | | |
| Brookville | Franklin Democrat | Weekly | News and politics | 1839 | $1 50 |
| | Brookville American | do | do | 1851 | 1 75 |
| | Der Leucht-Thurm | do | News and politics (*German*) | 1872 | 1 75 |
| | Valley Sentinel | do | News and politics | 1877 | 1 50 |
| Laurel | Laurel Review (*a*) | do | do | 1877 | 1 50 |
| FULTON CO.—*Population: 14,301.* | | | | | |
| Kewanna | Kewanna Enterprise (*b*) | Weekly | News and politics | | |
| Rochester | Rochester Sentinel | do | do | 1857 | 2 00 |
| | Rochester Republican | do | do | 1868 | 1 50 |
| GIBSON CO.—*Population: 22,742.* | | | | | |
| Oakland | Oakland City Times | Weekly | News and politics | 1878 | 1 00 |
| Owensville | Weekly Echo | do | do | 1879 | 1 25 |
| Princeton | Princeton Clarion | do | do | 1846 | 1 50 |
| | Princeton Democrat | do | do | 1861 | 1 50 |
| GRANT CO.—*Population: 23,618.* | | | | | |
| Fairmount | Fairmount News | Weekly | News and politics | 1877 | 1 25 |
| Marion | Marion Chronicle | do | do | 1867 | 1 50 |
| | Marion Democrat | do | do | 1870 | 1 50 |
| | Grant County Republican (*c*) | do | do | 1880 | 1 25 |
| GREENE CO.—*Population: 22,996.* | | | | | |
| Bloomfield | Bloomfield Democrat | Weekly | News and politics | 1868 | 1 50 |
| | Bloomfield News | do | do | 1875 | 1 00 |
| Owensburgh | Owensburgh Gazette (*d*) | do | do | 1877 | 1 00 |
| Worthington | Worthington Times | do | do | 1853 | 1 50 |
| HAMILTON CO.—*Population: 24,801.* | | | | | |
| Noblesville | Republican Ledger | Weekly | News and politics | 1871 | 1 50 |
| | Noblesville Independent | do | do | 1874 | 1 50 |
| HANCOCK CO.—*Population: 17,123.* | | | | | |
| Greenfield | Hancock Democrat | Weekly | News and politics | 1860 | 1 00 |
| | Odd Fellows' Chronicle | Semi-monthly | Secret society | 1872 | 1 50 |
| | Hancock Jeffersonian | Weekly | News and politics | 1878 | 1 00 |
| | Independent Medical Investigator | Monthly | Medicine and surgery | 1879 | 50 |
| HARRISON CO.—*Population: 21,326.* | | | | | |
| Corydon | Corydon Democrat | Weekly | News and politics | 1857 | 2 00 |
| | Corydon Republican | do | do | 1868 | 1 50 |
| HENDRICKS CO.—*Population: 22,981.* | | | | | |
| Danville | Hendricks County Democrat | Weekly | News and politics | 1878 | 1 50 |
| | Normal Teacher | Monthly | Educational | 1878 | 1 00 |
| | Hendricks County Union | Weekly | News and politics | 1879 | 1 50 |
| Plainfield | Hendricks County Citizen (*e*) | do | do | 1879 | 1 25 |
| HENRY CO.—*Population: 24,016.* | | | | | |
| Knightstown | Knightstown Banner | Weekly | News and politics | 1867 | 1 25 |
| | Dental News | Monthly | Medicine and surgery | 1879 | 1 00 |
| | Knightstown Shield | Weekly | News and politics | 1879 | 1 00 |
| Lewisville | Lewisville Democrat | do | do | 1877 | 1 25 |
| New Castle | New Castle Courier | do | do | 1841 | 1 50 |
| | New Castle Mercury | do | do | 1865 | 1 50 |
| | New Castle Democrat | do | do | 1878 | 1 50 |
| Spiceland | Spiceland Reporter | do | do | 1873 | 1 25 |
| HOWARD CO.—*Population: 19,584.* | | | | | |
| Kokomo | Kokomo Saturday Tribune | Weekly | News and politics | 1851 | 1 75 |
| | Kokomo Dispatch | do | do | 1870 | 2 00 |
| | Kokomo Gazette | do | do | 1879 | 1 00 |
| Russiaville | Russiaville Standard (*f*) | do | do | 1878 | 1 00 |
| HUNTINGTON CO.—*Population: 21,805.* | | | | | |
| Antioch | Antioch Enterprise | Weekly | News and politics | 1879 | 1 00 |
| Huntington | Indiana Herald | do | do | 1848 | 2 00 |
| | Huntington Democrat | do | do | 1848 | 2 00 |
| | Lime City News | do | do | 1878 | 1 50 |
| | Roanoke Journal (*g*) | do | do | | |
| Warren | Warren News | do | do | 1878 | 1 25 |
| JACKSON CO.—*Population: 23,050.* | | | | | |
| Brownstown | Brownstown Banner | Weekly | News and politics | 1860 | 1 25 |
| Seymour | Seymour Times | do | do | 1855 | 2 00 |
| | Seymour Democrat | do | do | 1858 | 1 50 |
| | Daily Lever | Daily (*evening*) | do | 1876 | 5 00 |
| | Monitor-Journal | Weekly | Temperance | 1877 | 1 00 |
| | Seymour Republican | Daily (*morning*) | News and politics | 1879 | 5 20 |
| | Seymour Republican | Weekly | do | 1879 | 1 50 |
| JASPER CO.—*Population: 9,464.* | | | | | |
| Remington | Remington Reporter | Weekly | News and politics | 1879 | 1 50 |
| Rensselaer | Democratic Sentinel | do | do | 1877 | 1 50 |
| | Rensselaer Republican | do | do | 1878 | 1 50 |
| JAY CO.—*Population: 19,282.* | | | | | |
| Dunkirk | Dunkirk Banner | Weekly | News and politics | 1877 | 1 25 |
| Portland | Portland Commercial | do | do | 1865 | 1 25 |
| | Portland Sun | do | do | 1871 | 1 25 |
| JEFFERSON CO.—*Population: 25,977.* | | | | | |
| Madison | Courier | Daily (*evening*) | News and politics | 1849 | 7 50 |
| | Courier | Weekly | do | 1837 | 1 50 |
| | Madison Herald | do | do | 1870 | 1 50 |
| | Evening Star | Daily (*evening*) | do | 1876 | 5 00 |
| | Dollar Star | Weekly | do | 1876 | 1 00 |
| JENNINGS CO.—*Population: 16,453.* | | | | | |
| North Vernon | North Vernon Plain Dealer | Weekly | News and politics | 1864 | 1 50 |
| | North Vernon Sun | do | do | 1872 | 1 50 |
| Vernon | Vernon Banner | do | do | 1850 | 1 50 |

*a* Suspended June, 1880.
*b* Suspended May, 1880.
*c* Removed to Marion December, 1880.
*d* Suspended June, 1879.
*e* Changed name to "Progress", November, 1880.
*f* Suspended November, 1880.
*g* Suspended November, 1879.

## INDIANA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **Johnson co.**—*Population:* 19,537. | | | | | |
| Edinburg | Edinburg Courier | Weekly | News and politics | 1875 | $1 50 |
| Franklin | Franklin Jeffersonian | do | do | 1845 | 1 50 |
| | Franklin Democrat | do | do | 1859 | 1 50 |
| | Daily Herald | Daily (*evening*) | do | 1879 | 4 00 |
| **Knox co.**—*Population:* 26,324. | | | | | |
| Vincennes | Western Sun | Daily (*evening*) | News and politics | 1804 | 7 50 |
| | Western Sun | Weekly | do | 1804 | 2 00 |
| | Vincennes Commercial | do | do | 1878 | 1 25 |
| | Vincennes News | do | do | 1879 | 1 50 |
| | Vincennes Times (*a*) | do | do | 1865 | 1 50 |
| **Kosciusko co.**—*Population:* 26,494. | | | | | |
| Pierceton | Pierceton Independent | Weekly | News and politics | 1879 | 1 50 |
| Syracuse | Syracuse Reflector (*b*) | do | do | 1879 | 1 50 |
| Warsaw | Northern Indianian | do | do | 1856 | 2 00 |
| | Warsaw National Union | do | do | 1861 | 2 00 |
| | Warsaw Republican | do | do | 1877 | 1 50 |
| **La Grange co.**—*Population:* 15,630. | | | | | |
| La Grange | La Grange Standard | Weekly | News and politics | 1856 | 2 00 |
| | La Grange Register | do | do | 1874 | 2 00 |
| | La Grange Democrat | do | do | 1879 | 1 50 |
| | Island Park Assembly | Monthly | Edncational | 1879 | 50 |
| **Lake co.**—*Population:* 15,091. | | | | | |
| Crown Point | Crown Point Register | Weekly | News and politics | 1857 | 2 00 |
| | Lake County Star | do | do | 1870 | 1 50 |
| | Freie Presse | do | News and politics (*German*) | 1875 | 2 00 |
| | Crown Point Cosmos (*c*) | do | News and politics | 1877 | 1 50 |
| Hobart | Hobart Journal | do | do | 1878 | 2 00 |
| Lowell | Lowell Local News | do | do | 1878 | 2 00 |
| **La Porte co.**—*Population:* 30,985. | | | | | |
| La Porte | Herald-Chronicle | Weekly | News and politics | 1856 | 2 00 |
| | La Porte Argus | do | do | 1869 | 2 00 |
| | La Porte Journal | do | News and politics (*German*) | 1877 | 2 00 |
| Michigan City | Michigan City Enterprise | do | News and politics | 1857 | 2 00 |
| | Michigan City Dispatch | do | do | 1879 | 2 00 |
| | Freie Presse (*d*) | do | News and politics (*German*) | | |
| **Lawrence co.**—*Population:* 18,543. | | | | | |
| Bedford | Bedford Banner | Weekly | News and politics | 1872 | 1 50 |
| | Bedford Star | do | do | 1875 | 75 |
| | Common School Teacher | Monthly | Educational | 1875 | 1 00 |
| | Bedford Journal | Weekly | News and politics | 1876 | 1 25 |
| | True Republican (*d*) | do | do | | |
| Mitchell | Mitchell Commercial | do | do | 1866 | 1 50 |
| | Mitchell Times | do | do | 1877 | 1 00 |
| **Madison co.**—*Population:* 27,527. | | | | | |
| Alexandria | Alexandria Bee (*d*) | Weekly | News and politics | | |
| Anderson | Anderson Democrat | do | do | 1858 | 1 50 |
| | Anderson Herald | do | do | 1868 | 2 00 |
| Elwood | Review | do | do | 1877 | 1 50 |
| Pendleton | Pendleton Republican | do | do | 1878 | 1 25 |
| **Marion co.**—*Population:* 102,782. | | | | | |
| Indianapolis | Journal | Daily (*morning*) | News and politics | 1823 | 12 00 |
| | Journal | Sunday | do | 1823 | 2 00 |
| | Journal | Weekly | do | 1823 | 1 00 |
| | Sentinel | Daily (*morning*) | do | 1824 | 10 00 |
| | Sentinel | Weekly | do | 1824 | 1 50 |
| | Indiana School Journal | Monthly | Educational | 1856 | 1 50 |
| | Taeglicher Telegraph | Daily (*morning*) | News and politics (*German*) | 1864 | 12 00 |
| | Indiana Volksblatt und Telegraph | Weekly | News and politics (*German*) | 1864 | 2 00 |
| | Indiana Farmer | do | Agricultural | 1865 | 2 00 |
| | Spottvogel | Sunday | News and politics (*German*) | 1865 | 2 00 |
| | Die Zukunft | Weekly | Educational (*German*) | 1867 | 2 50 |
| | Masonic Advocate | Monthly | Secret society | 1867 | 1 10 |
| | Morning Watch (*d*) | do | Religious (*Unsectarian*) | 1867 | |
| | Odd Fellows' Talisman and Literary Journal | do | Secret society | 1868 | 2 00 |
| | News | Daily (*evening*) | News and politics | 1869 | 6 00 |
| | News | Weekly | do | 1869 | 90 |
| | The People | do | do | 1870 | 2 00 |
| | Saturday Herald | do | do | 1873 | 2 00 |
| | Indianapolis Sun | do | do | 1873 | 1 00 |
| | Pythian Journal | Monthly | Secret society | 1874 | 1 00 |
| | Mechanical Journal | do | Mechanics | 1875 | 50 |
| | The Millstone | do | Trade | 1875 | 1 00 |
| | Indiana Official Railroad Guide | do | Insurance, railroads, etc | 1875 | 50 |
| | Western Citizen | Weekly | News and politics | 1876 | 2 00 |
| | Indiana Tribuene | do | News and politics (*German*) | 1878 | 2 00 |
| | Western Sportsman and Live-Stock News | do | Live-stock, etc | 1878 | 2 00 |
| | Indianapolis Republican | do | News and politics | 1879 | 1 50 |
| | Indianapolis Leader | do | do | 1879 | 2 00 |
| | Drainage Farm Journal | Monthly | Agricultural | 1879 | 1 00 |
| | Live-Stock Review | Tri-weekly | do | 1879 | 2 00 |
| | Central Catholic (*e*) | Weekly | Religious (*Catholic*) | | |
| **Marshall co.**—*Population:* 23,414. | | | | | |
| Bourbon | Bourbon Mirror | Weekly | News and politics | 1871 | 2 00 |
| Plymouth | Plymouth Democrat | do | do | 1854 | 2 00 |
| | Plymouth Republican | do | do | 1856 | 2 00 |
| | Restitution | do | Religious (*Unsectarian*) | 1869 | 2 00 |
| | Indiana Greenbacker (*f*) | do | News and politics | 1878 | 1 50 |
| **Martin co.**—*Population:* 13,475. | | | | | |
| Loogootee | Loogootee Tribune | Weekly | News and politics | 1875 | 1 00 |
| | Loogootee Sun | do | do | 1880 | 1 00 |
| Shoals | Martin County Herald | do | do | 1868 | 1 50 |

*a* Suspended November, 1879.
*b* Suspended June, 1880.
*c* Merged in "Register" September, 1880.
*d* Suspended.
*e* Merged in "Central Catholic Advocate", Louisville, Ky., during census year.
*f* Suspended October, 1880.

## INDIANA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| MIAMI CO.—*Population:* 24,083. | | | | | |
| Bunker Hill | Bunker Hill Press | Weekly | News and politics | 1878 | $1 00 |
| Peru | Miami County Sentinel | do | do | 1848 | 1 50 |
| | Peru Republican | do | do | 1856 | 1 50 |
| | Wabash Valley Blade (*a*) | do | do | | |
| | Saturday Herald (*b*) | do | do | 1879 | |
| Xenia | Xenia Times | do | do | 1880 | 1 00 |
| MONROE CO.—*Population:* 15,875. | | | | | |
| Bloomington | Republican Progress | Weekly | News and politics | 1835 | 2 00 |
| | Bloomington Courier | do | do | 1875 | 1 50 |
| | Bloomington Blade (*c*) | do | do | 1880 | 1 50 |
| MONTGOMERY CO.—*Population:* 27,316. | | | | | |
| Crawfordsville | Crawfordsville Review | Weekly | News and politics | 1840 | 1 50 |
| | Saturday Evening Journal | do | do | 1847 | 1 50 |
| | The Wabash | Monthly | Collegiate | 1858 | 1 00 |
| | Crawfordsville Star | Weekly | News and politics | 1872 | 1 50 |
| | Botanical Gazette | Monthly | Horticultural | 1875 | 1 00 |
| | Daily News | Daily (*evening*) | News and politics | 1879 | 5 20 |
| Ladoga | Leader (*d*) | Weekly | do | 1876 | 1 00 |
| Waynetown | Waynetown Banner | do | do | 1874 | 1 25 |
| MORGAN CO.—*Population:* 18,900. | | | | | |
| Martinsville | Martinsville Gazette | Weekly | News and politics | 1848 | 1 25 |
| | Martinsville Republican | do | do | 1870 | 1 50 |
| Mooresville | Mooresville Herald (*e*) | do | do | 1875 | 1 25 |
| NEWTON CO.—*Population:* 8,167. | | | | | |
| Goodland | Goodland Herald | Weekly | News and politics | 1877 | 1 50 |
| | Goodland Register (*f*) | do | do | 1877 | 1 50 |
| Kentland | Kentland Gazette | do | do | 1864 | 1 50 |
| | People's Press | do | do | 1874 | 1 50 |
| Morocco | Morocco Courier | do | do | 1877 | 1 50 |
| NOBLE CO.—*Population:* 22,956. | | | | | |
| Albion | Albion New Era | Weekly | News and politics | 1872 | 2 00 |
| Avilla | Avilla Register (*g*) | do | do | | |
| Kendallville | Kendallville Standard | do | do | 1863 | 2 00 |
| | Weekly News | do | do | 1877 | 1 50 |
| | Bee-Keeper's Guide | Monthly | Agricultural | 1877 | 50 |
| Ligonier | Ligonier Banner | Weekly | News and politics | 1866 | 2 00 |
| Rome City | Herald of Gospel Freedom | Semi-monthly | Religious (*Church of God*) | 1878 | 75 |
| | Rome City Sentinel | Weekly | News and politics | 1880 | 1 00 |
| | Rome City Times (*f*) | do | do | | |
| OHIO CO.—*Population:* 5,563. | | | | | |
| Rising Sun | Rising Sun Recorder | Weekly | News and politics | 1833 | 2 00 |
| | Rising Sun Local | do | do | 1879 | 1 50 |
| ORANGE CO.—*Population:* 14,363. | | | | | |
| Paoli | Paoli Weekly News | Weekly | News and politics | 1872 | 1 50 |
| | Paoli Republican | do | do | 1876 | 1 50 |
| | Greenback Advocate | do | do | 1879 | 1 00 |
| OWEN CO.—*Population:* 15,901. | | | | | |
| Spencer | Owen County Journal | Weekly | News and politics | 1858 | 2 00 |
| | Owen County People | do | do | 1879 | 1 00 |
| | Spencer Free Press (*a*) | do | do | | |
| PARKE CO.—*Population:* 19,460. | | | | | |
| Montezuma | Montezuma New Era | Weekly | News and politics | 1877 | 1 00 |
| Rockville | Rockville Tribune | do | do | 1870 | 1 50 |
| | Parke County Leader | do | do | 1879 | 1 50 |
| PERRY CO.—*Population:* 16,997. | | | | | |
| Cannelton | Enquirer and Reporter | Weekly | News and politics | 1852 | 1 50 |
| | Cannelton Advance (*h*) | do | do | 1879 | 1 00 |
| Tell City | Tell City Anzeiger | do | News and politics (*German*) | 1866 | 2 00 |
| PIKE CO.—*Population:* 16,383. | | | | | |
| Petersburg | Pike County Democrat | Weekly | News and politics | 1868 | 1 50 |
| | Petersburg Press | do | do | 1869 | 1 25 |
| | National Ventilator (*b*) | do | do | | |
| PORTER CO.—*Population:* 17,227. | | | | | |
| Hebron | Hebron News (*f*) | Weekly | News and politics | | |
| Valparaiso | Porter County Vidette | do | do | 1857 | 2 00 |
| | Valparaiso Messenger | do | do | 1871 | 2 00 |
| POSEY CO.—*Population:* 20,857. | | | | | |
| Cynthiana | Cynthiana Investigator (*f*) | Weekly | News and politics | | |
| Mount Vernon | Mount Vernon Democrat | do | do | 1867 | 1 00 |
| | Wochenblatt | do | News and politics (*German*) | 1875 | 1 50 |
| | Western Star | do | News and politics | 1877 | 1 00 |
| | Weekly Sun | do | do | 1870 | 1 00 |
| New Harmony | New Harmony Register | do | do | 1867 | 1 00 |
| PULASKI CO.—*Population:* 9,851. | | | | | |
| Winamac | Winamac Democrat | Weekly | News and politics | 1856 | 1 50 |
| | Winamac Republican | do | do | 1861 | 1 50 |
| | Winamac Journal | do | do | 1878 | 1 50 |
| PUTNAM CO.—*Population:* 22,501. | | | | | |
| Bainbridge | Bainbridge News (*f*) | Weekly | News and politics | 1878 | 1 00 |
| Cloverdale | Cloverdale Courier | do | do | 1878 | 1 00 |
| Greencastle | Greencastle Banner | do | do | 1849 | 1 50 |
| | Dollar Press | do | do | 1858 | 1 00 |
| | Greencastle Star | do | do | 1874 | 1 00 |
| | Asbury Monthly | Monthly | Collegiate | 1879 | 1 00 |

*a* Suspended during census year.
*b* Suspended November, 1879.
*c* Suspended February, 1881.
*d* Established 1876 as the "Journal".
*e* Removed to Cloverdale January, 1881.
*f* Suspended.
*g* Suspended September, 1879.
*h* Suspended February, 1880.

## INDIANA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| RANDOLPH CO.—*Population:* 26,435. | | | | | |
| Union City | Union City Eagle | Weekly | News and politics | 1863 | $1 50 |
| | Union City Times | do | do | 1872 | 1 50 |
| | Plaindealer | do | do | 1877 | 1 50 |
| | Free Press | do | do | 1880 | 60 |
| Winchester | Winchester Journal | do | do | 1842 | 1 00 |
| | Winchester Herald | do | do | 1875 | 1 00 |
| RIPLEY CO.—*Population:* 21,627. | | | | | |
| Osgood | Ripley County Journal | Weekly | News and politics | 1866 | 1 50 |
| Versailles | Versailles Index | do | do | 1857 | 1 25 |
| RUSH CO.—*Population:* 19,238. | | | | | |
| Rushville | Rushville Jacksonian | Weekly | News and politics | 1840 | 1 50 |
| | Rushville Republican | do | do | 1852 | 1 50 |
| SAINT JOSEPH CO.—*Population:* 33,178. | | | | | |
| Mishawaka | Mishawaka Enterprise | Weekly | News and politics | 1855 | 1 50 |
| New Carlisle | New Carlisle Gazette | do | do | 1880 | 1 00 |
| Notre Dame | Ave Maria | do | Religious (*Catholic*) | 1865 | 2 50 |
| | Notre Dame Scholastic | do | Collegiate | 1867 | 1 50 |
| South Bend | South Bend Register | Daily (*evening*) | News and politics | 1845 | 6 00 |
| | South Bend Register | Sunday | do | 1845 | 50 |
| | South Bend Register | Weekly | do | 1845 | 1 50 |
| | South Bend Herald | do | do | 1865 | 1 50 |
| | South Bend Tribune | Daily (*evening*) | do | 1872 | 6 00 |
| | South Bend Tribune | Sunday | do | 1872 | 1 50 |
| | South Bend Tribune | Weekly | do | 1872 | 1 00 |
| | South Bend Courier | do | News and politics (*German*) | 1873 | 2 00 |
| | South Bend Era | do | News and politics | 1880 | 1 00 |
| Walkerton | Walkerton Visitor | do | do | 1875 | 1 50 |
| | Saint Joseph County Republican | do | do | 1879 | 1 00 |
| SCOTT CO.—*Population:* 8,343. | | | | | |
| Scottsburgh | Scott County Democrat | Weekly | News and politics | 1865 | 1 00 |
| SHELBY CO.—*Population:* 25,257. | | | | | |
| Shelbyville | Shelbyville Republican | Daily (*evening*) | News and politics | 1866 | 6 00 |
| | Shelbyville Republican | Weekly | do | 1866 | 2 00 |
| | Shelby Democrat | do | do | 1878 | 1 50 |
| | Shelby Volunteer | do | do | 1880 | 1 50 |
| SPENCER CO.—*Population:* 22,122. | | | | | |
| Grandview | Grandview Monitor | Weekly | News and politics | 1867 | 1, 50 |
| Rockport | Rockport Democrat | do | do | 1855 | 1 50 |
| | Rockport Banner | do | News and politics (*German*) | 1877 | 1 50 |
| | Rockport Journal | do | News and politics | 1877 | 1 50 |
| | Rockport Gazette | do | do | 1877 | 1 50 |
| STARKE CO.—*Population:* 5,105. | | | | | |
| Knox | Starke County Ledger | Weekly | News and politics | 1860 | 2 00 |
| | Starke County Enterprise | do | do | 1876 | 1 50 |
| STEUBEN CO.—*Population:* 14,645. | | | | | |
| Argola | Steuben Republican | Weekly | News and politics | 1856 | 2 00 |
| | Angola Herald | do | do | 1876 | 1 50 |
| Fremont | Poultry Gazette (*a*) | do | Agricultural | ........ | ........ |
| SULLIVAN CO.—*Population:* 20,336. | | | | | |
| Sullivan | Sullivan Democrat | Weekly | News and politics | 1854 | 1 50 |
| | Sullivan Union | do | do | 1866 | 1 50 |
| | True Democracy | do | do | 1878 | 1 50 |
| SWITZERLAND CO.—*Population:* 13,336. | | | | | |
| Vevay | Vevay Reveille | Weekly | News and politics | 1817 | 2 00 |
| | Vevay Democrat | do | do | 1868 | 1 50 |
| TIPPECANOE CO.—*Population:* 35,966. | | | | | |
| La Fayette | La Fayette Journal | Daily (*morning*) | News and politics | 1829 | 10 00 |
| | La Fayette Journal | Sunday | do | 1829 | 2 00 |
| | La Fayette Journal | Weekly | do | 1829 | 1 00 |
| | La Fayette Courier | Daily (*evening*) | do | 1848 | 10 00 |
| | La Fayette Courier | Weekly | do | 1831 | 2 00 |
| | La Fayette Dispatch | Daily (*evening*) | do | 1869 | 5 00 |
| | La Fayette Dispatch | Weekly | do | 1869 | 2 00 |
| | Der Deutsche Amerikaner | do | News and politics (*German*) | 1869 | 2 00 |
| | Sunday Leader | Sunday | News and politics | 1874 | 2 00 |
| | La Fayette Home Journal | Weekly | Miscellaneous | 1874 | 1 50 |
| | Trade Journal | Semi-monthly | Commerce and trade | 1878 | 1 50 |
| | Sunday Times | Sunday | News and politics | 1879 | 1 50 |
| | Temperance Herald | Weekly | Temperance | 1879 | 1 00 |
| | Saturday Evening News (*b*) | do | News and politics | 1879 | 50 |
| TIPTON CO.—*Population:* 14,407. | | | | | |
| Tipton | Tipton Times | Weekly | News and politics | 1855 | 1 50 |
| | Tipton Advocate | do | do | 1878 | 1 50 |
| Windfall | Windfall News | do | do | 1876 | 1 00 |
| UNION CO.—*Population:* 7,673. | | | | | |
| Liberty | Liberty Herald | Weekly | News and politics | 1851 | 1 50 |
| | Liberty Mail | do | do | 1878 | 1 50 |
| VANDERBURGH CO.—*Population:* 42,193. | | | | | |
| Evansville | Journal | Daily (*morning*) | News and politics | 1831 | 10 00 |
| | Journal | Weekly | do | 1831 | 1 00 |
| | Journal | Tri-weekly | do | 1831 | 7 00 |
| | Union | Daily (*evening*) | News and politics (*German*) | 1849 | 7 00 |
| | Union | Weekly | News and politics (*German*) | 1849 | 2 00 |
| | Demokrat | Daily (*morning*) | News and politics (*German*) | 1864 | 6 00 |
| | Demokrat | Sunday | News and politics (*German*) | 1864 | 2 00 |
| | Demokrat | Weekly | News and politics (*German*) | 1864 | 2 00 |
| | Courier | Daily (*morning*) | News and politics | 1866 | 8 00 |
| | Courier | Sunday | do | 1866 | 2 00 |
| | Courier | Weekly | do | 1866 | 1 00 |
| | Evening Tribune | Daily (*evening*) | do | 1877 | 7 00 |
| | Evansville Tribune | Weekly | do | 1877 | 1 00 |
| | Die Indiana Post | Sunday | News and politics (*German*) | 1879 | 2 00 |

*a* Suspended January, 1880.

*b* Suspended.

## INDIANA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| VERMILLION CO.—*Population:* 12,025. | | | | | |
| Clinton | Clinton Herald | Weekly | News and politics | 1877 | $1 50 |
| | Western Indianian (*a*) | do | do | | |
| Newport | Hoosier State | do | do | 1855 | 1 50 |
| VIGO CO.—*Population:* 45,658. | | | | | |
| Terre Haute | Express | Daily (*morning*) | News and politics | 1851 | 10 00 |
| | Express | Sunday | do | 1878 | 2 00 |
| | Express | Weekly | do | 1878 | 1 50 |
| | Evening Gazette | Daily (*evening*) | do | 1868 | 7 50 |
| | Terre Haute Gazette | Weekly | do | 1868 | 1 50 |
| | Terre Haute Banner | Tri-weekly | News and politics (*German*) | 1870 | 5 00 |
| | Terre Haute Banner | Weekly | News and politics (*German*) | 1870 | 2 00 |
| | Saturday Evening Mail | do | News and politics | 1870 | 2 00 |
| | Saturday Evening Ledger | Semi-weekly | do | 1877 | 1 50 |
| | Terre Haute Courier | Weekly | do | 1877 | 1 00 |
| | National Weekly (*b*) | do | do | 1879 | 1 00 |
| | Evening News | Daily (*evening*) | do | 1880 | 5 20 |
| WABASH CO.—*Population:* 25,241. | | | | | |
| North Manchester | North Manchester Journal | Weekly | News and politics | 1875 | 1 50 |
| | Moral Reflector | Monthly | Miscellaneous | 1880 | 50 |
| Roann | Roann Clarion | Weekly | News and politics | 1878 | 1 00 |
| Wabash | Wabash Plain Dealer | do | do | 1856 | 1 50 |
| | Wabash Weekly Courier | do | do | 1871 | 2 00 |
| WARREN CO.—*Population:* 11,497. | | | | | |
| Williamsport | Warren Republican | Weekly | News and politics | 1854 | 1 50 |
| West Lebanon | Indiana Statesman (*c*) | do | do | 1877 | 2 00 |
| WARRICK CO.—*Population:* 20,162. | | | | | |
| Boonville | Boonville Enquirer | Weekly | News and politics | 1852 | 1 25 |
| | Boonville Standard | do | do | 1875 | 1 25 |
| WASHINGTON CO.—*Population:* 18,955. | | | | | |
| Fredericksburg | Fredericksburg News | Weekly | News and politics | 1879 | 1 00 |
| Salem | Salem Democrat | do | do | 1845 | 1 50 |
| | Salem Sentinel (*d*) | do | do | 1878 | 1 00 |
| WAYNE CO.—*Population:* 38,613. | | | | | |
| Cambridge | Cambridge City Tribune | Weekly | News and politics | 1865 | 1 00 |
| | Wayne Citizen | do | do | 1878 | 1 00 |
| Dublin | Wayne Register | do | do | 1875 | 1 00 |
| Hagerstown | Hagerstown Exponent | do | do | 1875 | 1 00 |
| Richmond | Palladium | Daily (*evening*) | do | 1876 | 7 50 |
| | Palladium | Weekly | do | 1831 | 1 00 |
| | Richmond Telegram | do | do | 1861 | 1 00 |
| | Independent | Daily (*morning*) | do | 1873 | 5 20 |
| | Independent Press | Weekly | do | 1866 | 1 00 |
| | Die Volkszeitung | do | News and politics (*German*) | 1872 | 2 00 |
| | Earlhamite | Monthly | Collegiate | 1874 | 1 00 |
| | Richmond Free Press | Weekly | News and politics | 1874 | 50 |
| WELLS CO.—*Population:* 18,442. | | | | | |
| Bluffton | Bluffton Banner | Weekly | News and politics | 1849 | 2 00 |
| | Bluffton Chronicle | do | do | 1868 | 2 00 |
| | Wells County Times | do | do | 1878 | 1 00 |
| WHITE CO.—*Population:* 13,795. | | | | | |
| Brookston | Brookston Reporter | Weekly | News and politics | 1873 | 1 50 |
| Monticello | Monticello Herald | do | do | 1862 | 1 50 |
| | Monticello Democrat | do | do | 1865 | 2 00 |
| | Monticello National | do | do | 1878 | 1 50 |
| WHITLEY CO.—*Population:* 16,941. | | | | | |
| Churubusco | Churubusco Herald | Weekly | News and politics | 1877 | 1 50 |
| Columbia City | Columbia City Post | do | do | 1864 | 2 00 |
| | Columbia City Commercial | do | do | 1869 | 2 00 |
| Larwill | Larwill Blade (*e*) | do | do | 1879 | 1 25 |
| South Whitley | South Whitley News (*d*) | do | do | | |

## INDIAN TERRITORY.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| CHEROKEE NATION.— | | | | | |
| Tahlequah | Cherokee Advocate | Weekly | News and politics (*English and Cherokee*). | 1842 | $1 00 |
| CHOCTAW NATION.— | | | | | |
| Caddo | Caddo Free Press (*b*) | Weekly | News and politics | 1878 | 1 50 |
| CREEK NATION.— | | | | | |
| Muscogee | Indian Journal | Weekly | News and family (*English, and Creek occasionally*). | 1875 | 1 50 |

## IOWA.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| ADAIR CO.—*Population:* 11,667. | | | | | |
| Fontanelle | Fontanelle Observer | Weekly | News and politics | 1879 | $1 50 |
| Greenfield | Adair County Reporter | do | do | 1872 | 1 50 |
| | Greenfield Transcript | do | do | 1875 | 1 50 |
| | Adair County Patriot (*f*) | do | do | 1878 | 1 50 |
| ADAMS CO.—*Population:* 11,888. | | | | | |
| Corning | Adams County Gazette | Weekly | News and politics | 1867 | 2 00 |
| | Adams County Union | do | do | 1874 | 2 00 |

[a] Consolidated with "Clinton Herald".
[b] Suspended April, 1880.
[c] Suspended October, 1880.
[d] Suspended.
[e] Suspended December, 1880.
[f] Suspended August, 1879.

## IOWA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| Allamakee co.—*Population:* 19,791. | | | | | |
| Lansing | Lansing Mirror | Weekly | News and politics | 1852 | $1 50 |
| | Lansing Journal | do | do | 1880 | 1 50 |
| New Albin | Spectator (*a*) | do | do | 1879 | 2 00 |
| | Postville Review | do | do | 1873 | 1 50 |
| Postville | Waukon Standard | do | do | 1868 | 1 50 |
| Waukon | Waukon Democrat | do | do | 1877 | 1 50 |
| Appanoose co.—*Population:* 16,636. | | | | | |
| Centerville | Centerville Citizen | Weekly | News and politics | 1864 | 1 50 |
| | Centerville Journal | do | do | 1872 | 1 25 |
| | Appanoose Times | do | do | 1877 | 1 00 |
| | Tribune (*b*) | do | do | 1878 | 1 25 |
| Moulton | Inter-State Normal Monthly | Monthly | Educational | 1877 | 75 |
| | Moulton Weekly Ensign | Weekly | News and politics | 1878 | 1 25 |
| Audubon co.—*Population:* 7,448. | | | | | |
| Audubon | Audubon County Sentinel | Weekly | News and politics | 1871 | 1 50 |
| | Audubon County Times | do | do | 1879 | 1 50 |
| | Audubon Advocate | do | do | 1879 | 1 50 |
| Exira | Audubon County Defender | do | do | 1872 | 2 00 |
| Benton co.—*Population:* 24,888. | | | | | |
| Belle Plaine | Belle Plaine Union | Weekly | News and politics | 1867 | 1 50 |
| | Belle Plaine Review | do | do | 1874 | 1 50 |
| Blairstown | Blairstown Independent | do | do | 1876 | 1 50 |
| Shellsburg | Shellsburg Record | do | do | 1873 | 1 50 |
| Vinton | Vinton Eagle | do | do | 1855 | 1 75 |
| | People's Journal | do | do | 1868 | 1 75 |
| | Mistletoe | Monthly | Collegiate | 1878 | 50 |
| | Benton County Herald | Weekly | News and politics | 1878 | 1 50 |
| | Echo (*c*) | do | do | 1879 | ........ |
| | Freie Presse | do | News and politics (*German*) | 1879 | 1 50 |
| Black Hawk co.—*Population:* 23,913. | | | | | |
| Cedar Falls | Cedar Falls Gazette | Weekly | News and politics | 1860 | 2 00 |
| La Porte City | La Porte City Progress | do | do | 1870 | 1 50 |
| | La Porte City Local Review | do | do | 1879 | 1 50 |
| Waterloo | The Waterloo Courier | do | do | 1858 | 2 00 |
| | Iowa State Reporter | do | do | 1868 | 2 00 |
| | Der Deutsch Amerikaner | do | News and politics (*German*) | 1872 | 2 00 |
| | Burroughs' Journal | do | Religious (*Unsectarian*) | 1873 | 1 00 |
| | Waterloo Tribune | do | News and politics | 1879 | 2 00 |
| Boone co.—*Population:* 20,838. | | | | | |
| Boone | Boone Standard | Weekly | News and politics | 1865 | 2 00 |
| | Boone County Republican | do | do | 1865 | 2 00 |
| | Boone County Democrat | do | do | 1868 | 2 00 |
| Ogden | Ogden Reporter | do | do | 1874 | 2 00 |
| Bremer co.—*Population:* 14,081. | | | | | |
| Waverly | Waverly Republican | Weekly | News and politics | 1856 | 2 00 |
| | Bremer County Independent | do | do | 1866 | 1 50 |
| | Volks-Zeitung | do | News and politics (*German*) | 1877 | 2 00 |
| | Waverly Democrat | do | News and politics | 1880 | 2 00 |
| Buchanan co.—*Population:* 18,546. | | | | | |
| Independence | Independence Conservative | Weekly | News and politics | 1855 | 1 75 |
| | Buchanan County Bulletin | do | do | 1865 | 1 50 |
| | National Advocate | do | do | 1878 | 1 50 |
| | Buchanan County Messenger (*d*) | do | do | 1874 | 2 00 |
| | Christian Advocate (*e*) | Monthly | Religious (*Unsectarian*) | 1879 | 50 |
| Jesup | Buchanan County Journal | Weekly | News and politics | 1879 | 1 50 |
| Buena Vista co.—*Population:* 7,537. | | | | | |
| Alta | Alta Advertiser | Weekly | News and politics | 1876 | 1 00 |
| Newell | Newell Mirror | do | do | 1874 | 1 50 |
| Storm Lake | Storm Lake Pilot | do | do | 1870 | 2 00 |
| | Buena Vista Sentinel (*f*) | do | do | 1878 | 2 00 |
| | Storm Lake Tribune | do | do | 1880 | 1 50 |
| Butler co.—*Population:* 14,293. | | | | | |
| Bristow | Bristow Dial (*g*) | Weekly | News and politics | 1879 | 1 50 |
| Clarksville | Clarksville Star | do | do | 1867 | 1 50 |
| | Butler County Standard (*g*) | do | do | 1877 | 1 50 |
| Greene | Butler County Press | do | do | 1873 | 2 00 |
| Parkersburg | Parkersburg Eclipse | do | do | 1872 | 1 50 |
| Shell Rock | Shell Rock News | do | do | 1872 | 1 50 |
| Calhoun co.—*Population:* 5,595. | | | | | |
| Lake City | Dollar Weekly Blade | Weekly | News and politics | 1880 | 1 00 |
| Manson | Calhoun County Journal | do | do | 1874 | 2 00 |
| Pomeroy | Pomeroy News | do | do | 1880 | 1 50 |
| Rockwell City | Calhoun County Republican | do | do | 1879 | 1 50 |
| Carroll co.—*Population:* 12,351. | | | | | |
| Carroll | Carroll Herald | Weekly | News and politics | 1868 | 2 00 |
| | Der Carroll Demokrat | do | News and politics (*German*) | 1874 | 2 00 |
| Glidden | Glidden Sentinel | do | News and politics | 1876 | 2 00 |
| Cass co.—*Population:* 16,943. | | | | | |
| Anita | Anita Times (*h*) | Weekly | News and politics | 1877 | 2 00 |
| Atlantic | Atlantic Messenger | do | do | 1865 | 2 00 |
| | { Daily Telegraph | Daily (*evening*) | do | 1879 | 9 00 |
| | { Telegraph | Weekly | do | 1871 | 1 50 |
| Griswold | Griswold Advocate | do | do | 1880 | 1 50 |
| Lewis | Lewis Independent | do | do | 1880 | 1 50 |
| Cedar co.—*Population:* 18,936. | | | | | |
| Clarence | Gazette | Weekly | News and politics | 1877 | 1 50 |
| Mechanicsville | Mechanicsville Press | do | do | 1866 | 1 50 |

*a* Suspended March, 1880.
*b* Suspended July, 1879.
*c* Suspended July, 1880.
*d* Suspended October, 1879.
*e* Suspended June, 1880.
*f* Suspended December, 1879.
*g* Suspended December, 1880.
*h* Suspended July, 1880; re-established January, 1881.

## IOWA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| CEDAR CO.—Continued. | | | | | |
| Tipton | Tipton Advertiser | Weekly | News and politics | 1853 | $1 50 |
| | Tipton Conservative | do | do | 1875 | 1 50 |
| West Branch | Local Record | do | do | 1878 | 1 50 |
| CERRO GORDO CO.—*Population:* 11,461. | | | | | |
| Clear Lake | Clear Lake Mirror | Weekly | News and politics | 1870 | 1 50 |
| Mason | Cerro Gordo Republican | do | do | 1861 | 2 00 |
| | North Iowa Journal | do | do | 1867 | 2 00 |
| | Mason City Express | do | do | 1870 | 2 00 |
| Rockwell | Rockwell Phonograph | do | do | 1879 | 1 50 |
| CHEROKEE CO.—*Population:* 8,240. | | | | | |
| Cherokee | Cherokee Times | Weekly | News and politics | 1870 | 2 00 |
| | Iowa Free Press | do | do | 1877 | 2 00 |
| CHICKASAW CO.—*Population:* 14,534. | | | | | |
| Lawler | Lawler Herald | Weekly | News and politics | 1874 | 1 50 |
| Nashua | Weekly Post | do | do | 1867 | 1 50 |
| New Hampton | New Hampton Courier | do | do | 1860 | 1 50 |
| | New Hampton Tribune | do | do | 1876 | 1 00 |
| | Freie Presse | do | News and politics (*German*) | 1879 | 1 50 |
| | Greenbacker (*a*) | do | News and politics | | |
| | Iowa Volksfreund | do | News and politics (*German*) | 1879 | 1 50 |
| | People's Advocate (*a*) | do | News and politics | 1879 | 1 50 |
| CLARKE CO.—*Population:* 11,513. | | | | | |
| Murray | Murray News | Weekly | News and politics | 1876 | 1 50 |
| Osceola | Osceola Sentinel | do | do | 1859 | 1 50 |
| | Osceola Democrat | do | do | 1877 | 2 00 |
| CLAY CO.—*Population:* 4,248. | | | | | |
| Spencer | Clay County News | Weekly | News and politics | 1870 | 1 50 |
| | Spencer Reporter | do | do | 1878 | 1 50 |
| | The Owl | Monthly | Miscellaneous | 1880 | 50 |
| CLAYTON CO.—*Population:* 28,829. | | | | | |
| Elkader | Clayton County Journal | Weekly | News and politics | 1851 | 2 00 |
| | Nord Iowa Herold | do | News and politics (*German*) | 1868 | 2 00 |
| | Elkader Register | do | News and politics | 1878 | 1 50 |
| McGregor | North Iowa Times | do | do | 1856 | 1 50 |
| | The McGregor News | do | do | 1858 | 1 50 |
| Strawberry Point | Strawberry Point Press | do | do | 1874 | 1 50 |
| Volga City | Volga City Times (*b*) | do | do | 1870 | 1 00 |
| CLINTON CO.—*Population:* 36,763. | | | | | |
| Clinton | Daily Herald | Daily (*evening*) | News and politics | 1870 | 10 00 |
| | Weekly Herald | Weekly | do | 1856 | 2 00 |
| | Iowa Volks-Zeitung | do | News and politics (*German*) | 1867 | 2 00 |
| | Clinton Age | do | News and politics | 1868 | 2 00 |
| | Clinton Journal (*c*) | do | do | 1878 | |
| Delmar | Delmar Independent | do | do | 1877 | 1 50 |
| | Delmar Review | do | do | 1878 | 1 50 |
| De Witt | De Witt Observer | do | do | 1864 | 1 50 |
| Lyons | Lyons Mirror | do | do | 1854 | 2 00 |
| | Clinton County Advertiser | do | do | 1873 | 2 00 |
| Wheatland | Wheatland News (*d*) | do | do | 1877 | |
| | Wheatland Union (*b*) | do | do | 1879 | |
| CRAWFORD CO.—*Population:* 12,413. | | | | | |
| Denison | Denison Review | Weekly | News and politics | 1867 | 2 00 |
| | Crawford County Bulletin | do | do | 1873 | 2 00 |
| Vail | Crawford County Observer | do | do | 1878 | 2 00 |
| West Side | West Side Enterprise | do | do | 1880 | 1 50 |
| DALLAS CO.—*Population:* 18,746. | | | | | |
| Adel | Dallas County Democrat | Weekly | News and politics | 1866 | 1 50 |
| | Dallas County News | do | do | 1872 | 1 50 |
| | Adel New Era | do | do | 1878 | 1 25 |
| Dallas Center | Dallas Globe | do | do | 1875 | 2 00 |
| Dexter | Dexter Herald | do | do | 1869 | 1 50 |
| Perry | Perry Chief | do | do | 1874 | 1 50 |
| DAVIS CO.—*Population:* 16,468. | | | | | |
| Bloomfield | Davis County Republican | Weekly | News and politics | 1863 | 1 50 |
| | Bloomfield Democrat | do | do | 1869 | 1 50 |
| | People's Monthly Journal | Monthly | Miscellaneous | 1878 | 25 |
| | Legal Tender Greenback | Weekly | News and politics | 1878 | 1 00 |
| | Bloomfield Mercury (*c*) | do | do | 1879 | |
| DECATUR CO.—*Population:* 15,336. | | | | | |
| Davis City | Davis City Commercial | Weekly | News and politics | 1877 | 1 25 |
| Garden Grove | Iowa Express | do | do | 1875 | 1 50 |
| Leon | Decatur County Journal | do | do | 1868 | 1 50 |
| | Democratic Reporter | do | do | 1879 | 1 50 |
| | Decatur County Press | do | do | 1880 | 1 50 |
| DELAWARE CO.—*Population:* 17,950. | | | | | |
| Delhi | Delhi Monitor | Weekly | News and politics | 1870 | 1 75 |
| Earlville | Earlville Record | do | do | 1877 | 2 00 |
| Manchester | Manchester Press | do | do | 1871 | 1 50 |
| | Manchester Democrat | do | do | 1874 | 1 50 |
| DES MOINES CO.—*Population:* 33,099. | | | | | |
| Burlington | Burlington Gazette | Daily (*evening*) | News and politics | 1837 | 7 00 |
| | Burlington Gazette | Weekly | do | 1837 | 1 50 |
| | Burlington Hawkeye | Daily (*morning*) | do | 1839 | 10 00 |
| | Burlington Hawkeye | Weekly | do | 1839 | 2 00 |
| | Iowa Tribune | Daily (*evening*) | News and politics (*German*) | 1861 | 8 00 |
| | Iowa Tribune | Weekly | News and politics (*German*) | 1861 | 2 00 |
| | Burlington Courier (*e*) | do | News and politics (*German*) | 1876 | 1 50 |
| | Burlington Weekly Argus | do | News and politics | 1879 | 1 50 |
| Danville | Danville News | do | do | 1880 | 1 00 |
| Mediapolis | Mediapolis Enterprise | do | do | 1874 | 1 25 |

*a* Suspended. *b* Suspended March, 1880. *c* Suspended October, 1879. *d* Suspended October, 1878. *e* Suspended December, 81, 1880.

## IOWA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| DICKINSON CO.—*Population:* 1,901. | | | | | |
| Spirit Lake | Spirit Lake Beacon | Weekly | News and politics | 1870 | $1 50 |
| | Dickinson County Journal | do | do | 1880 | 1 50 |
| DUBUQUE CO.—*Population:* 42,996. | | | | | |
| Cascade | Cascade Pioneer | Weekly | News and politics | 1876 | 1 50 |
| Dubuque | Herald | Daily (*morning*) | do | 1836 | 10 00 |
| | Herald | Weekly | do | 1836 | 1 25 |
| | Times | Daily (*morning*) | do | 1856 | 10 00 |
| | Times | Weekly | do | 1856 | 1 50 |
| | Dubuque National Demokrat | do | News and politics (*German*) | 1856 | 2 00 |
| | Der Presbyterianer | Bi-weekly | Religious (*Presbyterian; German*) | 1867 | 1 50 |
| | Telegraph | Daily (*evening*) | News and politics | 1870 | 6 00 |
| | Telegraph | Weekly | do | 1870 | 1 25 |
| | Luxemburger Gazette | do | Religious (*Catholic; German*) | 1871 | 2 50 |
| | Die Nord Iowa Post (*a*) | do | News and politics (*German*) | 1873 | 2 00 |
| | Iowa | do | Religious (*Catholic; German*) | 1875 | 2 50 |
| | Iowa Normal Monthly | Monthly | Educational | 1877 | 1 00 |
| | Our Saturday Night | Weekly | Society, art, etc | 1880 | 2 00 |
| Dyerville | Dyerville Commercial | do | News and politics | 1872 | 1 50 |
| EMMET CO.—*Population:* 1,550. | | | | | |
| Estherville | Northern Vindicator | Weekly | News and politics | 1868 | 1 50 |
| FAYETTE CO.—*Population:* 22,258. | | | | | |
| Brush Creek | Brush Creek News | Weekly | News and politics | 1874 | 1 50 |
| Clermont | Clermont Independent | do | do | 1879 | 1 50 |
| Fayette | Fayette News (*b*) | do | do | 1874 | 2 00 |
| | Fayette County Clarion | do | do | 1875 | 1 50 |
| West Union | Fayette County Union | do | do | 1866 | 2 00 |
| | Republican Gazette | do | do | 1867 | 1 50 |
| | Hobson's Magazine (*c*) | Monthly | Literary | 1879 | 2 50 |
| FLOYD CO.—*Population:* 14,677. | | | | | |
| Charles | Charles City Intelligencer | Weekly | News and politics | 1856 | 1 50 |
| | Floyd County Advocate | do | do | 1868 | 1 50 |
| Marble Rock | Marble Rock Weekly | do | do | 1875 | 1 50 |
| Nora Springs | Floyd County Press | do | do | 1872 | 1 00 |
| | Nora Springs Telephone | do | do | 1877 | 1 00 |
| Rockford | Rockford Reveille | do | do | 1874 | 1 50 |
| FRANKLIN CO.—*Population:* 10,249. | | | | | |
| Hampton | Franklin County Recorder | Weekly | News and politics | 1859 | 2 00 |
| | Hampton Chronicle | do | do | 1873 | 2 00 |
| Sheffield | Sheffield Press | do | do | 1880 | 1 50 |
| FREMONT CO.—*Population:* 17,652. | | | | | |
| Farragut | Farragut News | Weekly | News and politics | 1878 | 2 00 |
| Hamburg | Fremont Times | do | do | 1866 | 1 50 |
| | Hamburg Democrat | do | do | 1870 | 1 50 |
| | Iowa State News | do | do | 1879 | 1 50 |
| | Hamburg Republican | do | do | 1879 | 1 50 |
| Riverton | Riverton Enterprise (*d*) | do | do | 1878 | 1 50 |
| Sidney | Sidney Union Weekly | do | do | 1864 | 1 50 |
| | Fremont County Advocate | do | do | 1870 | 1 25 |
| | The Fremont Democrat | do | do | 1879 | 1 50 |
| Tabor | Non-Conformist | do | Miscellaneous | 1879 | 1 00 |
| GREENE CO.—*Population:* 12,727. | | | | | |
| Grand Junction | Grand Junction Head-Light | Weekly | News and politics | 1870 | 2 00 |
| Jefferson | Jefferson Bee | do | do | 1867 | 2 00 |
| | Greene County Gazette | do | do | 1874 | 1 50 |
| Scranton | Scranton Journal | do | do | 1879 | 1 50 |
| | One Plan Herald | Monthly | Religious (*Church of God*) | 1880 | 1 50 |
| GRUNDY CO.—*Population:* 12,639. | | | | | |
| Grundy Center | Grundy County Republican | Weekly | News and politics | 1868 | 1 50 |
| | Grundy County Argus | do | do | 1877 | 1 50 |
| Holland | Holland Journal (*e*) | do | do | 1878 | 1 00 |
| Reinbeck | Reinbeck Times | do | do | 1879 | 1 50 |
| | Reinbeck Herald (*f*) | do | do | 1879 | ....... |
| GUTHRIE CO.—*Population:* 14,394. | | | | | |
| Casey | Weekly Vindicator | Weekly | News and politics | 1879 | 1 50 |
| Guthrie Center | Guthrian | do | do | 1872 | 1 50 |
| | Guthrie County Journal | do | do | 1879 | 1 50 |
| Panora | Guthrie Vidette | do | do | 1865 | 1 50 |
| Stuart | Stuart Locomotive | do | do | 1871 | 1 50 |
| | Stuart Ledger | do | do | 1877 | 1 50 |
| HAMILTON CO.—*Population:* 11,252. | | | | | |
| Callanan | Callanan Register | Weekly | News and politics | 1879 | 1 50 |
| Webster | Hamilton Freeman | do | do | 1857 | 2 00 |
| | Webster City Argus | do | do | 1875 | 1 50 |
| | Webster City Advertiser | do | do | 1877 | 1 50 |
| HANCOCK CO.—*Population:* 3,453. | | | | | |
| Britt | Britt Tribune | Weekly | News and politics | 1879 | 1 50 |
| Garner | Hancock Signal | do | do | 1871 | 2 00 |
| | Hancock Independent | do | do | 1877 | 1 50 |
| HARDIN CO.—*Population:* 17,807. | | | | | |
| Ackley | Ackley Enterprise | Weekly | News and politics | 1868 | 2 00 |
| | Ackley Times (*g*) | do | do | 1878 | 2 00 |
| Alden | Alden Times | do | do | 1877 | 2 00 |
| Eldora | Eldora Ledger | do | do | 1865 | 2 00 |
| | Eldora Herald | do | do | 1873 | 2 00 |
| | Eldora Bee (*h*) | do | do | 1878 | ....... |
| Iowa Falls | Iowa Falls Sentinel | do | do | 1856 | 2 00 |
| Union | Union Star | do | do | 1875 | 1 50 |

*a* Suspended October, 1880.
*b* Merged with "Fayette Clarion" February, 1881.
*c* Suspended December, 1880.
*d* Suspended June, 1879.
*e* Suspended August, 1880.
*f* Merged in the "Grundy Centre Argus".
*g* Removed to Red Oak, Montgomery county, August, 1880.
*h* Suspended May, 1879.

## IOWA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| HARRISON CO.—*Population:* 16,649. | | | | | |
| Dunlap | Dunlap Reporter | Weekly | News and politics | 1871 | $2 00 |
| | Dunlap Dispatch (*a*) | do | do | 1879 | ........ |
| Logan | Harrison County Courier | do | do | 1875 | 2 00 |
| Missouri Valley | Missouri Valley Times | do | do | 1868 | 2 00 |
| | Valley Republican (*b*) | do | do | 1879 | 1 50 |
| Woodbine | Woodbine Twiner | do | do | 1879 | 1 00 |
| HENRY CO.—*Population:* 20,986. | | | | | |
| Mount Pleasant | Mount Pleasant Journal | Weekly | News and politics | 1855 | 2 00 |
| | Free Press | do | do | 1866 | 2 00 |
| | Mount Pleasant Reporter | Daily (*morning*) | do | 1877 | 7 80 |
| | Mount Pleasant Herald (*c*) | do (*evening*) | do | 1879 | 7 80 |
| | Golden Age (*c*) | Weekly | Temperance | 1879 | ........ |
| HOWARD CO.—*Population:* 10,837. | | | | | |
| Cresco | Iowa Plain Dealer | Weekly | News and politics | 1859 | 1 50 |
| | Howard County Times | do | do | 1867 | 1 50 |
| Lime Springs | Lime Springs Tribune | do | do | 1877 | 1 25 |
| HUMBOLDT CO.—*Population:* 5,341. | | | | | |
| Dakota City | Humboldt County Independent | Weekly | News and politics | 1860 | 2 00 |
| Humboldt | Humboldt Kosmos | do | do | 1866 | 2 00 |
| IDA CO.—*Population:* 4,382. | | | | | |
| Battle Creek | Battle Creek Times | Weekly | News and politics | 1880 | 1 50 |
| Ida Grove | Ida Grove Pioneer | do | do | 1872 | 2 00 |
| | Maple Valley Era | do | do | 1877 | 2 00 |
| IOWA CO.—*Population:* 19,221. | | | | | |
| Marengo | Marengo Republican | Weekly | News and politics | 1856 | 1 75 |
| | Marengo News-Letter | Monthly | Collegiate | 1872 | 2 00 |
| | Marengo Democrat | Weekly | News and politics | 1875 | 1 75 |
| Victor | Index Weekly (*d*) | do | do | 1873 | 2 00 |
| | Victor Herald | do | do | 1878 | 1 00 |
| JACKSON CO.—*Population:* 23,771. | | | | | |
| Bellevue | Bellevue Leader | Weekly | News and politics | 1870 | 1 75 |
| Maquoketa | Maquoketa Excelsior | do | do | 1855 | 1 50 |
| | Jackson Sentinel | do | do | 1868 | 2 00 |
| | Jackson County Record | do | do | 1878 | 1 00 |
| | Der Jackson Demokrat | do | News and politics (*German*) | 1879 | 2 00 |
| Monmouth | Monmouth Register (*e*) | do | News and politics | 1879 | 1 50 |
| Sabula | Sabula Gazette | do | do | 1871 | 1 50 |
| JASPER CO.—*Population:* 25,963. | | | | | |
| Colfax | Weekly Clipper | Weekly | News and politics | 1879 | 1 50 |
| Kellogg | Kellogg Post | do | do | 1878 | 1 50 |
| | Kellogg Enterprise | do | do | 1880 | 1 50 |
| Monroe | Monroe Mirror | do | do | 1873 | 1 50 |
| Newton | Newton Journal | do | do | 1858 | 1 50 |
| | Jasper County Independent | do | do | 1868 | 1 50 |
| | Iowa National | do | do | 1878 | 1 00 |
| Prairie City | Prairie City News | do | do | 1874 | 1 25 |
| JEFFERSON CO.—*Population:* 17,469. | | | | | |
| Fairfield | Ledger | Weekly | News and politics | 1849 | 1 50 |
| | Tribune | do | do | 1878 | 1 50 |
| Pleasant Plains | News | do | do | 1879 | 1 00 |
| JOHNSON CO.—*Population:* 25,429. | | | | | |
| Iowa | Republican | Daily (*evening*) | News and politics | 1876 | 10 00 |
| | Republican | Weekly | do | 1848 | 1 50 |
| | Iowa City Press (*f*) | Daily (*evening*) | do | 1871 | 9 00 |
| | Iowa State Press | Weekly | do | 1841 | 2 00 |
| | University Reporter | Monthly | Collegiate | 1868 | 1 00 |
| | Slovan Americky | Weekly | News and politics (*Bohemian*) | 1869 | 3 20 |
| | Western Stock Journal and Farmer | Monthly | Agricultural | 1872 | 1 00 |
| | Iowa City Volksfreund | Weekly | News and politics (*German*) | 1874 | 2 00 |
| | Vidette | do | Collegiate | 1879 | 75 |
| | Iowa City Journal (*g*) | do | News and politics | 1879 | 1 00 |
| Oxford | Oxford Journal | do | do | 1877 | 1 00 |
| JONES CO.—*Population:* 21,052. | | | | | |
| Anamosa | Anamosa Eureka | Weekly | News and politics | 1856 | 1 75 |
| | Anamosa Journal | do | do | 1872 | 2 00 |
| Garfield | Oxford Mirror | do | do | 1879 | 1 25 |
| Monticello | Monticello Express | do | do | 1865 | 2 00 |
| | Jones County Liberal | do | do | 1872 | 2 00 |
| | Die Freie Presse (*h*) | do | News and politics (*German*) | 1879 | 1 50 |
| Wyoming | Wyoming Journal | do | News and politics | 1870 | 2 00 |
| KEOKUK CO.—*Population:* 21,258. | | | | | |
| Delta | Delta Independent | Weekly | News and politics | 1879 | 1 50 |
| Keota | Keota Eagle | do | do | 1875 | 1 50 |
| Sigourney | Sigourney News | do | do | 1860 | 1 75 |
| | Sigourney Review | do | do | 1872 | 1 50 |
| | Sigourney Courier | do | News and politics (*German*) | 1877 | 2 00 |
| South English | Western Herald | do | News and politics | 1872 | 1 25 |
| What Cheer | What Cheer Patriot | do | do | 1880 | 1 50 |
| KOSSUTH CO.—*Population:* 6,178. | | | | | |
| Algona | Upper Des Moines | Weekly | News and politics | 1865 | 2 00 |
| | Algona Republican | do | do | 1871 | 2 00 |

*a* Suspended March, 1880.
*b* Suspended January, 1880.
*c* Suspended.
*d* Suspended February, 1880.
*e* Suspended September, 1880.
*f* Suspended April, 1880.
*g* Merged in Iowa City "Daily Republican".
*h* Suspended May, 1880.

## IOWA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| LEE CO.—*Population:* 34,859. | | | | | |
| Fort Madison | Plain Dealer | Weekly | News and politics | 1842 | $1 50 |
| | Fort Madison Democrat | do | do | 1869 | 1 50 |
| | The Knight's Sword and Helmet | Monthly | Secret society | 1877 | 1 00 |
| Keokuk | Gate City | Daily (*morning*) | News and politics | 1854 | 8 00 |
| | Gate City | Weekly | do | 1846 | 1 50 |
| | Constitution | Daily (*evening*) | do | 1861 | 8 00 |
| | Constitution | Weekly | do | 1861 | 1 50 |
| | Die Post | do | News and politics (*German*) | 1868 | 2 00 |
| | Central School Journal | Monthly | Educational | 1877 | 50 |
| | Labor Tribune | Weekly | News and politics | 1878 | 1 00 |
| | Keokuk Saturday Item | do | do | 1879 | 1 00 |
| West Point | West Point Appeal | do | do | 1878 | 1 50 |
| LINN CO.—*Population:* 27,237. | | | | | |
| Cedar Rapids | Cedar Rapids Times | Weekly | News and politics | 1850 | 1 50 |
| | Cedar Rapids Standard | do | do | 1867 | 1 25 |
| | Republican | Daily (*evening*) | do | 1868 | 8 00 |
| | Republican | Weekly | do | 1872 | 1 50 |
| | Cedar Rapids Comet (*a*) | do | do | 1873 | 1 50 |
| | Iowa Farmer and Western Stock Journal | Monthly | Agricultural | 1877 | 1 00 |
| | Globe (*b*) | Daily (*evening*) | News and politics | 1879 | 7 00 |
| | Globe (*b*) | Weekly | do | 1879 | ...... |
| | Stylus | do | do | 1879 | 75 |
| | Post and Presse | do | News and politics (*German*) | 1879 | 1 50 |
| | Weekly Leader | do | News and politics | 1880 | 1 50 |
| Centre Point | Courier Journal | do | do | 1873 | 1 25 |
| Lisbon | Lisbon Sun | do | do | 1874 | 1 50 |
| Marion | Marion Register | do | do | 1852 | 1 50 |
| | Advent and Sabbath Advocate | Bi-weekly | Religious (*Adventist*) | 1866 | 1 50 |
| | Linn County Pilot | Weekly | News and politics | 1871 | 1 50 |
| Mount Vernon | Mount Vernon Hawkeye | do | do | 1869 | 2 00 |
| | Mount Vernon Collegian (*c*) | Monthly | Collegiate | 1869 | 75 |
| Springville | Springville Independent | Weekly | News and politics | 1879 | 1 50 |
| Western College | Western Light | do | do | 1875 | 1 50 |
| LOUISA CO.—*Population:* 13,142. | | | | | |
| Columbus Junction | Columbus Safeguard | Weekly | News and politics | 1870 | 1 50 |
| Morning Sun | Sentinel | do | do | 1879 | 1 50 |
| Wapello | Wapello Republican | do | do | 1860 | 2 00 |
| | Louisa County Record | do | do | 1870 | 2 00 |
| | Wapello Times | do | do | 1877 | 2 00 |
| LUCAS CO.—*Population:* 14,530. | | | | | |
| Chariton | Patriot | Daily (*evening*) | News and politics | 1880 | 5 20 |
| | Patriot | Weekly | do | 1857 | 1 50 |
| | Chariton Leader | do | do | 1872 | 1 50 |
| LYON CO.—*Population:* 1,968. | | | | | |
| Rock Rapids | Review | Weekly | News and politics | 1873 | 2 00 |
| MADISON CO.—*Population:* 17,224. | | | | | |
| Winterset | Winterset Madisonian | Weekly | News and politics | 1856 | 1 50 |
| | Winterset News | do | do | 1872 | 1 50 |
| | Beacon Light | do | do | 1874 | 1 50 |
| MAHASKA CO.—*Population:* 25,202. | | | | | |
| New Sharon | New Sharon Star | Weekly | News and politics | 1873 | 2 00 |
| | New Sharon News | do | do | 1880 | 2 00 |
| Oskaloosa | Oskaloosa Herald | do | do | 1850 | 2 00 |
| | Oskaloosa Standard | do | do | 1854 | 2 00 |
| | Oskaloosa College Vidette | Monthly | Collegiate | 1879 | 50 |
| | Phonetic Magazine (*d*) | do | Educational | 1879 | 1 50 |
| MARION CO.—*Population:* 25,111. | | | | | |
| Knoxville | Knoxville Journal | Weekly | News and politics | 1855 | 1 50 |
| | Marion County Express | do | do | 1865 | 1 50 |
| | Marion County Reporter | do | do | 1880 | 1 50 |
| Marysville | Marysville Miner | do | do | 1871 | 1 50 |
| Pella | Pella Week Blad | do | News and politics (*Hollandish*) | 1861 | 2 00 |
| | Pella Blade | do | News and politics | 1865 | 1 50 |
| | Weekly Visitor | do | do | 1880 | 1 50 |
| Pleasantville | Pleasantville News | do | do | 1877 | 1 50 |
| MARSHALL CO.—*Population:* 23,752. | | | | | |
| Gilman | Gilman Dispatch | Weekly | News and politics | 1876 | 1 50 |
| Marshall | Times-Republican | Daily (*evening*) | do | 1875 | 6 00 |
| | Times-Republican | Weekly | do | 1856 | 2 00 |
| | Marshall Statesman | do | do | 1875 | 2 00 |
| | Marshalltown Beobachter | do | News and politics (*German*) | 1879 | 2 00 |
| | Bugle (*e*) | do | News and politics | 1879 | 1 00 |
| State Center | Enterprise | do | do | 1871 | 1 75 |
| MILLS CO.—*Population:* 14,137. | | | | | |
| Emerson | Emerson Chronicle | Weekly | News and politics | 1869 | 1 50 |
| Glenwood | Glenwood Weekly Opinion | do | do | 1864 | 1 50 |
| | Mills County Journal | do | do | 1872 | 1 50 |
| | Pilgrims' Tidings (*f*) | do | Religious (*Unsectarian*) | 1878 | ...... |
| Hastings | Hastings Plain Dealer | do | News and politics | 1879 | 1 50 |
| Malvern | Republican-Leader | do | do | 1874 | 1 50 |
| | Malvern Leader (*g*) | do | do | 1875 | 1 50 |
| MITCHELL CO.—*Population:* 14,363. | | | | | |
| Osage | Mitchell County Press | Weekly | News and politics | 1865 | 2 00 |
| | Mitchell County News | do | do | 1869 | 2 00 |
| Saint Ansgar | Saint Ansgar Enterprise | do | do | 1878 | 1 50 |

*a* Suspended October, 1880.
*b* Suspended July, 1879.
*c* Merged with Mount Vernon "Cornellian Monthly".
*d* Merged with "Phonetic Educator", of Cincinnati, Ohio.
*e* Suspended February, 1880.
*f* Suspended 1879.
*g* Consolidated with "Mills County Republican".

## IOWA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| MONONA CO.—*Population:* 9,055. | | | | | |
| Mapleton | People's Press | Weekly | News and politics | 1870 | $1 75 |
| Onawa | Monona County Gazette | do | do | 1866 | 2 00 |
| MONROE CO.—*Population:* 13,719. | | | | | |
| Albia | Albia Union | Weekly | News and politics | 1860 | 1 50 |
| | Industrial Era | do | do | 1873 | 1 25 |
| | Albia Democrat | do | do | 1878 | 1 00 |
| MONTGOMERY CO.—*Population:* 15,895. | | | | | |
| Red Oak | Red Oak Express | Weekly | News and politics | 1867 | 1 50 |
| | Red Oak Record | do | do | 1871 | 1 50 |
| | People's Telephone | do | do | 1877 | 1 50 |
| | Red Oak Democrat | do | do | 1878 | 1 50 |
| Villisca | Review | do | do | 1870 | 1 50 |
| | Independent | do | do | 1879 | 1 50 |
| MUSCATINE CO.—*Population:* 23,170. | | | | | |
| Muscatine | Journal | Daily (*evening*) | News and politics | 1855 | 8 00 |
| | Journal | Weekly | do | 1840 | 2 00 |
| | Journal | Tri-weekly | do | 1844 | 4 00 |
| | Tribune | Daily (*morning*) | do | 1874 | 10 00 |
| | Tribune | Weekly | do | 1841 | 2 00 |
| | Deutsche Zeitung | do | News and politics (*German*) | 1874 | 2 00 |
| | Lettsville Weekly Visitor | do | News and politics | 1879 | 1 50 |
| | Greenback Patriot (*a*) | do | do | 1878 | 1 50 |
| | Muscatine News | do | do | 1879 | 1 50 |
| West Liberty | Enterprise | do | do | 1868 | 1 50 |
| Wilton | Wilton Review | do | do | 1867 | 1 50 |
| O'BRIEN CO.—*Population:* 4,155. | | | | | |
| Primghar | Primghar Tribune | Weekly | News and politics | 1879 | 1 50 |
| Sanborn | O'Brien Pioneer | do | do | 1871 | 2 00 |
| Sheldon | Sheldon Mail | do | do | 1873 | 2 00 |
| | Sheldon News (*b*) | do | do | 1880 | ....... |
| OSCEOLA CO.—*Population:* 2,219. | | | | | |
| Sibley | Sibley Gazette | Weekly | News and politics | 1872 | 2 00 |
| PAGE CO.—*Population:* 19,667. | | | | | |
| Blanchard | Blanchard Record | Weekly | News and politics | 1879 | 1 50 |
| Clarinda | Clarinda Herald | do | do | 1858 | 2 00 |
| | Page County Democrat | do | do | 1868 | 1 50 |
| | Nodaway Chief | do | do | 1879 | 1 50 |
| College Springs | College Springs Courier (*c*) | do | do | 1876 | 1 50 |
| Essex | Essex Index | do | do | 1876 | 2 00 |
| Shenandoah | Shenandoah Reporter | do | do | 1871 | 1 50 |
| | Shenandoah Republican | do | do | 1877 | 1 50 |
| PALO ALTO CO.—*Population:* 4,131. | | | | | |
| Emmetsburg | Palo Alto Pilot | Weekly | News and politics | 1874 | 1 75 |
| | Palo Alto Reporter | do | do | 1875 | 2 00 |
| PLYMOUTH CO.—*Population:* 8,566. | | | | | |
| Le Mars | Le Mars Sentinel | Weekly | News and politics | 1871 | 2 00 |
| | Le Mars Iowa Liberal | do | do | 1872 | 2 00 |
| POCAHONTAS CO.—*Population:* 3,713. | | | | | |
| Fonda | Pocahontas Times | Weekly | News and politics | 1876 | 1 50 |
| | Fonda News (*d*) | do | do | 1879 | 1 50 |
| POLK CO.—*Population:* 42,395. | | | | | |
| Des Moines | Iowa State Leader | Daily (*evening*) | News and politics | 1848 | 6 00 |
| | Iowa State Leader | Weekly | do | 1848 | 1 25 |
| | Iowa State Register | Daily (*morning*) | do | 1861 | 10 00 |
| | Iowa State Register | Weekly | do | 1856 | 1 25 |
| | Western Jurist | Monthly | Law | 1867 | 5 00 |
| | Plain Talk | Weekly | News and politics | 1870 | 1 50 |
| | Iowa State Journal | do | do | 1871 | 1 50 |
| | Iowa Staats-Anzeiger | do | News and politics (*German*) | 1871 | 2 00 |
| | Industrial Motor | Monthly | Science and mechanics | 1872 | 10 |
| | Des Moines News | Weekly | News and politics | 1878 | 1 25 |
| | Saturday Evening Mail Car | do | do | 1879 | 2 00 |
| | Iowa State Tribune | do | do | 1879 | 1 00 |
| | State Prohibitionist | do | Temperance | 1880 | 1 50 |
| | State Independent | do | News and politics | 1880 | 2 00 |
| | Des Moines Free Press (*d*) | do | do | 1880 | 1 50 |
| | Des Moines Labor Defender (*d*) | do | do | 1879 | 50 |
| | Western Farm Journal (*d*) | do | Agricultural | 1855 | 2 00 |
| | Temperance Reformer (*d*) | do | Temperance | ........ | ....... |
| | Iowa People (*d*) | do | News and politics | ........ | ....... |
| Mitchellville | Mitchellville News | do | do | 1878 | 1 50 |
| POTTAWATTAMIE CO.—*Population:* 39,850. | | | | | |
| Avoca | Avoca Delta | Weekly | News and politics | 1870 | 1 50 |
| Council Bluffs | Daily Nonpareil | Daily (*morning*) | do | 1861 | 10 00 |
| | Council Bluffs Nonpareil | Weekly | do | 1856 | 2 00 |
| | Globe | Daily (*evening*) | do | 1872 | 8 00 |
| | Globe | Weekly | do | 1872 | 1 50 |
| | Freie Presse | do | News and politics (*German*) | 1875 | 2 00 |
| | Evangeliskt Magazin (*e*) | Monthly | Religious (*Evangelical; Scandinavian*) | 1879 | 1 00 |
| | The Bugle (*d*) | Weekly | News and politics | 1856 | 1 50 |
| Neola | Neola Tribune | do | do | 1880 | 1 00 |
| Walnut | Walnut News | do | do | 1878 | 1 50 |
| POWESHIEK CO.—*Population:* 18,936. | | | | | |
| Brooklyn | Brooklyn Chronicle | Weekly | News and politics | 1875 | 1 50 |
| Grinnell | Grinnell Herald | Semi-weekly | do | 1868 | 1 50 |
| | Grinnell Independent | Weekly | do | 1878 | 1 50 |
| Malcolm | Malcom Gazette | do | do | 1871 | 1 00 |
| Montezuma | Montezuma Republican | do | do | 1856 | 1 50 |
| | Poweshiek County Democrat | do | do | 1877 | 1 50 |

## IOWA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| RINGGOLD CO.—*Population:* 12,085. | | | | | |
| Mount Ayr | Ringgold Record | Weekly | News and politics | 1863 | $2 00 |
| | Mount Ayr Journal | Semi-weekly | do | 1873 | 2 00 |
| | Onward | Weekly | do | 1877 | 1 50 |
| SAC CO.—*Population:* 8,774. | | | | | |
| Odebolt | Odebolt Reporter | Weekly | News and politics | 1877 | 1 50 |
| Sac City | Sac Sun | do | do | 1871 | 1 50 |
| Wall Lake | Wall Lake Journal | do | do | 1878 | 1 50 |
| SCOTT CO.—*Population:* 41,266. | | | | | |
| Davenport | Daily Gazette | Daily (*morning*) | News and politics | 1854 | 9 00 |
| | Davenport Gazette | Weekly | do | 1839 | 1 50 |
| | Der Demokrat | Daily (*morning*) | News and politics (*German*) | 1856 | 10 00 |
| | Der Demokrat | Weekly | News and politics (*German*) | 1851 | 2 00 |
| | Der Demokrat | Semi-weekly | News and politics (*German*) | 1878 | 3 00 |
| | Democrat | Daily (*evening*) | News and politics | 1855 | 5 00 |
| | Democrat | Sunday | do | 1855 | 1 25 |
| | Democrat | Weekly | do | 1855 | 1 25 |
| | Iowa and Illinois Workman | Monthly | Secret society | 1875 | 1 00 |
| | Sternen Banner (*a*) | Daily (*morning*) | News and politics (*German*) | 1876 | 10 00 |
| | Sternen Banner | Weekly | News and politics (*German*) | 1876 | 1 50 |
| | Northwestern News | do | Temperance | 1878 | 1 50 |
| | Davenport Times (*b*) | do | News and politics | 1874 | 1 00 |
| | Davenport Herald (*c*) | do | do | 1879 | 1 25 |
| | Davenport Home Journal (*d*) | do | do | 1880 | ...... |
| Le Claire | Le Claire Pilot | do | do | 1875 | 2 00 |
| SHELBY CO.—*Population:* 12,696. | | | | | |
| Harlan | Harlan Herald | Weekly | News and politics | 1874 | 1 50 |
| | Harlan Tribune | do | do | 1879 | 1 50 |
| Shelby | Shelby News | do | do | 1877 | 1 50 |
| SIOUX CO.—*Population:* 5,426. | | | | | |
| East Orange | Independent | Weekly | News and politics | 1878 | 1 50 |
| Orange City | De Volksvriend | do | News and politics (*Hollandish*) | 1874 | 1 50 |
| Pattersonville | Pattersonville Index | do | News and politics | 1879 | 2 00 |
| Rock Valley | Sioux County Independent | do | do | 1878 | 1 50 |
| STORY CO.—*Population:* 16,906. | | | | | |
| Ames | Ames Intelligencer | Weekly | News and politics | 1869 | 1 50 |
| | Aurora | Monthly | Collegiate | 1873 | 1 00 |
| Franklin | College Quarterly | Quarterly | do | 1877 | 25 |
| Nevada | Nevada Representative | Weekly | News and politics | 1857 | 1 50 |
| | Story County Watchman | do | do | 1874 | 1 50 |
| | Highway | do | Religious (*Evangelical*) | 1876 | 1 00 |
| TAMA CO.—*Population:* 21,585. | | | | | |
| Dysart | Der Brueder ote | Monthly | Religious (*Baptisti, German*) | 1876 | 1 00 |
| | Dysart Reporter | Weekly | Miscellaneous | 1878 | 1 50 |
| Tama City | Tama Herald | do | News and politics | 1866 | 2 00 |
| | Tama City Democrat (*b*) | do | do | ...... | ...... |
| | Tama City Western Liberal (*c*) | do | do | 1880 | 2 50 |
| | Album of Pen Arts (*e*) | Monthly | Educational | ...... | ...... |
| | Tama County News (*f*) | Weekly | News and politics | ...... | ...... |
| Toledo | Toledo Chronicle | do | do | 1856 | 1 50 |
| | Toledo Times | do | do | 1878 | 1 50 |
| Traer | Traer Clipper | do | do | 1872 | 1 50 |
| | Traer Star | do | do | 1878 | 1 50 |
| TAYLOR CO.—*Population:* 15,635. | | | | | |
| Bedford | Iowa Southwest | Weekly | News and politics | 1867 | 2 00 |
| | Bedford Argus | do | do | 1872 | 2 00 |
| | Taylor County Republican | do | do | 1878 | 2 00 |
| | Taylor County Democrat | do | do | 1880 | 2 00 |
| Conway | Conway Neutral | do | do | 1879 | 1 50 |
| Lenox | Lenox Time Table | do | do | 1874 | 2 00 |
| UNION CO.—*Population:* 14,980. | | | | | |
| Afton | Tribune News | Weekly | News and politics | 1871 | 1 50 |
| | Afton Enterprise | do | do | 1880 | 1 00 |
| Creston | Creston Gazette | do | do | 1874 | 2 00 |
| | Creston Democrat | do | do | 1875 | 2 00 |
| | Independent American | do | do | 1877 | 1 50 |
| | Creston Advertiser | do | do | 1879 | 1 00 |
| VAN BUREN CO.—*Population:* 17,043. | | | | | |
| Birmingham | Birmingham Enterprise | Weekly | News and politics | 1860 | 1 50 |
| Bonaparte | Van Buren County Journal | do | do | 1877 | 2 00 |
| | Square and Compass (*e*) | Monthly | Secret society | 1879 | 1 25 |
| Farmington | Farmington Gazette (*e*) | Weekly | News and politics | 1879 | ...... |
| Keosauqua | Keosauqua Republican | do | do | 1855 | 1 50 |
| | Van Buren Democrat | do | do | 1870 | 2 00 |
| Milton | Milton Herald | do | do | 1878 | 1 50 |
| WAPELLO CO.—*Population:* 25,285. | | | | | |
| Agency | Agency Independent | Weekly | News and politics | 1874 | 1 50 |
| Eddyville | Eddyville Advertiser | do | do | 1860 | 1 50 |
| Ottumwa | Courier | Daily (*evening*) | do | 1865 | 7 00 |
| | Courier | Weekly | do | 1848 | 1 50 |
| | Democrat and Times | do | do | 1850 | 1 50 |
| | Freie Presse | do | News and politics (*German*) | 1878 | 2 00 |
| | Des Moines Valley Times (*g*) | do | News and politics (*German*) | 1879 | 1 50 |
| | Iowa Investigator (*h*) | do | News and politics | 1879 | ...... |
| | Ottumwa Journal (*i*) | do | News and politics (*German*) | 1871 | 2 00 |
| WARREN CO.—*Population:* 19,578. | | | | | |
| Indianola | Indianola Herald | Weekly | News and politics | 1857 | 1 50 |
| | People's Advocate | do | do | 1870 | 1 25 |
| | Simpsonian | Monthly | Collegiate | 1870 | 1 00 |
| | Indianola Tribune | Weekly | News and politics | 1873 | 1 50 |

*a* Daily edition discontinued February, 1881.
*b* Suspended December, 1879.
*c* Suspended April, 1880.
*d* Suspended June, 1880.
*e* Suspended.
*f* Suspended September, 1880.
*g* Suspended August, 1880.
*h* Suspended May, 1880.
*i* Merged into "Freie Presse".

## IOWA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| WASHINGTON CO.—*Population:* 20,374. | | | | | |
| Brighton | Western Horticulturist | Monthly | Horticultural | 1878 | $0 25 |
| | Brighton Star (*a*) | Weekly | News and politics | 1878 | ........ |
| | Greenback World | do | do | 1879 | 1 25 |
| | Brighton Reporter | do | do | 1880 | 1 25 |
| Washington | Washington County Press | do | do | 1856 | 2 00 |
| | Washington Gazette | do | do | 1869 | 1 50 |
| | Washington Democrat | do | do | 1878 | 1 50 |
| WAYNE CO.—*Population:* 16,127. | | | | | |
| Allerton | Wayne County Republican | Weekly | News and politics | 1873 | 1 25 |
| Corydon | Corydon Times | do | do | 1875 | 1 00 |
| | Wayne County News | do | do | 1877 | 1 25 |
| | Corydon Democrat | do | do | 1879 | 1 00 |
| Lineville | Lineville Tribune | do | do | 1873 | 1 25 |
| WEBSTER CO.—*Population:* 15,951. | | | | | |
| Dayton | Dayton Review | Weekly | News and politics | 1879 | 1 50 |
| Fort Dodge | Fort Dodge Messenger | do | do | 1864 | 2 00 |
| | Fort Dodge Times | do | do | 1868 | 2 00 |
| | Webster County Union | do | do | 1877 | 2 00 |
| WINNEBAGO CO.—*Population:* 4,917. | | | | | |
| Forest City | Winnebago Summit | Weekly | News and politics | 1867 | 2 00 |
| | Winnebago Chief | do | do | 1880 | 1 50 |
| Lake Mills | Independent Herald | do | do | 1875 | 2 00 |
| WINNESHIEK CO.—*Population:* 23,938. | | | | | |
| Decorah | Evangelisk Lutherisk Kerketidende | Weekly | Religious (*Lutheran; Norwegian*) | 1857 | 1 50 |
| | Decorah Republican | do | News and politics | 1860 | 1 50 |
| | Decorah Journal | do | do | 1868 | 1 50 |
| | For Hjemmet | Semi-monthly | Religious (*Unsectarian; Norwegian*) | 1870 | 2 00 |
| | Decorah Posten | Weekly | News and politics (*Norwegian*) | 1874 | 1 10 |
| | Decorah Radical | do | News and politics | 1876 | 1 00 |
| | Opbyggelsesblad | Monthly | Religious (*Lutheran; Norwegian*) | 1877 | 1 00 |
| | Lutherisk Skoleblad | do | Educational (*Norwegian*) | 1880 | 50 |
| WOODBURY CO.—*Population:* 14,996. | | | | | |
| Sioux City | Sioux City Tribune | Weekly | News and politics | 1858 | 1 25 |
| | { Sioux City Journal | Daily (*morning*) | do | 1870 | 10 00 |
| | { Sioux City Journal | Weekly | do | 1863 | 1 25 |
| | Courier | do | News and politics (*German*) | 1870 | 2 00 |
| | Aupao—The Daybreak | Monthly | Religious (*Prot. Epis.; Indian*) | 1878 | 50 |
| | Cosmopolite | do | Literature | 1879 | 1 00 |
| WORTH CO.—*Population:* 7,953. | | | | | |
| Kensett. | Kensett Mail (*b*) | Weekly | News and politics | 1879 | 2 00 |
| Northwood | Northwood Pioneer (*c*) | do | do | 1870 | 2 00 |
| | Worth County Eagle | do | do | 1877 | 2 00 |
| WRIGHT CO.—*Population:* 5,062. | | | | | |
| Belmond | Belmond Herald | Weekly | News and politics | 1873 | 1 50 |
| Clarion | Wright County Monitor | do | do | 1869 | 1 50 |

## KANSAS.

| | | | | | |
|---|---|---|---|---|---|
| ALLEN CO.—*Population:* 11,303. | | | | | |
| Humboldt | Humboldt Union | Weekly | News and politics | 1866 | $2 00 |
| | Humboldt Inter-State | do | do | 1877 | 1 50 |
| Iola | Iola Register | do | do | 1867 | 2 00 |
| | Iola Independent (*d*) | do | do | 1880 | ........ |
| ANDERSON CO.—*Population:* 9,057. | | | | | |
| Garnett | Garnett Plain Dealer | Weekly | News and politics | 1865 | 1 50 |
| | Garnett Journal | do | do | 1873 | 2 00 |
| Greeley | Greeley Tribune | do | do | 1880 | 1 50 |
| ATCHISON CO.—*Population:* 26,668. | | | | | |
| Atchison | { Champion | Daily (*morning*) | News and politics | 1865 | 8 00 |
| | { Champion | Weekly | do | 1855 | 1 50 |
| | { Patriot | Daily (*evening*) | do | 1867 | 8 00 |
| | { Patriot | Weekly | do | 1867 | 1 50 |
| | Der Courier (*e*) | do | News and politics (*German*) | 1874 | 1 00 |
| | Little Globe | do | News and politics | 1878 | 1 00 |
| | New West Monthly | Monthly | General literature | 1878 | 1 00 |
| | Sunday Morning Call | Sunday | News and politics | 1880 | 1 20 |
| Muscotah | Muscotah News (*c*) | Weekly | do | ........ | ........ |
| BARBOUR CO.—*Population:* 2,661. | | | | | |
| Medicine Lodge | Medicine Lodge Cresset | Weekly | News and politics | 1879 | 2 00 |
| BARTON CO.—*Population:* 10,318. | | | | | |
| Ellinwood | Ellinwood Express | Weekly | News and politics | 1878 | 2 00 |
| Great Bend | Great Bend Register | do | do | 1874 | 2 00 |
| | Inland Tribune | do | do | 1876 | 2 00 |
| | Arkansas Valley Democrat | do | do | 1877 | 1 50 |
| | Kansas Volksfreund (*f*) | do | News and politics (*German*) | ........ | ........ |
| BOURBON CO.—*Population:* 19,591. | | | | | |
| Fort Scott | Fort Scott Herald | Weekly | News and politics | 1863 | 1 50 |
| | { Monitor | Daily (*morning*) | do | 1864 | 8 00 |
| | { Monitor | Weekly | do | 1864 | 1 00 |
| | Republican Record | do | do | 1879 | 1 50 |
| | Kansas Medical Index | Monthly | Medical | 1880 | 1 50 |
| BROWN CO.—*Population:* 12,817. | | | | | |
| Hiawatha | Hiawatha Dispatch | Weekly | News and politics | 1870 | 2 00 |
| | Kansas Herald | do | do | 1874 | 1 50 |
| | Hiawatha Sun | do | do | 1878 | 1 50 |

*a* Suspended December, 1879.
*b* Suspended.
*d* Suspended December, 1880.
*c* Suspended August, 1880.
*e* Suspended April, 1880.
*f* Suspended February, 1880.

## KANSAS—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **Butler co.**—*Population:* 18,586. | | | | | |
| Augusta | Southern Kansas Gazette | Weekly | News and politics | 1874 | $1 50 |
| Douglass | New Enterprise (*a*) | do | do | 1879 | 2 00 |
| El Dorado | El Dorado Press | do | do | 1877 | 1 50 |
| | Walnut Valley Times | do | do | 1870 | 1 50 |
| **Chase co.**—*Population:* 6,081. | | | | | |
| Cottonwood Falls | Chase County Leader | Weekly | News and politics | 1871 | 1 50 |
| | Chase County Courant | do | do | 1874 | 1 50 |
| **Chautauqua co.**—*Population:* 11,072. | | | | | |
| Sedan | Chautauqua Journal | Weekly | News and politics | 1873 | 1 50 |
| | Chautauqua County Times | do | do | 1878 | 1 50 |
| Peru | Chautauqua News (*b*) | do | do | 1875 | 1 50 |
| **Cherokee co.**—*Population:* 21,905. | | | | | |
| Beaumont | Beaumont Dispatch (*c*) | Weekly | News and politics | | |
| Columbus | Columbus Courier | do | do | 1874 | 2 00 |
| | Columbus Border Star (*d*) | do | do | | |
| | Columbus Times | do | do | 1878 | 1 50 |
| Empire | Empire City Echo (*e*) | do | do | 1877 | 1 50 |
| Galena | Miner | Daily (*morning*) | do | 1880 | 5 00 |
| | Miner | Weekly | do | 1877 | 1 50 |
| | Gospel Mirror (*f*) | Monthly | Religious (*Unsectarian*) | 1880 | 1 00 |
| | Galena Messenger (*f*) | Weekly | News and politics | 1880 | |
| **Clay co.**—*Population:* 12,320. | | | | | |
| Clay Center | Clay County Dispatch | Weekly | News and politics | 1873 | 2 00 |
| | Clay Center Localist (*g*) | do | do | 1878 | 1 00 |
| | Republican Valley Banner | Monthly | Land journal | 1878 | 25 |
| | Little Hatchet | do | News and politics | 1878 | 50 |
| | Clay Center Argus (*f*) | Weekly | do | | |
| **Cloud co.**—*Population:* 15,343. | | | | | |
| Concordia | Concordia Empire | Weekly | News and politics | 1870 | 1 50 |
| | Concordia Expositor | do | do | 1875 | 1 50 |
| | Cloud County Blade | do | do | 1879 | 1 00 |
| Clyde | Clyde Herald | do | do | 1879 | 1 50 |
| **Coffey co.**—*Population:* 11,438. | | | | | |
| Burlington | Burlington Patriot | Weekly | News and politics | 1865 | 2 00 |
| | Burlington Independent | do | do | 1874 | 1 50 |
| Le Roy | Le Roy Reporter | do | do | 1879 | 1 50 |
| **Cowley co.**—*Population:* 21,538. | | | | | |
| Arkansas | Arkansas City Traveler | Weekly | News and politics | 1870 | 1 50 |
| | Arkansas Valley Democrat | do | do | 1879 | 1 50 |
| Burdenville | New Enterprise | do | do | 1880 | 1 50 |
| Winfield | Telegram | Daily (*evening*) | do | 1880 | 6 00 |
| | Telegram | Weekly | do | 1880 | 1 50 |
| | Winfield Courier | do | do | 1872 | 1 50 |
| | Cowley County Monitor | do | do | 1879 | 2 00 |
| **Crawford co.**—*Population:* 16,851. | | | | | |
| Cherokee | Sentinel on the Border | Weekly | News and politics | 1879 | 1 50 |
| Girard | Girard Press | do | do | 1869 | 1 50 |
| | Crawford County News (*h*) | do | do | 1875 | 1 50 |
| | Girard Herald | do | do | 1878 | 1 50 |
| **Davis co.**—*Population:* 6,994. | | | | | |
| Junction | Junction City Union | Weekly | News and politics | 1863 | 1 50 |
| | Junction City Tribune | do | do | 1873 | 1 00 |
| **Decatur co.**—*Population:* 4,180. | | | | | |
| Oberlin | Oberlin Herald | Weekly | News and politics | 1879 | 1 50 |
| Jackson | Jackson Guardian | do | do | 1880 | 1 50 |
| **Dickinson co.**—*Population:* 15,251. | | | | | |
| Abilene | Dickinson County Chronicle | Weekly | News and politics | 1870 | 2 00 |
| | Abilene Gazette | do | do | 1875 | 1 50 |
| | Weekly Democrat | do | do | 1880 | 2 00 |
| Solomon | Solomon Sentinel | do | do | 1879 | 2 00 |
| **Doniphan co.**—*Population:* 14,257. | | | | | |
| Troy | Kansas Chief | Weekly | News and politics | 1857 | 2 00 |
| Wathena | Wathena Mirror (*i*) | do | do | 1878 | 2 00 |
| **Douglas co.**—*Population:* 21,700. | | | | | |
| Lawrence | Tribune | Daily (*evening*) | News and politics | 1865 | 7 50 |
| | Tribune | Weekly | do | 1854 | 1 50 |
| | Journal | Daily (*morning*) | do | 1866 | 8 00 |
| | Journal | Weekly | do | 1857 | 2 00 |
| | Standard | Daily (*evening*) | do | 1873 | 6 00 |
| | Standard | Weekly | do | 1870 | 1 00 |
| | Spirit of Kansas | do | Agricultural | 1871 | 1 50 |
| | Die Germania | do | News and politics (*German*) | 1877 | 1 50 |
| | Kansas Monthly | Monthly | Literary | 1878 | 2 00 |
| | University Courier | do | Collegiate | 1878 | 50 |
| | Kansas Temperance Palladium | Weekly | Temperance | 1879 | 1 25 |
| | Kansas Review | Monthly | Collegiate | 1879 | 1 00 |
| **Edwards co.**—*Population:* 2,409. | | | | | |
| Kinsley | Edwards County Leader (*j*) | Weekly | News and politics | 1877 | 1 50 |
| | Kinsley Graphic | do | do | 1877 | 1 50 |
| | Kinsley Republican | do | do | 1877 | 1 50 |
| **Elk co.**—*Population:* 10,623. | | | | | |
| Elk Falls | Elk Falls Signal | Weekly | News and politics | 1880 | 1 50 |
| Grenola | Grenola Argus | do | do | 1879 | 1 50 |
| Howard | Howard City Courant | do | do | 1874 | 2 00 |
| | Industrial Journal | do | do | 1878 | 1 50 |
| Moline | Moline News | do | do | 1880 | 1 50 |

*a* Suspended April, 1880.
*b* Suspended November, 1880.
*c* Suspended June, 1879.
*d* Consolidated with "Columbus Times" December, 1879.
*e* Suspended December, 1879.
*f* Suspended.
*g* Suspended April, 1881.
*h* Suspended June, 1880.
*i* Suspended 1879.
*j* Suspended since census year.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| LLIS CO.—*Population:* 6,179. | | | | | |
| Ellis | Ellis Headlight | Weekly | News and politics | 1880 | $2 00 |
| Hays City | Hays City Sentinel | do | do | 1874 | 2 00 |
| | Ellis County Star | do | do | 1876 | 2 00 |
| LLSWORTH CO.—*Population:* 8,494. | | | | | |
| Ellsworth | Ellsworth Reporter | Weekly | News and politics | 1870 | 1 50 |
| | Ellsworth Times (*a*) | do | do | 1879 | 1 50 |
| Wilson | Wilson Echo | do | do | 1879 | 1 50 |
| ORD CO.—*Population:* 3,122. | | | | | |
| Dodge | Dodge City Times | Weekly | News and politics | 1876 | 2 00 |
| | Ford County Globe | do | Agricultural | 1877 | 2 00 |
| Spearville | Spearville News (*b*) | do | News and politics | 1878 | 1 50 |
| RANKLIN CO.—*Population:* 16,797. | | | | | |
| Ottawa | Journal and Triumph | Weekly | News and politics | 1865 | 2 00 |
| | { Republican | Daily (*evening*) | do | 1879 | 5 00 |
| | { Republican | Weekly | do | 1870 | 2 00 |
| | Kansas Home News | do | do | 1879 | 1 50 |
| | Ottawa Daily News (*c*) | Daily (*evening*) | do | 1879 | |
| | Ottawa Gazette (*c*) | Weekly | do | | |
| | Ottawa State Press (*c*) | do | do | | |
| Williamsburg | Williamsburg Gazette | do | do | 1880 | 1 00 |
| OVE CO.—*Population:* 1,196. | | | | | |
| Grainfield | Grainfield Republican | Weekly | News and politics | 1880 | 2 00 |
| RAHAM CO.—*Population:* 4,258. | | | | | |
| Gettysburg | Graham County Lever | Weekly | News and politics | 1879 | 1 25 |
| Hill City | Western Star (*d*) | do | do | 1879 | 1 00 |
| Millbrook | Millbrook Times | do | do | 1879 | 1 00 |
| Roscoe | Roscoe Tribune | do | do | 1880 | 1 00 |
| REENWOOD CO.—*Population:* 10,548. | | | | | |
| Eureka | Eureka Herald | Weekly | News and politics | 1868 | 1 50 |
| | Eureka Graphic | do | do | 1879 | 1 50 |
| | Eureka Sun | do | do | 1879 | 1 50 |
| Gould | Gould City News (*c*) | do | do | 1880 | |
| Madison | Madison News | do | do | 1879 | 1 00 |
| IARPER CO.—*Population:* 4,133. | | | | | |
| Anthony | Anthony Journal | Weekly | News and politics | 1878 | 1 50 |
| | Anthony Republican | do | do | 1879 | 1 50 |
| Harper | Harper County Times | do | do | 1878 | 1 50 |
| IARVEY CO.—*Population:* 11,451. | | | | | |
| Burrton | Burrton Telephone | Weekly | News and politics | 1878 | 1 50 |
| Halstead | Zur Heimath | Semi-monthly | Religious (*Mennonite; German*) | 1875 | 1 00 |
| Newton | Newton Kansan | Weekly | News and politics | 1872 | 2 00 |
| | Newton Republican | do | do | 1875 | 2 00 |
| | Golden Gate | do | Temperance | 1879 | 1 50 |
| | Newton Bee (*e*) | do | News and politics | 1879 | 2 00 |
| IODGEMAN CO.—*Population:* 1,704. | | | | | |
| Fordham | Fordham Republican (*f*) | Weekly | News and politics | | |
| Hodgeman Center | Agitator (*g*) | do | do | | |
| ACKSON CO.—*Population:* 10,718. | | | | | |
| Holton | Holton Recorder | Weekly | News and politics | 1872 | 2 00 |
| | Holton Signal | do | do | 1878 | 1 50 |
| | Holton Bee (*h*) | do | do | 1880 | |
| EFFERSON CO.—*Population:* 15,563. | | | | | |
| Oskaloosa | Oskaloosa Independent | Weekly | News and politics | 1860 | 2 00 |
| | Oskaloosa Sickle | do | do | 1873 | 1 50 |
| Perry | Kaw Valley Chief | do | do | 1879 | 1 50 |
| Valley Falls | New Era | do | do | 1865 | 1 50 |
| Winchester | Winchester Argus | do | do | 1877 | 1 25 |
| EWELL CO.—*Population:* 17,475. | | | | | |
| Burr Oak | Burr Oak Reveille | Weekly | News and politics | 1880 | 1 50 |
| Jewell | Jewell County Republican | do | do | 1879 | 1 50 |
| Mankato | Jewell County Monitor | do | do | 1874 | 1 50 |
| | Jewell County Review | do | do | 1879 | 1 00 |
| Omio | Jewell County Journal (*b*) | do | do | 1879 | 1 50 |
| OHNSON CO.—*Population:* 16,853. | | | | | |
| Olathe | Miner and News-Letter | Weekly | News and politics | 1870 | 1 50 |
| | Kansas Star | do | Educational | 1876 | 75 |
| | Olathe Leader | do | Miscellaneous | 1878 | 1 00 |
| | Olathe Gazette | do | News and politics | 1879 | 1 00 |
| KINGMAN CO.—*Population:* 3,713. | | | | | |
| Kingman | Kingman Mercury | Weekly | News and politics | 1878 | 1 50 |
| | Kingman Citizen | do | do | 1879 | 1 50 |
| ABETTE CO.—*Population:* 22,735. | | | | | |
| Chetopa | Chetopa Advance | Weekly | News and politics | 1869 | 1 50 |
| Oswego | Oswego Independent | do | do | 1872 | 1 50 |
| | Labette County Democrat | do | do | 1879 | 1 50 |
| Parsons | Parsons Sun | do | do | 1871 | 2 00 |
| | Parsons Eclipse | do | do | 1874 | 1 50 |
| | Parsons Republican | do | do | 1879 | 1 50 |
| ANE CO.—*Population:* 601. | | | | | |
| California | Lane County Gazette | Weekly | News and politics | 1880 | 1 50 |
| Dayton | Dayton Progress (*i*) | do | do | 1880 | |

[a] Succeeded by the "Rural West", Little River, 1881.
[b] Suspended March, 1880.
[c] Suspended.
[d] Suspended June, 1880.
[e] Consolidated with "Golden Gate" since census year.
[f] Suspended November, 1879.
[g] Suspended, 1879.
[h] Consolidated with "Holton Signal" February 26, 1880.
[i] Suspended July, 1880.

## KANSAS—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| LEAVENWORTH CO.—*Population:* 32,355. | | | | | |
| Leavenworth | Times | Daily (*morning*) | News and politics | 1855 | $8 00 |
| | Times | Weekly | do | 1855 | 1 00 |
| | Kansas Freie Presse | Daily (*evening*) | News and politics (*German*) | 1868 | 9 00 |
| | Kansas Freie Presse | Weekly | News and politics (*German*) | 1868 | 2 00 |
| | Home Record | Monthly | Miscellaneous | 1872 | 30 |
| | Press | Daily (*evening*) | News and politics | 1877 | 6 00 |
| | Press | Weekly | do | 1877 | 1 25 |
| | Appeal (*a*) | Daily (*morning*) | do | 1879 | 6 00 |
| | Workingman's Friend | Weekly | do | 1877 | 2 00 |
| | Western Homestead | Monthly | Agricultural | 1878 | 1 00 |
| | Sunday Herald (*b*) | Sunday | News and politics | 1879 | 1 50 |
| LINCOLN CO.—*Population:* 8,582. | | | | | |
| Lincoln Center | Lincoln County Register | Weekly | News and politics | 1873 | 1 50 |
| | Lincoln County Beacon | do | do | 1880 | 1 50 |
| Monroe | Monroe Reformer (*c*) | do | do | | 1 50 |
| LINN CO.—*Population:* 15,298. | | | | | |
| La Cygne | La Cygne Journal | Weekly | News and politics | 1870 | 1 50 |
| Mound City | Linn County Clarion | do | do | 1876 | 1 50 |
| Pleasanton | Pleasanton Observer | do | do | 1872 | 1 50 |
| LYON CO.—*Population:* 17,326. | | | | | |
| Emporia | News | Daily (*evening*) | News and politics | 1878 | 5 00 |
| | News | Weekly | do | 1857 | 1 50 |
| | Emporia Ledger | do | do | 1870 | 1 50 |
| | Emporia Journal | do | do | 1878 | 1 50 |
| | Kansas Sentinel | do | do | 1880 | 1 50 |
| | Emporia Sun (*d*) | do | do | 1878 | 2 00 |
| Hartford | Hartford Enterprise (*e*) | do | do | 1877 | 1 50 |
| | Hartford Call | do | do | 1879 | 1 00 |
| MCPHERSON CO.—*Population:* 17,143. | | | | | |
| Hudsburg | Kansas Stadts Tidning (*d*) | Weekly | News and politics (*Swedish*) | | |
| Lindsburg | Lindsburg Localist | do | News and politics | 1879 | 1 50 |
| | Lindsburg Buttes (*d*) | do | News and politics (*German*) | | |
| McPherson | McPherson Republican | do | News and politics | 1873 | 1 50 |
| | McPherson Freeman | do | do | 1878 | 1 50 |
| | McPherson Leader | do | do | 1880 | 1 50 |
| | Greenback Star (*f*) | do | do | 1879 | 1 50 |
| MARION CO.—*Population:* 12,453. | | | | | |
| Florence | Florence Herald | Weekly | News and politics | 1876 | 1 50 |
| Marion Center | Marion County Record | do | do | 1870 | 1 50 |
| | Marion Banner | do | do | 1880 | 1 50 |
| Peabody | Central Kansas Telegraph (*g*) | do | New and politics (*Germ. and Eng.*) | 1880 | 1 50 |
| | Peabody Gazette | do | News and politics | 1873 | 1 50 |
| MARSHALL CO.—*Population:* 16,136. | | | | | |
| Blue Rapids | Blue Rapids Times | Weekly | News and politics | 1871 | 2 00 |
| Frankfort | National Headlight | do | do | 1879 | 1 50 |
| Irving | Blue Valley Gazette | do | do | 1874 | 2 00 |
| Marysville | Blue Valley Citizen (*h*) | do | do | 1880 | |
| | Marshall County News | do | do | 1872 | 1 50 |
| Waterville | Kansas Staats-Zeitung | do | News and politics (*German*) | 1878 | 2 00 |
| | Telegraph | do | News and politics | 1869 | 1 50 |
| MIAMI CO.—*Population:* 17,802. | | | | | |
| Louisburg | Louisburg and Miami Herald | Weekly | News and politics | 1876 | 1 50 |
| | Border Chief | do | do | 1879 | 1 50 |
| Paola | Miami Republican | do | do | 1866 | 1 50 |
| | Western Spirit | do | do | 1871 | 1 50 |
| | Republican-Citizen (*h*) | do | do | 1871 | 1 50 |
| MITCHELL CO.—*Population:* 14,911. | | | | | |
| Beloit | Beloit Gazette | Weekly | News and politics | 1872 | 1 50 |
| | Western Democrat | do | do | 1878 | 2 00 |
| | Beloit Courier | do | do | 1879 | 1 25 |
| Cawker City | Free Press | do | do | 1878 | 2 00 |
| | Journal | do | do | 1880 | 2 00 |
| MONTGOMERY CO.—*Population:* 18,213. | | | | | |
| Cherryvale | Cherryvale Globe | Weekly | News and politics | 1878 | 1 50 |
| Coffeyville | Coffeyville Journal | do | do | 1875 | 2 00 |
| Elk City | Elk City Times | do | do | 1880 | 1 50 |
| Independence | South Kansas Tribune | do | do | 1871 | 2 00 |
| | Independence Kansan | do | do | 1873 | 1 50 |
| | Independence Itemizer (*i*) | Semi-weekly | do | | |
| MORRIS CO.—*Population:* 9,265. | | | | | |
| Council Grove | Council Grove Republican | Weekly | News and politics | 1870 | 1 50 |
| | Morris County Times | do | do | 1879 | 1 50 |
| Parkersville | Morris County Enterprise | do | do | 1878 | 1 50 |
| NEMAHA CO.—*Population:* 12,462. | | | | | |
| Sabetha | Nemaha County Republican | Weekly | News and politics | 1876 | 2 00 |
| Seneca | Seneca Courier | do | do | 1863 | 2 00 |
| | Seneca Tribune | do | do | 1879 | 1 50 |
| NEOSHO CO.—*Population:* 15,121. | | | | | |
| Chanute | Chanute Times | Weekly | News and politics | 1872 | 1 50 |
| | Chanute Democrat | do | do | 1879 | 1 50 |
| Erie | Neosho County Record | do | do | 1876 | 1 50 |
| Osage Mission | Neosho County Journal | do | do | 1868 | 2 00 |
| | Temperance Banner (*j*) | do | Temperance | 1878 | 1 00 |
| Thayer | Thayer Headlight | do | News and politics | 1871 | 2 00 |
| NESS CO.—*Population:* 3,722. | | | | | |
| Clarinda | Ness County Pioneer (*k*) | Weekly | News and politics | 1879 | 1 50 |
| Ness | Ness City Times | do | do | 1879 | 1 50 |

*a* Suspended spring of 1880.
*b* Suspended March, 1881.
*c* Suspended.
*d* Suspended 1880.
*e* Suspended February, 1880.
*f* Suspended January, 1880.
*g* Suspended November, 1880.
*h* Suspended July, 1880.
*i* Suspended December, 1879.
*j* Suspended since census year.
*k* Merged in "Noss City Times", October, 1880.

## KANSAS—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| NORTON CO.—*Population:* 6,998. | | | | | |
| Norton | Norton County Advance | Weekly | News and politics | 1878 | $1 50 |
| OSAGE CO.—*Population:* 19,642. | | | | | |
| Burlingame | Osage County Chronicle | Weekly | News and politics | 1863 | 2 00 |
| Carbondale | Carbondale Journal *(a)* | do | do | | |
| Lyndon | Kansas Times | do | do | 1875 | 1 50 |
| Osage | Osage City Free Press | do | do | 1871 | 2 00 |
| OSBORNE CO.—*Population:* 12,517. | | | | | |
| Bull's City | Bull's City Post *(b)* | Weekly | News and politics | 1880 | 1 50 |
| Downs | Downs Times | do | do | 1880 | 1 50 |
| Osborne | Osborne County Farmer | do | do | 1875 | 2 00 |
| | Truth Teller | do | do | 1879 | 2 00 |
| OTTAWA CO.—*Population:* 10,307. | | | | | |
| Delphos | Delphos Herald | Weekly | News and politics | 1879 | 1 50 |
| Minneapolis | Independent *(c)* | do | do | 1871 | 1 50 |
| | Solomon Valley Mirror | Monthly | Miscellaneous | 1874 | 25 |
| | Minneapolis Sentinel | Weekly | News and politics | 1875 | 1 00 |
| | Ottawa County Index | do | do | 1880 | 1 00 |
| PAWNEE CO.—*Population:* 5,396. | | | | | |
| Larned | Larned Optic | Weekly | News and politics | 1874 | 1 50 |
| | Larned Chronoscope | do | do | 1877 | 1 50 |
| PHILLIPS CO.—*Population:* 12,014. | | | | | |
| Kirwin | Kirwin Chief | Weekly | News and politics | 1873 | 1 50 |
| Logan | Logan Enterprise | do | do | 1879 | 1 50 |
| POTTAWATOMIE CO.—*Population:* 16,350. | | | | | |
| Louisville | Kansas Reporter | Weekly | News and politics | 1867 | 1 50 |
| | Pottawatomie County Herald *(d)* | do | do | 1879 | 1 00 |
| Onaga | Onaga Journal | do | do | 1878 | 1 50 |
| Saint Mary's | St. Mary's Express | do | do | 1880 | 1 50 |
| | St. Mary's Chief *(e)* | do | do | | |
| Wamego | Wamego Tribune | do | do | 1877 | 1 50 |
| | Kansas Agriculturist | do | Agricultural | 1879 | 1 50 |
| | Wamego Democrat *(f)* | do | News and politics | 1880 | |
| PRATT CO.—*Population:* 1,890. | | | | | |
| Inka | Pratt County Press | Weekly | News and politics | 1878 | 2 00 |
| RAWLINS CO.—*Population:* 1,623. | | | | | |
| Attwood | Attwood Pioneer | Weekly | News and politics | 1879 | 1 50 |
| RENO CO.—*Population:* 12,826. | | | | | |
| Hutchinson | Hutchinson News | Weekly | News and politics | 1872 | 2 00 |
| | Hutchinson Herald | do | do | 1875 | 2 00 |
| | Hutchinson Interior | do | do | 1877 | 2 00 |
| Nickerson | Nickerson Argosy | do | do | 1878 | 1 50 |
| REPUBLIC CO.—*Population:* 14,913. | | | | | |
| Belleville | Belleville Telescope | Weekly | News and politics | 1870 | 1 50 |
| Scandia | Republic County Journal | do | do | 1878 | 1 50 |
| White Rock | White Rock Independent *(a)* | do | do | 1879 | 1 00 |
| RICE CO.—*Population:* 9,292. | | | | | |
| Lyons | Central Kansas Democrat | Weekly | News and politics | 1878 | 1 60 |
| | Lyons Republican | do | do | 1879 | 1 60 |
| Sterling | Sterling Gazette | do | do | 1876 | 1 50 |
| | Weekly Bulletin | do | do | 1877 | 1 50 |
| RILEY CO.—*Population:* 10,430. | | | | | |
| Manhattan | Manhattan Nationalist | Weekly | News and politics | 1860 | 1 50 |
| | Manhattan Enterprise | do | do | 1876 | 1 50 |
| Riley Center | Independent | do | do | 1879 | 1 00 |
| | Monthly Review *(g)* | Monthly | Miscellaneous | 1880 | 25 |
| | Riley Center News *(h)* | Weekly | News and politics | | |
| ROOKS CO.—*Population:* 8,112. | | | | | |
| Stockton | Stockton News | Weekly | News and politics | 1876 | 2 00 |
| | Rooks County Record | do | do | 1879 | 1 50 |
| RUSH CO.—*Population:* 5,490. | | | | | |
| Walnut City | Walnut City Blade | Weekly | News and politics | 1878 | 1 50 |
| RUSSELL CO.—*Population:* 7,351. | | | | | |
| Russell | Russell County Record | Weekly | News and politics | 1874 | 1 50 |
| | Russell Independent | do | do | 1879 | 1 50 |
| SALINE CO.—*Population:* 13,808. | | | | | |
| Brookville | Brookville Transcript *(i)* | Weekly | News and politics | 1879 | 1 50 |
| Salina | Salina Herald | do | do | 1864 | 2 00 |
| | Saline County Journal | do | do | 1871 | 2 00 |
| | News and Farmers' Advocate | do | do | 1874 | 1 50 |
| | Soluska Harolden | do | News and politics (*Swedish*) | 1878 | 2 00 |
| | Salina Democrat *(j)* | do | News and politics | 1878 | 2 00 |
| | Western Reformer *(f)* | do | do | 1880 | |
| SEDGWICK CO.—*Population:* 18,753. | | | | | |
| Wichita | Wichita City Eagle | Weekly | News and politics | 1872 | 2 00 |
| | Wichita Beacon | do | do | 1872 | 2 00 |
| | National Monitor and Temperance Millennium | do | Miscellaneous | 1878 | 1 50 |
| | Republican | Daily *(evening)* | News and politics | 1879 | 5 00 |
| | Republican | Weekly | do | 1879 | 2 00 |
| SHAWNEE CO.—*Population:* 20,003. | | | | | |
| North Topeka | North Topeka Times | Weekly | News and politics | 1871 | 1 50 |
| Rossville | Kansas Valley Times | do | do | 1874 | 1 50 |
| Topeka | Kansas Farmer | do | Agricultural | 1863 | 1 50 |

*a* Suspended December, 1879.
*b* Suspended 1880.
*c* Suspended February, 1881.
*d* Suspended July, 1879.
*e* Suspended June, 1879.
*f* Suspended December, 1880.
*g* Suspended July, 1880.
*h* Suspended August, 1879.
*i* Formerly the Independent.
*j* Suspended, 1879.

# KANSAS—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| SHAWNEE CO.—Continued. | | | | | |
| Topeka—Continued | Commonwealth | Daily (*morning*) | News and politics | 1869 | $10 00 |
| | Commonwealth | Weekly | do | 1869 | 1 25 |
| | Kansas Democrat | do | do | 1870 | 1 50 |
| | Kansas State Journal | Daily (*evening*) | do | 1873 | 6 00 |
| | Kansas State Journal | Weekly | do | 1873 | 1 25 |
| | American Young Folks | Monthly | Juvenile | 1874 | 50 |
| | Der Courier (*a*) | Weekly | News and politics (*German*) | 1874 | 1 00 |
| | Colored Citizen (*b*) | do | News and politics | | |
| | Kansas Churchman | Monthly | Religious (*Episcopalian*) | 1877 | 60 |
| | Capital | Daily (*evening*) | News and politics | 1879 | 6 00 |
| | Capital | Weekly | do | 1879 | 1 00 |
| | Topeka Post (*a*) | Daily (*morning*) | do | | |
| | Kansas Methodist | Monthly | Religious (*Methodist*) | 1879 | 50 |
| | Staats-Anzeiger | Weekly | News and politics (*German*) | 1879 | 2 00 |
| SHERIDAN CO.—*Population:* 1,567. | | | | | |
| Kenneth | Sheridan County Tribune | Weekly | News and politics | 1880 | 1 50 |
| SMITH CO.—*Population:* 13, 883. | | | | | |
| Gaylord | Gaylord Herald | Weekly | News and politics | 1879 | 1 50 |
| Harlan | Harlan Independent | do | do | 1879 | 1 50 |
| Smith Center | Smith County Pioneer | do | do | 1872 | 1 50 |
| | Kansas Free Press | do | do | 1879 | 1 50 |
| STAFFORD CO.—*Population:* 4,755. | | | | | |
| Newburg | Newburg Gazette (*c*) | Weekly | News and politics | | |
| Stafford | Stafford County Herald | do | do | 1879 | 2 00 |
| Saint John | St. John Advance | do | do | 1880 | 1 50 |
| SUMNER CO.—*Population:* 20,812. | | | | | |
| Belle Plaine | Belle Plaine News | Weekly | News and politics | 1879 | 1 50 |
| Caldwell | Caldwell Post | do | do | 1879 | 1 50 |
| | Caldwell Commercial | do | do | 1880 | 2 00 |
| Mulvane | Mulvane Herald | do | do | 1880 | 1 50 |
| Wellington | Sumner County Press | do | do | 1872 | 2 00 |
| | Sumner County Democrat | do | do | 1876 | 2 00 |
| TREGO CO.—*Population:* 2,535. | | | | | |
| Wa Keeney | Wa Keeney World | Weekly | News and politics | 1879 | 2 00 |
| | Wa Keeney Kansas Leader (*d*) | do | do | 1879 | 2 00 |
| WABAUNSEE CO.—*Population:* 8,756. | | | | | |
| Alma | Wabaunsee County News | Weekly | News and politics | 1869 | 1 50 |
| | Wabaunsee County Herald | do | do | 1879 | 1 50 |
| WASHINGTON CO.—*Population:* 14,910. | | | | | |
| Clifton | Clifton Review | Weekly | News and politics | 1879 | 1 50 |
| Hanover | Hanover Democrat | do | do | 1871 | 1 50 |
| Washington | Washington Republican | do | do | 1869 | 2 00 |
| WILSON CO.—*Population:* 13,775. | | | | | |
| Fredonia | Wilson County Citizen | Weekly | News and politics | 1870 | 2 00 |
| | Fredonia Graphic (*d*) | do | do | 1879 | |
| Neodesha | Free Press | do | do | 1872 | 1 50 |
| WOODSON CO.—*Population:* 6,535. | | | | | |
| Neosho Falls | Woodson County Post | Weekly | News and politics | 1872 | 1 50 |
| Yates Center | Yates Center News | do | do | 1877 | 1 50 |
| WYANDOTTE CO.—*Population:* 19,143. | | | | | |
| Kansas City | Kansas Pilot | Weekly | News and politics | 1878 | 2 00 |
| Wyandotte | Wyandotte Gazette | do | do | 1858 | 1 50 |
| | Wyandotte Herald | do | do | 1871 | 2 00 |

# KENTUCKY.

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|---|---|---|---|---|---|
| ADAIR CO.—*Population:* 13,078. | | | | | |
| Columbia | Columbia Spectator | Weekly | News and politics | 1869 | $1 50 |
| ANDERSON CO.—*Population:* 9,361. | | | | | |
| Lawrenceburg | Anderson News | Weekly | News and politics | 1876 | 2 00 |
| BALLARD CO.—*Population:* 14,378. | | | | | |
| Blandville | Ballard County News | Weekly | News and politics | 1874 | 1 50 |
| BARREN CO.—*Population:* 22,321. | | | | | |
| Glasgow | Glasgow Weekly Times | Weekly | News and politics | 1865 | 2 00 |
| BATH CO.—*Population:* 11,982. | | | | | |
| Owingsville | Bath County Reporter | Weekly | News and politics | 1877 | 1 50 |
| | Owingsville Outlook | do | do | 1879 | 1 50 |
| BOONE CO.—*Population:* 11,996. | | | | | |
| Burlington | Boone County Record | Weekly | News and politics | 1875 | 1 50 |
| BOURBON CO.—*Population:* 15,956. | | | | | |
| Millersburg | Enphilonian (*e*) | Monthly | Collegiate | 1875 | 50 |
| Paris | Western Citizen | Weekly | News and politics | 1809 | 2 00 |
| | Paris True Kentuckian | do | do | 1866 | 2 00 |
| BOYD CO.—*Population:* 12,165. | | | | | |
| Ashland | Boyd County Express | Weekly | News and politics | 1879 | 1 50 |
| | Ashland Republican | do | do | 1880 | 1 25 |
| Catlettsburg | Central Methodist | do | Religious (*Methodist*) | 1867 | 2 00 |
| | Kentucky Democrat | do | News and politics | 1879 | 2 00 |

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*a* Suspended.
*b* Consolidated with "Topeka Tribune"
*c* Suspended 1880.
*d* Suspended March, 1880.
*e* The "Philomathean" and the "Enclean" were consolidated and changed to "Enphilonian".

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| E CO.—*Population:* 11,930. | | | | | |
| Danville | Kentucky Advocate | Weekly | News and politics | 1865 | $2 00 |
| | Danville Tribune | do | do | 1878 | 2 00 |
| | Centre College Courant | Monthly | Collegiate | 1879 | 1 00 |
| KEN CO.—*Population:* 13,509. | | | | | |
| Augusta | Augusta Chronicle | Weekly | News and politics | 1869 | 1 50 |
| | Bracken Bulletin | do | do | 1878 | 1 00 |
| KINRIDGE CO.—*Population:* 17,486. | | | | | |
| Cloverport | Breckinridge News | Weekly | News and politics | 1876 | 1 50 |
| WELL CO.—*Population:* 11,282. | | | | | |
| Princeton | Princeton Banner | Weekly | News and politics | 1871 | 2 00 |
| OWAY CO.—*Population:* 13,295. | | | | | |
| Murray | Calloway County News | Weekly | News and politics | 1879 | 1 00 |
| PBELL CO.—*Population:* 37,440. | | | | | |
| Newport | Kentucky State Journal | Weekly | News and politics | 1876 | 2 00 |
| | Kentucky State Journal | Tri-weekly | do | 1876 | 4 00 |
| | Kentucky Staats-Zeitung | Weekly | News and politics (*German*) | 1879 | 1 50 |
| | People's Literary Journal | Monthly | Literary | 1879 | 2 00 |
| | Newport Leader (*a*) | Weekly | News and politics | | |
| ROLL CO.—*Population:* 8,953. | | | | | |
| Carrollton | Carrollton Democrat | Weekly | News and politics | 1868 | 1 50 |
| ISTIAN CO.—*Population:* 31,682. | | | | | |
| Hopkinsville | Kentucky New Era | Weekly | News and politics | 1870 | 2 00 |
| | South Kentuckian | do | do | 1879 | 2 00 |
| RK CO.—*Population:* 12,115. | | | | | |
| Winchester | Clark County Democrat | Weekly | News and politics | 1867 | 2 00 |
| | Semi-Weekly Sun | Semi-weekly | do | 1878 | 2 00 |
| TENDEN CO.—*Population:* 11,688. | | | | | |
| Marion | Crittenden Press | Weekly | News and politics | 1879 | 1 00 |
| BERLAND CO.—*Population:* 8,894. | | | | | |
| Burkesville | Burkesville Bulletin (*b*) | Weekly | News and politics | 1871 | 2 00 |
| IESS CO.—*Population:* 27,730. | | | | | |
| Owensboro' | Messenger and Examiner | Semi-weekly | News and politics | 1877 | 2 50 |
| | Messenger and Examiner | Weekly | do | 1877 | 1 50 |
| ETTE CO.—*Population:* 29,023. | | | | | |
| Lexington | Kentucky Gazette | Semi-weekly | News and politics | 1866 | 5 00 |
| | Apostolic Times | Weekly | Religious (*Disciples*) | 1867 | 2 00 |
| | Press | Daily (*morning*) | News and politics | 1870 | 10 00 |
| | Press | Weekly | do | 1870 | 2 00 |
| | Kentucky Live-Stock Record | do | Agricultural | 1875 | 3 00 |
| | Eclectic Teacher and South Western Journal of Education. | Monthly | Educational | 1876 | 1 00 |
| | Transcript | Daily (*evening*) | News and politics | 1878 | 6 00 |
| | Transcript | Weekly | do | 1878 | 2 00 |
| MING CO.—*Population:* 15,221. | | | | | |
| Flemingsburg | Flemingsburg Democrat | Weekly | News and politics | 1867 | 2 00 |
| | Flemingsburg Times | do | do | 1879 | 1 50 |
| NKLIN CO.—*Population:* 18,699. | | | | | |
| Farmdale | Kentucky Military Institute News | Weekly | Collegiate | 1879 | 1 00 |
| Frankfort | Kentucky Yeoman | Tri-weekly | News and politics | 1844 | 5 00 |
| | Kentucky Yeoman | Weekly | do | 1844 | 2 00 |
| | Weekly Roundabout | do | do | 1877 | 1 00 |
| | Capital Gazette | Daily (*morning*) | do | 1880 | 5 00 |
| | Capital Gazette | Weekly | do | 1880 | 2 00 |
| TON CO.—*Population:* 7,977. | | | | | |
| Fulton | The Fultonian | Weekly | News and politics | 1880 | 2 00 |
| | Times (*c*) | do | do | | |
| Hickman | Hickman Courier | do | do | 1859 | 2 00 |
| LATIN CO.—*Population:* 4,832. | | | | | |
| Warsaw | Warsaw Independent | Weekly | News and politics | 1880 | 2 00 |
| RARD CO.—*Population:* 11,704. | | | | | |
| Lancaster | Lancaster Enterprise | Weekly | News and politics | 1880 | 2 00 |
| NT CO.—*Population:* 13,083. | | | | | |
| Williamstown | Williamstown Courier | Weekly | News and politics | 1880 | 1 50 |
| VES CO.—*Population:* 24,138. | | | | | |
| Mayfield | Mayfield Democrat | Weekly | News and politics | 1869 | 1 00 |
| | Mayfield Monitor | do | do | 1875 | 1 00 |
| | The Apostolic Church | Monthly | Religious (*Church of God*) | 1879 | 1 00 |
| | Mayfield Leader (*c*) | Weekly | News and politics | | |
| ENUP CO.—*Population:* 13,371. | | | | | |
| Greenup | Greenup Independent | Weekly | News and politics | 1871 | 2 00 |
| COCK CO.—*Population:* 8,563. | | | | | |
| Hawesville | Hawesville Plaindealer | Weekly | News and politics | 1873 | 1 50 |
| | Hawesville Ballot | do | do | 1879 | 1 25 |
| DIN CO.—*Population:* 22,564. | | | | | |
| Elizabethtown | Elizabethtown News | Weekly | News and politics | 1868 | 2 00 |

*a* Merged in "State Journal".

*b* Formerly the "Courier".

*c* Suspended in December, 1879.

## KENTUCKY—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| HARRISON CO.—*Population:* 16,504. | | | | | |
| Cynthiana | Cynthiana News | Weekly | News and politics | 1850 | $2 00 |
| | Cynthiana Democrat | do | do | 1868 | 1 50 |
| HART CO.—*Population:* 17,133. | | | | | |
| Horse Cave | Hart County Democrat | Weekly | News and politics | 1878 | 1 50 |
| HENDERSON CO.—*Population:* 24,515. | | | | | |
| Henderson | Henderson Reporter | Semi-weekly | News and politics | 1853 | 2 50 |
| | Henderson Reporter | Weekly | do | 1853 | 1 50 |
| | Henderson News | do | do | 1862 | 2 00 |
| HENRY CO.—*Population:* 14,492. | | | | | |
| Eminence | Constitutionalist | Weekly | News and politics | 1868 | 2 00 |
| New Castle | Henry County Local | do | do | 1879 | 1 50 |
| HICKMAN CO.—*Population:* 10,651. | | | | | |
| Clinton | Clinton Democrat | Weekly | News and politics | 1876 | 1 50 |
| Columbus | Columbus Times | do | do | 1880 | 1 50 |
| HOPKINS CO.—*Population:* 19,122. | | | | | |
| Madisonville | Madisonville Times | Weekly | News and politics | 1868 | 1 50 |
| | Kentucky Republican (*a*) | do | do | | |
| JEFFERSON CO.—*Population:* 146,010. | | | | | |
| Louisville | Christian Observer | Weekly | Religious (*Presbyterian*) | 1813 | 3 00 |
| | Courier-Journal | Daily (*morning*) | News and politics | 1832 | 10 00 |
| | Courier-Journal | Sunday | do | 1832 | 2 00 |
| | Courier-Journal | Weekly | do | 1832 | 2 00 |
| | Anzeiger | Daily (*morning*) | News and politics (*German*) | 1849 | 9 20 |
| | Anzeiger | Sunday | News and politics (*German*) | 1849 | 2 20 |
| | Anzeiger | Semi-weekly | News and politics (*German*) | 1849 | 3 40 |
| | Anzeiger | Weekly | News and politics (*German*) | 1849 | 1 70 |
| | Volksblatt | Daily (*morning*) | News and politics (*German*) | 1861 | 8 00 |
| | Omnibus | Sunday | News and politics (*German*) | 1861 | 3 00 |
| | Volksblatt | Weekly | News and politics (*German*) | 1861 | 1 70 |
| | Volksblatt | Semi-weekly | News and politics (*German*) | 1861 | 3 00 |
| | American Practitioner | Monthly | Medical | 1862 | 3 00 |
| | Katholischer Glaubensbote | Weekly | Religious (*Catholic; German*) | 1865 | 2 50 |
| | Commercial | Daily (*morning*) | News and politics | 1869 | 12 00 |
| | Commercial | Weekly | do | 1869 | 1 25 |
| | Christian Index | Monthly | Religious (*Methodist Episcopal*) | 1869 | 1 00 |
| | Central Catholic Advocate | Weekly | Religious (*Catholic*) | 1869 | 2 50 |
| | Louisville Democrat | do | News and politics | 1870 | 2 00 |
| | Good Templars' Advocate | do | Temperance | 1870 | 1 00 |
| | Kentucky Church Chronicle | Monthly | Religious (*Protestant Episcopal*) | 1873 | 1 00 |
| | National Presbyterian | do | Religious (*Presbyterian*) | 1873 | 75 |
| | Good Words | Weekly | Sunday school | 1874 | 2 00 |
| | Home and Farm | Semi-monthly | Agricultural | 1875 | 50 |
| | Scholars' Monthly | Monthly | Sunday school | 1876 | 50 |
| | Sunday Argus | Sunday | News and politics | 1876 | 2 00 |
| | Western Grocer | Weekly | Commercial | 1876 | 2 00 |
| | Louisville Medical News | do | Medicine and surgery | 1876 | 3 00 |
| | Louisville Trade Gazette | do | Trade | 1877 | 3 00 |
| | Farmers' Magazine and Live Stock Monthly | Monthly | Agricultural | 1877 | 2 00 |
| | Woman at Work | do | Miscellaneous | 1877 | 1 50 |
| | Louisville Monthly Magazine | do | Literary | 1878 | 2 00 |
| | Deutsche Gefluegel Zeitung | Semi-monthly | Agricultural (*German*) | 1878 | 1 50 |
| | Little Pearl | Weekly | Sunday school | 1878 | 2 00 |
| | Post | Daily (*evening*) | News and politics | 1878 | 7 60 |
| | Post | Weekly | do | 1878 | 1 00 |
| | Bulletin | do | do | 1879 | 2 00 |
| | Illustrated People's Magazine | Monthly | Literary | 1879 | 1 50 |
| | Medical Herald | do | Medicine and surgery | 1879 | 2 00 |
| | Farmers' Home Journal | Weekly | Agricultural | 1879 | 1 50 |
| | New Southern Poultry Journal | Monthly | do | 1879 | 1 00 |
| | Parents' and Teachers' Monthly | do | Religious | 1879 | 1 00 |
| | Ohio Falls Express | Weekly | News and politics | 1879 | 1 50 |
| | Our Graded Lesson Leaf | Monthly | Sunday school | 1879 | 25 |
| | Our Teachers' Lesson Leaf | do | do | 1879 | 50 |
| | American Baptist | Weekly | Religious (*Baptist*) | 1879 | 1 25 |
| | Trade Review and Tobacco Journal | do | Commercial | 1879 | 2 50 |
| | Odd-Fellows' Monthly | Monthly | Secret society | 1879 | 50 |
| | Tobacco and Grocery News (*b*) | Weekly | Commercial | 1879 | 2 50 |
| | Louisville Age (*c*) | do | Medicine and surgery | 1879 | 3 25 |
| JESSAMINE CO.—*Population:* 10,804. | | | | | |
| Nicholasville | Jessamine Journal | Weekly | News and politics | 1872 | 2 00 |
| KENTON CO.—*Population:* 43,983. | | | | | |
| Covington | Agriculturist Legal Tender | Weekly | News and politics | 1869 | 1 00 |
| | Commonwealth | Daily (*evening*) | do | 1878 | 5 00 |
| | Commonwealth | Weekly | do | 1873 | 1 50 |
| Ludlow | Ludlow Journal (*b*) | do | do | 1872 | |
| LA RUE CO.—*Population:* 9,793. | | | | | |
| Hodgensville | Public Advertiser (*d*) | Weekly | News and politics | | |
| LAUREL CO.—*Population:* 9,131. | | | | | |
| London | Mountain Echo | Weekly | News and politics | 1872 | 1 25 |
| | London Examiner | do | do | 1880 | 1 00 |
| LAWRENCE CO.—*Population:* 13,262. | | | | | |
| Louisa | Chattaroi News | Weekly | News and politics | 1880 | 1 50 |
| LEWIS CO.—*Population:* 13,154. | | | | | |
| Vanceburg | Vanceburg Courier | Weekly | News and politics | 1877 | 2 00 |
| LINCOLN CO.—*Population:* 15,080. | | | | | |
| Stanford | Interior Journal | Weekly | News and politics | 1872 | 2 00 |

*a* Suspended January, 1880.
*b* Suspended January, 1880.
*c* Suspended November, 1879.
*d* Suspended March, 1880.

## KENTUCKY—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| LOGAN CO.—*Population:* 24,358. | | | | | |
| Adairville | Logan Sentinel | Weekly | News and politics | 1879 | $1 00 |
| | Adairville Clipper | do | do | 1880 | 1 50 |
| Russellville | Russellville Herald-Enterprise | do | do | 1840 | 2 00 |
| | Russellville Messenger | do | do | 1846 | 3 00 |
| LYON CO.—*Population:* 6,768. | | | | | |
| Eddyville | Mirror (*a*) | Weekly | News and politics | 1880 | 1 00 |
| Kuttawa | Lyon County News | do | do | 1880 | 1 50 |
| MCCRACKEN CO.—*Population:* 16,262. | | | | | |
| Paducah | News | Daily (*evening*) | News and politics | 1871 | 6 00 |
| | News | Weekly | do | 1873 | 1 20 |
| | Enterprise | Daily (*morning*) | do | 1880 | 6 00 |
| | Enterprise | Weekly | do | 1880 | 1 20 |
| MCLEAN CO.—*Population:* 9,293. | | | | | |
| Calhoon | McLean County News (*b*) | Weekly | News and politics | | |
| MADISON CO.—*Population:* 22,052. | | | | | |
| Richmond | Kentucky Register | Weekly | News and politics | 1866 | 2 00 |
| | Richmond Herald | do | do | 1879 | 2 00 |
| MARION CO.—*Population:* 14,693. | | | | | |
| Lebanon | Lebanon Standard | Weekly | News and politics | 1870 | 1 50 |
| | Lebanon Times and Kentuckian | do | do | 1871 | 1 50 |
| MASON CO.—*Population:* 20,469. | | | | | |
| Maysville | Maysville Weekly Eagle | Weekly | News and politics | 1819 | 2 00 |
| | Maysville Bulletin | do | do | 1862 | 2 00 |
| | Maysville Republican | do | do | 1860 | 2 00 |
| | Maysville Enterprise | do | do | 1879 | 2 00 |
| | Mason County Journal | do | do | 1880 | 1 00 |
| MEADE CO.—*Population:* 10,323. | | | | | |
| Brandenburg | Meade County Record | Weekly | News and politics | 1878 | 1 50 |
| MERCER CO.—*Population:* 14,142. | | | | | |
| Harrodsburg | Mercer Observer (*c*) | Weekly | News and politics | 1875 | 2 00 |
| MONTGOMERY CO.—*Population:* 10,566. | | | | | |
| Mount Sterling | Kentucky Sentinel | Weekly | News and politics | 1868 | 2 00 |
| | Mount Sterling Democrat | do | do | 1876 | 2 00 |
| | Republican (*d*) | do | do | 1880 | 2 00 |
| MORGAN CO.—*Population:* 8,455. | | | | | |
| West Liberty | Mountain Scorcher | Weekly | News and politics | 1879 | 1 00 |
| MUHLENBURG CO.—*Population:* 15,098. | | | | | |
| Greenville | Muhlenburg Echo | Weekly | News and politics | 1877 | 1 00 |
| South Carrollton | Institute (*e*) | Monthly | Collegiate | 1876 | 30 |
| NELSON CO.—*Population:* 16,609. | | | | | |
| Bardstown | Nelson County Record | Weekly | News and politics | 1875 | 2 00 |
| | Church and Home | Monthly | Religious | 1880 | 1 00 |
| Bloomfield | Nelson Enterprise | Weekly | News and politics | 1878 | 1 50 |
| NICHOLAS CO.—*Population:* 11,869. | | | | | |
| Carlisle | Mercury | Weekly | News and politics | 1868 | 2 00 |
| OHIO CO.—*Population:* 19,669. | | | | | |
| Hartford | Hartford Herald | Weekly | News and politics | 1875 | 1 50 |
| | Ohio County News (*a*) | do | do | 1879 | 1 00 |
| OLDHAM CO.—*Population:* 7,667. | | | | | |
| La Grange | Oldham County Era | Weekly | News and politics | 1876 | 1 50 |
| OWEN CO.—*Population:* 17,401. | | | | | |
| Owenton | Owen News | Weekly | News and politics | 1879 | 1 50 |
| PENDLETON CO.—*Population:* 16,702. | | | | | |
| Falmouth | Independent | Weekly | News and politics | 1870 | 1 50 |
| PULASKI CO.—*Population:* 21,318. | | | | | |
| Somerset | Somerset Reporter | Weekly | News and politics | 1875 | 2 00 |
| | Somerset Citizen | do | do | 1878 | 1 15 |
| | Home Journal | Monthly | do | 1880 | 1 50 |
| | Church Advocate (*b*) | Weekly | Religious (*Methodist*) | 1875 | 50 |
| ROBERTSON CO.—*Population:* 5,814. | | | | | |
| Mount Olivet | Robertson County Tribune | Weekly | News and politics | 1874 | 2 00 |
| | Free Press | do | do | 1879 | 2 50 |
| SCOTT CO.—*Population:* 14,965. | | | | | |
| Georgetown | Times | Weekly | News and politics | 1867 | 2 00 |
| | Every Saturday | do | do | 1877 | 1 50 |
| SHELBY CO.—*Population:* 16,813. | | | | | |
| Shelbyville | Shelbyville Sentinel | Weekly | News and politics | 1844 | 2 00 |
| SIMPSON CO.—*Population:* 10,641. | | | | | |
| Franklin | Franklin Patriot | Weekly | News and politics | 1872 | 2 00 |
| | Simpson County Enterprise (*f*) | do | do | 1879 | 2 00 |
| | Simpson County Enterprise (*f*) | Semi-weekly | do | 1879 | 2 50 |
| | Franklin Local (*b*) | Weekly | do | 1880 | 1 25 |
| SPENCER CO.—*Population:* 7,040. | | | | | |
| Taylorsville | Spencer Courier | Weekly | News and politics | 1865 | 1 25 |
| TAYLOR CO.—*Population:* 9,259. | | | | | |
| Campbellsville | Green River Press | Weekly | News and politics | 1879 | 1 50 |

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*a* Suspended March, 1880.
*b* Suspended.
*c* Succeeded by the "Enterprise
*d* Suspended July, 1880.
*e* Formerly the "Student".
*f* Merged in the "Patriot".

## KENTUCKY—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| TODD CO.—*Population:* 15,994. | | | | | |
| Elkton | Elkton Register | Weekly | News and politics | 1878 | $2 00 |
| Guthrie | Guthrie Border Minstrel | do | do | 1879 | 2 00 |
| TRIGG CO.—*Population:* 14,489. | | | | | |
| Cadiz | Trigg County Democrat | Weekly | News and politics | 1870 | 2 00 |
| TRIMBLE CO.—*Population:* 7,171. | | | | | |
| Bedford | Trimble News (*a*) | Weekly | News and politics | 1877 | 1 50 |
| Milton | Milton Free Press | do | do | 1879 | 1 00 |
| UNION CO.—*Population:* 17,809. | | | | | |
| Morganfield | Union Democrat | Weekly | News and politics | 1879 | 1 50 |
| Uniontown | Union Local | do | do | 1873 | 2 00 |
| WARREN CO.—*Population:* 27,531. | | | | | |
| Bowling Green | Bowling Green Democrat | Weekly | News and politics | 1865 | 2 00 |
| | Kentucky Intelligencer (*b*) | do | do | 1879 | 2 00 |
| WASHINGTON CO.—*Population:* 14,419. | | | | | |
| Springfield | Clarion (*c*) | Weekly | News and politics | | |
| | Washington County Watchman (*d*) | do | do | 1879 | 1 50 |
| WEBSTER CO.—*Population:* 14,246. | | | | | |
| Dixon | Dixon Pioneer | Weekly | News and politics | 1880 | 1 00 |
| WOODFORD CO.—*Population:* 11,800. | | | | | |
| Midway | Blue Grass Clipper | Weekly | News and politics | 1877 | 1 50 |
| Versailles | Woodford Sun | do | do | 1868 | 1 50 |

## LOUISIANA.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| ASCENSION PARISH.—*Population:* 16,895. | | | | | |
| Donaldsonville | Donaldsonville Chief | Weekly | News and politics | 1871 | $2 00 |
| ASSUMPTION PARISH.—*Population:* 17,010. | | | | | |
| Napoleonville | Assumption Pioneer | Weekly | News and politics | 1880 | 2 00 |
| AVOYELLES PARISH.—*Population:* 16,747. | | | | | |
| Marksville | Marksville Bulletin | Weekly | News and politics | 1876 | 3 00 |
| | Villager | do | do | 1877 | 2 00 |
| BIENVILLE PARISH.—*Population:* 10,442. | | | | | |
| Sparta | Rural Times | Weekly | News and politics | 1868 | 2 00 |
| BOSSIER PARISH.—*Population:* 16,042. | | | | | |
| Bellevue | Bossier Banner | Weekly | News and politics | 1859 | 2 00 |
| CADDO PARISH.—*Population:* 26,296. | | | | | |
| Shreveport | Daily Times | Daily (*morning*) | News and politics | 1871 | 9 00 |
| | Times | Weekly | do | 1871 | 2 00 |
| | Daily Standard | Daily (*morning*) | do | 1878 | 9 00 |
| | Standard | Weekly | do | 1878 | 2 00 |
| CALCASIEU PARISH.—*Population:* 12,484. | | | | | |
| Lake Charles | Lake Charles Echo | Weekly | News and politics | 1868 | 2 00 |
| | Calcasieu Gazette (*a*) | do | do | 1878 | 1 50 |
| CALDWELL PARISH.—*Population:* 5,767. | | | | | |
| Columbia | Columbia Herald | Weekly | News and politics | 1873 | 2 00 |
| CATAHOULA PARISH.—*Population:* 10,277. | | | | | |
| Harrisonburg | Catahoula News | Weekly | News and politics | 1873 | 2 00 |
| CLAIBORNE PARISH.—*Population:* 18,837. | | | | | |
| Haynesville | Greenback Dollar (*e*) | Weekly | News and politics | 1879 | 1 50 |
| Homer | Claiborne Guardian | do | do | 1877 | 2 00 |
| CONCORDIA PARISH.—*Population:* 14,914. | | | | | |
| Vidalia | Concordia Eagle | Weekly | News and politics | 1873 | 2 00 |
| DE SOTO PARISH.—*Population:* 15,603. | | | | | |
| Mansfield | De Soto Democrat | Weekly | News and politics | 1877 | 2 00 |
| | Mansfield Reporter (*f*) | do | do | 1870 | 2 00 |
| EAST BATON ROUGE PARISH.—*Population:* 19,966. | | | | | |
| Baton Rouge | Advocate | Daily (*evening*) | News and politics | 1851 | 10 00 |
| | Advocate | Weekly | do | 1844 | 2 50 |
| | Baton Rouge Herald | do | do | 1878 | 2 00 |
| | Louisiana Capitolian | Tri-weekly | do | 1879 | 5 00 |
| EAST CARROLL PARISH.—*Population:* 12,134. | | | | | |
| Lake Providence | North Louisiana Republican (*g*) | Weekly | News and politics | 1880 | 2 00 |
| EAST FELICIANA PARISH.—*Population:* 15,132. | | | | | |
| Clinton | Patriot-Democrat | Weekly | News and politics | 1865 | 3 00 |
| FRANKLIN PARISH.—*Population:* 6,495. | | | | | |
| Winnsboro' | Franklin Sun | Weekly | News and politics | 1864 | 2 00 |
| GRANT PARISH.—*Population:* 6,188. | | | | | |
| Colfax | Colfax Chronicle | Weekly | News and politics | 1876 | 2 00 |

*a* Suspended.
*b* Succeeded by "Gazette" September, 1880.
*c* Suspended August, 1879.
*d* Suspended June, 1879.
*e* Removed to Camden, Ark., 1881.
*f* Merged in the De Soto "Democrat".
Suspended since census year.

## LOUISIANA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| IBERIA PARISH.—*Population:* 16,676. | | | | | |
| New Iberia | Louisiana Sugar Bowl | Weekly | Agriculture, etc. (*Eng. and Fr.*) | 1870 | $3 00 |
| | Iberia Journal | do | News and politics (*Eng. and Fr.*) | 1878 | 3 00 |
| IBERVILLE PARISH.—*Population:* 17,544. | | | | | |
| Plaquemine | Iberville South | Weekly | News and politics | 1865 | 2 00 |
| JEFFERSON PARISH.—*Population:* 12,166. | | | | | |
| Gretna | Gretna Courier | Weekly | News and politics | 1873 | 2 00 |
| LA FAYETTE PARISH.—*Population:* 13,235. | | | | | |
| Vermillionville | La Fayette Advertiser | Weekly | News and politics (*Eng. and Fr.*) | 1865 | 2 00 |
| | Louisiana Cotton Boll | do | News and politics (*Eng. and Fr.*) | 1872 | 3 00 |
| LAFOURCHE PARISH.—*Population:* 19,113. | | | | | |
| Thibodeaux | Thibodeaux Sentinel | Weekly | News and politics (*Eng. and Fr.*) | 1861 | 3 00 |
| LINCOLN PARISH.—*Population:* 11,075. | | | | | |
| Vienna | Vienna Sentinel | Weekly | News and politics | 1873 | 2 00 |
| LIVINGSTON PARISH.—*Population:* 5,258. | | | | | |
| Maurepas | Maurepas Gazette | Weekly | News and politics | 1872 | 1 00 |
| Port Vincent | Livingstonian | do | do | 1878 | 1 00 |
| Springfield | Springfield Ledger | do | do | 1870 | 1 00 |
| MADISON PARISH.—*Population:* 13,906. | | | | | |
| Delta | Madison Journal | Weekly | News and politics | 1870 | 3 00 |
| MOREHOUSE PARISH.—*Population:* 14,206. | | | | | |
| Bastrop | Morehouse Clarion | Weekly | News and politics | 1874 | 2 00 |
| NATCHITOCHES PARISH.—*Population:* 19,707. | | | | | |
| Natchitoches | People's Vindicator | Weekly | News and politics | 1874 | 2 00 |
| ORLEANS PARISH.—*Population:* 216,090. | | | | | |
| New Orleans | New Orleans Price Current (*a*) | Semi-weekly | Commercial | 1822 | 10 00 |
| | L'Abeille (Bee) | Daily (*morning*) | News and politics (*French*) | 1827 | 14 00 |
| | L'Abeille | Weekly | News and politics (*French*) | 1827 | 3 00 |
| | Picayune | Daily (*morning*) | News and politics | 1837 | 12 00 |
| | Picayune | do (*evening*) | do | 1837 | 12 00 |
| | Picayune | Weekly | do | 1837 | 2 00 |
| | Le Propagateur Catholique | do | Religious (*Catholic; French*) | 1842 | 5 00 |
| | Medical and Surgical Journal | Monthly | Medical | 1845 | 5 00 |
| | Deutsche Zeitung | Daily (*morning*) | News and politics (*German*) | 1848 | 16 00 |
| | Deutsche Zeitung | Weekly | News and politics (*German*) | 1861 | 2 00 |
| | Sonntags Blatt | Sunday | News and politics (*German*) | 1866 | 2 00 |
| | Christian Advocate | Weekly | Religious (*Methodist Episcopal*) | 1855 | 2 00 |
| | Times | Daily (*morning*) | News and politics | 1863 | 12 00 |
| | Times | do (*evening*) | do | 1863 | 12 00 |
| | Times | Weekly | do | 1863 | 2 00 |
| | Der Familien Freund | Bi-weekly | Religious (*Methodist Epis.; Germ.*) | 1867 | 1 00 |
| | Morning Star and Catholic Messenger | Sunday | Religious (*Catholic*) | 1868 | 3 00 |
| | South Western Presbyterian | Weekly | Religious (*Presbyterian*) | 1869 | 3 00 |
| | Louisianian (*b*) | do | News and politics | 1872 | 2 00 |
| | South Western Christian Advocate | do | Religious (*Methodist Episcopal*) | 1873 | 2 00 |
| | Democrat | Daily (*morning*) | News and politics | 1875 | 12 00 |
| | Democrat | Weekly | do | 1875 | 1 50 |
| | City Item | Daily (*evening*) | do | 1877 | 6 00 |
| | Jewish South | Weekly | Religious (*Jewish*) | 1877 | 2 00 |
| | Algiers Advertiser | do | News and politics | 1878 | 2 00 |
| | New Orleans Observer | do | do | 1878 | 2 00 |
| | Temperance Advocate (*b*) | do | Temperance | 1878 | 1 00 |
| | Country Visitor | do | Miscellaneous | 1879 | 2 00 |
| | Louisiana Journal of Education | Monthly | Educational | 1879 | 1 00 |
| | New Orleans Ledger | Weekly | News and politics | 1879 | 2 00 |
| | Daily States | Daily (*evening*) | do | 1880 | 5 00 |
| | New Orleans Independent | Weekly | Miscellaneous | 1880 | 1 00 |
| | Le Petit Journal (*b*) | Daily (*morning*) | News and politics (*French*) | 1879 | 10 00 |
| | Merchant, Mechanic, and Farmer | Weekly | Miscellaneous | 1879 | 2 00 |
| | Sunday Morning Gem (*c*) | Sunday | News and politics | 1880 | ....... |
| | Workingmen's Union Advocate | do | Miscellaneous | 1880 | 2 25 |
| OUACHITA PARISH.—*Population:* 14,685. | | | | | |
| Monroe | Ouachita Telegraph | Weekly | News and politics | 1865 | 3 00 |
| | Monroe Bulletin | do | do | 1880 | 2 00 |
| PLAQUEMINES PARISH.—*Population:* 11,575. | | | | | |
| Pointe à la Hache | Pointe à la Hache Observer | Weekly | News and politics (*French and English*). | 1858 | 2 00 |
| POINTE COUPÉE PARISH.—*Population:* 17,785. | | | | | |
| Pointe Coupée | Pointe Coupée Banner | Weekly | News and politics | 1877 | 3 00 |
| RAPIDES PARISH.—*Population:* 23,563. | | | | | |
| Alexandria | Louisiana Democrat | Weekly | News and politics | 1845 | 2 50 |
| | We the People | do | do | 1878 | 2 00 |
| RED RIVER PARISH.—*Population:* 8,573. | | | | | |
| Coushatta | Coushatta Citizen | Weekly | News and politics | 1875 | 3 00 |
| RICHLAND PARISH.—*Population:* 8,440. | | | | | |
| Rayville | Richland Beacon | Weekly | News and politics | 1869 | 2 00 |
| SABINE PARISH.—*Population:* 7,344. | | | | | |
| Many | Southron of Sabine | Weekly | News and politics | [illegible] | 2 00 |

## LOUISIANA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **SAINT BERNARD PARISH.**—*Population:* 4,405. | | | | | |
| Saint Bernard | Saint Bernard Eagle | Weekly | News and politics | 1877 | $2 00 |
| **SAINT CHARLES PARISH.**—*Population:* 7,161. | | | | | |
| Hahnville | Saint Charles Herald | Weekly | News and politics | 1872 | 2 00 |
| **SAINT HELENA PARISH.**—*Population:* 7,504. | | | | | |
| Greensburgh | Greensburgh Gazette | Weekly | News and politics | 1879 | 1 50 |
| **SAINT JAMES PARISH.**—*Population:* 14,714. | | | | | |
| Convent | Le Louisianais | Weekly | News and politics (*French*) | 1864 | 5 00 |
| **SAINT JOHN BAPTIST PARISH.**—*Population:* 9,686. | | | | | |
| Bonnet Carré | Meschacebe | Weekly | News and politics (*French*) | 1852 | 5 00 |
| **SAINT LANDRY PARISH.**—*Population:* 40,004. | | | | | |
| Opelousas | Opelousas Courier | Weekly | News and politics (*Fr and Eng.*) | 1852 | 2 50 |
| | Saint Landry Democrat | do | News and politics | 1877 | 2 00 |
| Washington | Washington News (*a*) | do | do | 1878 | 1 50 |
| **SAINT MARTIN PARISH.**—*Population:* 12,663. | | | | | |
| Saint Martinsville | Saint Martinsville Observer | Weekly | News and politics | 1874 | 2 00 |
| **SAINT MARY PARISH.**—*Population:* 19,891. | | | | | |
| Franklin | Saint Mary's Courant | Weekly | News and politics | 1879 | 2 50 |
| Morgan City | Morgan City Review | do | do | 1879 | 2 50 |
| **SAINT TAMMANY PARISH.**—*Population:* 6,887. | | | | | |
| Covington | Saint Tammany Farmer | Weekly | News and politics | 1874 | 2 00 |
| **TANGIPAHOA PARISH.**—*Population:* 9,638. | | | | | |
| Amite City | Amite City Independent | Weekly | News and politics | 1874 | 2 00 |
| Ponchatoula | Ponchatoula Gazette | do | do | 1872 | 1 00 |
| | Whitehall Age | do | do | 1879 | 1 00 |
| **TENSAS PARISH.**—*Population:* 17,815. | | | | | |
| Saint Joseph | North Louisiana Journal | Weekly | News and politics | 1870 | 3 00 |
| **TERREBONNE PARISH.**—*Population:* 17,957. | | | | | |
| Houma | Houma Courier | Weekly | News and politics (*Eng. and Fr.*) | 1878 | 2 50 |
| | Terre-bonne Chronicle | do | News and politics | 1880 | 2 00 |
| **UNION PARISH.**—*Population:* 13,526. | | | | | |
| Farmerville | Farmerville Gazette | Weekly | News and politics | 1878 | 1 00 |
| **VERMILLION PARISH.**—*Population:* 8,728. | | | | | |
| Abbeville | Méridional | Weekly | News and politics (*French and English*). | 1858 | 2 50 |
| **WEBSTER PARISH.**—*Population:* 10,005. | | | | | |
| Minden | Minden Democrat | Weekly | News and politics | 1868 | 2 00 |
| | Minden Tribune | do | do | 1878 | 2 00 |
| **WEST BATON ROUGE PARISH.**—*Population:* 7,667. | | | | | |
| West Baton Rouge | Sugar Planter | Weekly | News and politics | 1852 | 3 00 |
| **WEST CARROLL PARISH.**—*Population:* 2,776. | | | | | |
| Floyd | West Carroll Courier (*b*) | Weekly | News and politics | 1878 | 2 00 |
| **WEST FELICIANA PARISH.**—*Population:* 12,809. | | | | | |
| Saint Francisville | Feliciana Sentinel | Weekly | News and politics | 1876 | 3 00 |

## MAINE.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **ANDROSCOGGIN CO.**—*Population:* 45,042. | | | | | |
| Auburn | Greenback-Labor Chronicle | Weekly | News and politics | 1873 | $2 00 |
| Lewiston | Journal | Daily (*evening*) | do | 1861 | 7 00 |
| | Journal | Weekly | do | 1840 | 2 00 |
| | News (*c*) | Daily (*evening*) | do | | |
| | Bates Student | Monthly | Collegiate | 1872 | 1 00 |
| | Lewiston Gazette | Weekly | News and politics | 1872 | 2 00 |
| | Lewiston Independent (*d*) | do | do | | |
| | Lewiston Phonograph (*e*) | do | do | | |
| Lisbon | Young People's Literary (*f*) | do | Literary | 1878 | 1 00 |
| Mechanics Falls | Mechanics Falls Citizen | do | News and politics | 1877 | 1 00 |

*a* Suspended February 15, 1880.
*b* Suspended since census year.
*c* Suspended February, 1880.
*d* Suspended May, 1880.
*e* Suspended June, 1880.
*f* Suspended September, 1880.

## MAINE—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| ABOOSTOOK CO.—*Population*: 41,700. | | | | | |
| Caribou | Aroostook Republican | Weekly | News and politics | 1880 | $2 00 |
| Fort Fairfield | Aroostook Valley Sunrise (*a*) | do | do | 1863 | 2 00 |
| Houlton | Aroostook Pioneer | do | do | 1857 | 2 00 |
| | Aroostook Times | do | do | 1860 | 2 00 |
| Presque Isle | North Star | do | do | 1871 | 2 00 |
| Sherman | Katahdin Kalendar | do | do | 1876 | 1 00 |
| CUMBERLAND CO.—*Population*: 86,359. | | | | | |
| Brunswick | Brunswick Telegraph | Weekly | News and politics | 1853 | 1 50 |
| | Bowdoin Orient | Bi-weekly | Collegiate | 1871 | 2 00 |
| Bridgton | Bridgton News | Weekly | News and politics | 1869 | 1 50 |
| Portland | Advertiser | Daily (*evening*) | do | 1785 | 6 00 |
| | Advertiser | Weekly | do | 1785 | 1 00 |
| | Eastern Argus | Daily (*morning*) | do | 1832 | 7 00 |
| | Eastern Argus | Weekly | do | 1803 | 1 50 |
| | Eastern Argus | Tri-weekly | do | 1803 | 3 00 |
| | Christian Mirror | Weekly | Religious (*Congregational*) | 1822 | 2 50 |
| | Zion's Advocate | do | Religious (*Baptist*) | 1828 | 2 50 |
| | Portland Transcript | do | News and politics | 1836 | 2 00 |
| | Press | Daily (*morning*) | do | 1862 | 8 00 |
| | Maine State Press | Weekly | do | 1862 | 2 00 |
| | Portland Price-Current | Monthly | Commercial | 1863 | 2 00 |
| | Masonic Token | Quarterly | Secret society | 1867 | 12 |
| | North-East | Monthly | Religious (*Episcopal*) | 1872 | 1 00 |
| | Our Home and Fireside Magazine | do | Literary | 1873 | 1 00 |
| | Helping Hand | do | Religious (*Unsectarian*) | 1873 | 15 |
| | Sunday Times | Sunday | News and politics | 1875 | 2 00 |
| | Union Bible Teacher | Monthly | Religious (*Unsectarian*) | 1875 | 50 |
| | People's Illustrated Journal | do | Literary | 1877 | 1 00 |
| | New Era-Leader | Weekly | News and politics | 1877 | 1 50 |
| | Portland Globe | do | do | 1877 | 1 25 |
| | Illustrated Household Magazine | Monthly | Literary | 1878 | 1 25 |
| | Sunday Sun (*b*) | Sunday | News and politics | 1879 | 1 50 |
| | Saturday Evening Mail (*c*) | Weekly | do | 1879 | 2 50 |
| | City Item | Daily (*evening*) | do | 1879 | 3 00 |
| | Floral Monthly | Monthly | Agricultural | 1880 | 50 |
| | Evening News (*d*) | Daily (*evening*) | News and politics | 1880 | ........ |
| FRANKLIN CO.—*Population*: 18,180. | | | | | |
| Farmington | Farmington Chronicle | Weekly | News and politics | 1845 | 1 50 |
| | Farmington Herald | do | do | 1880 | 1 00 |
| Phillips | Phillips Phonograph | do | do | 1878 | 1 00 |
| HANCOCK CO.—*Population*: 38,129. | | | | | |
| Ellsworth | Ellsworth American | Weekly | News and politics | 1855 | 2 00 |
| Sullivan | Weekly Sullivan Bulletin | do | Local mining | 1880 | 2 00 |
| KENNEBEC CO.—*Population*: 53,058. | | | | | |
| Augusta | Kennebec Journal | Daily (*morning*) | News and politics | 1870 | 7 00 |
| | Kennebec Journal | Weekly | do | 1825 | 2 00 |
| | Maine Farmer | do | Agricultural | 1833 | 2 00 |
| | Gospel Banner | do | Religious (*Universalist*) | 1834 | 2 20 |
| | Maine Standard | do | News and politics | 1867 | 2 00 |
| | People's Literary Companion | do | Literary | 1868 | 1 00 |
| | Vickery's Fireside Visitor | Monthly | do | 1874 | 1 00 |
| | Illustrated Family Herald | do | do | 1877 | 1 00 |
| | Celtic Mirror (*e*) | do | do | 1880 | ........ |
| Gardiner | Home Journal | Weekly | News and politics | 1853 | 2 00 |
| | Kennebec Reporter | do | do | 1866 | 2 00 |
| Hallowell | Hallowell Register | do | do | 1878 | 2 00 |
| Waterville | Waterville Mail | do | do | 1847 | 2 00 |
| | Colby Echo | Monthly | Collegiate | 1877 | 1 00 |
| KNOX CO.—*Population*: 32,863. | | | | | |
| Camden | Camden Herald | Weekly | News and politics | 1869 | 1 50 |
| Pittston | Pittston Times (*f*) | do | do | 1879 | 1 00 |
| Rockland | Rockland Gazette | do | do | 1846 | 2 00 |
| | Rockland Free Press | do | do | 1855 | 2 00 |
| | Rockland Courier | do | do | 1874 | 1 00 |
| | Rockland Opinion | do | do | 1875 | 2 00 |
| | Maine Hotel Register (*d*) | do | Miscellaneous | 1880 | ........ |
| Saint George | St. George Journal (*f*) | do | News and politics | 1878 | 1 00 |
| Thomaston | Thomaston Herald | do | do | 1877 | 1 00 |
| Union | Union Herald (*f*) | do | do | 1879 | 1 00 |
| Warren | Warren Times (*f*) | do | do | 1878 | 1 00 |
| LINCOLN CO.—*Population*: 24,821. | | | | | |
| Boothbay | Boothbay Register | Weekly | News and politics | 1877 | 1 00 |
| Damariscotta | Herald and Record | do | do | 1876 | 1 25 |
| Waldoboro' | Lincoln County News | do | do | 1873 | 1 40 |
| OXFORD CO.—*Population*: 32,627. | | | | | |
| Canton | Horse-Breeders' Monthly | Monthly | Stock-raising | 1879 | 1 00 |
| Norway | Norway Advertiser | Weekly | News and politics | 1869 | 1 00 |
| | New Religion | do | Religious (*Liberal*) | 1878 | 1 50 |
| Paris | Oxford Democrat | do | News and politics | 1833 | 1 50 |
| South Paris | Macon Evangelist | do | Religious (*Methodist Episcopal*) | 1879 | 1 00 |
| PENOBSCOT CO.—*Population*: 70,476. | | | | | |
| Bangor | Whig and Courier | Daily (*morning*) | News and politics | 1834 | 8 00 |
| | Whig and Courier | Weekly | do | 1815 | 2 00 |
| | Commercial | Daily (*evening*) | do | 1872 | 7 00 |
| | Commercial | Weekly | do | 1838 | 1 00 |
| | Dirigo Rural | do | Agricultural | 1874 | 1 50 |
| | Coming Struggle | Monthly | Religious (*Unsectarian*) | 1879 | 50 |

*a* Suspended December, 1879.
*b* Suspended May, 1880.
*c* Suspended November, 1879.
*d* Suspended July, 1880.
*e* Suspended December, 1880.
*f* Edition of "Thomaston Herald."

## MAINE—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **PENOBSCOT CO.**—Continued. | | | | | |
| Bangor—Continued | Greenbacker (*a*) | Weekly | News and politics | | |
| | Bangor Record | do | do | 1880 | $0 50 |
| | Maine Mining Journal | do | Mining | 1880 | 2 00 |
| Corinna | Weekly Herald | do | News and politics | 1878 | 75 |
| Dexter | Dexter Gazette | do | do | 1862 | 2 00 |
| | Penobscot Monthly | Monthly | Miscellaneous | 1879 | 2 50 |
| Newport | Times (*b*) | Weekly | News and politics | 1879 | 1 50 |
| **PISCATAQUIS CO.**—*Population:* 14, 872. | | | | | |
| Dover | Piscataquis Observer | Weekly | News and politics | 1848 | 1 50 |
| **SAGADAHOC CO.**—*Population:* 19, 272. | | | | | |
| Bath | Bath Times | Daily (*evening*) | News and politics | 1862 | 7 00 |
| | American Sentinel | Weekly | do | 1820 | 2 00 |
| | Bath Independent | do | do | 1879 | 1 75 |
| Richmond | Richmond Herald (*c*) | do | do | 1879 | 1 00 |
| **SOMERSET CO.**—*Population:* 32, 333. | | | | | |
| Fairfield | Fairfield Journal | Weekly | News and politics | 1872 | 2 00 |
| | Pine Tree State | do | do | 1880 | 1 50 |
| North Anson | Union Advocate | do | do | 1856 | 1 50 |
| Skowhegan | Somerset Reporter | do | do | 1840 | 2 00 |
| **WALDO CO.**—*Population:* 32, 463. | | | | | |
| Belfast | Republican Journal | Weekly | News and politics | 1829 | 2 00 |
| | Progressive Age | do | do | 1854 | 2 00 |
| **WASHINGTON CO.**—*Population:* 44, 484. | | | | | |
| Calais | Calais Advertiser | Weekly | News and politics | 1836 | 2 00 |
| | Calais Times | do | do | 1869 | 2 00 |
| Eastport | Eastport Sentinel | do | do | 1818 | 2 00 |
| Machias | Machias Union | do | do | 1853 | 2 00 |
| | Machias Republican | do | do | 1856 | 2 00 |
| **YORK CO.**—*Population:* 62, 257. | | | | | |
| Biddeford | Union and Journal | Weekly | News and politics | 1844 | 2 00 |
| | Times | Daily (*evening*) | do | 1876 | 6 00 |
| | Watson's Illuminator | Monthly | Humorous | 1877 | 35 |
| | Biddeford Advance (*d*) | Weekly | News and politics | 1879 | 1 00 |
| Cornish | Cornish Maxima | do | do | 1878 | 1 00 |
| Kennebunk | Eastern Star | do | do | 1877 | 1 25 |
| Saco | State Democrat | do | do | 1828 | 2 00 |
| | York County Independent | do | do | 1869 | 2 00 |
| | Saco Republican (*e*) | do | do | 1880 | |
| Sanford | Good Templar | Monthly | Temperance | 1880 | 50 |
| Springvale | Springvale Reporter (*f*) | Weekly | News and politics | 1876 | 1 00 |

## MARYLAND.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **ALLEGANY CO.**—*Population:* 38,012. | | | | | |
| Cumberland | Times | Daily (*morning*) | News and politics | 1876 | $6 00 |
| | Alleganian | Weekly | do | 1820 | 1 50 |
| | News | Daily (*morning*) | do | 1871 | 7 00 |
| | Civilian | Sunday | do | 1871 | 1 50 |
| | Cumberland Independent | Weekly | do | 1880 | 1 25 |
| | Cumberland Leader (*g*) | do | do | 1880 | |
| Frostburg | Mining Journal | do | do | 1871 | 1 50 |
| Lonaconing | Valley Times | do | do | 1878 | 2 00 |
| **ANNE ARUNDEL CO.**—*Population:* 28,526. | | | | | |
| Annapolis | Maryland Gazette | Weekly | News and politics | 1745 | 1 00 |
| | Maryland Republican | do | do | 1809 | 1 00 |
| | Anne Arundel Advertiser | do | do | 1869 | 1 00 |
| | Record | Daily (*evening*) | do | 1875 | 6 00 |
| | Record | Weekly | do | 1875 | 1 00 |
| | Maryland Collegian | Monthly | Collegiate | 1876 | 1 00 |
| **BALTIMORE CO.**—*Population:* 83,336. | | | | | |
| Reisterstown | People's Voice | Weekly | News and politics | 1875 | 1 00 |
| Towsontown | Baltimore County Union | do | do | 1852 | 1 50 |
| | Maryland Journal | do | do | 1865 | 1 50 |
| | Baltimore County Herald | do | do | 1868 | 1 00 |
| Woodberry | Woodberry News | do | do | 1871 | 1 00 |
| **BALTIMORE CITY.**—*Population:* 332,313. | | | | | |
| Baltimore | American and Commercial Advertiser | Daily (*morning*) | News and politics | 1773 | 9 00 |
| | American and Commercial Advertiser | Sunday | do | 1773 | 1 50 |
| | American | Weekly | do | 1773 | 1 50 |
| | American Farmer | Monthly | Agricultural | 1819 | 1 50 |
| | Methodist Protestant | Weekly | Religious (*Methodist Protestant*) | 1831 | 2 00 |
| | American Journal of Dental Science | Monthly | Dental | 1839 | 2 50 |
| | Deutsche Correspondent | Daily (*morning*) | News and politics (*German*) | 1840 | 6 00 |
| | Deutsche Correspondent | Sunday | News and politics (*German*) | 1840 | 1 00 |
| | Deutsche Correspondent | Weekly | News and politics (*German*) | 1845 | 2 50 |
| | Journal of Commerce and Price Current | do | Commercial | 1849 | 2 50 |
| | Baltimore Wecker | Sunday | News and politics (*German*) | 1851 | 2 50 |
| | Sun | Daily (*morning*) | News and politics | 1837 | 6 00 |
| | Sun | Weekly | do | 1837 | 1 00 |
| | Catholic Mirror | do | Religious (*Catholic*) | 1859 | 3 00 |
| | Katholische Volkszeitung | do | Religious (*Catholic; German*) | 1860 | 2 50 |
| | Baltimore Telegram | do | Miscellaneous | 1862 | 2 00 |
| | Gazette | Daily (*morning*) | News and politics | 1862 | 6 00 |
| | Gazette | Weekly | do | 1862 | 1 00 |
| | Maryland Farmer | Monthly | Agricultural | 1864 | 1 00 |
| | Baltimore Underwriter | Semi-monthly | Insurance | 1865 | 3 00 |

*a* Suspended September, 1880.
*b* Suspended November, 1880.
*c* Edition of "Thomaston Herald".
*d* Changed name to "Times" January, 1881.
*e* Suspended January, 1881.
*f* Suspended June, 1880.
*g* Suspended July, 1880.

## MARYLAND—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **BALTIMORE CITY—Continued.** | | | | | |
| Baltimore—Continued | Missionary | Monthly | Religious (*Presbyterian*) | 1866 | $0 50 |
| | Market Journal | Weekly | Trade | 1871 | 2 50 |
| | News | Daily (*evening*) | News and politics | 1872 | 6 00 |
| | Sunday News | Sunday | do | 1872 | 1 50 |
| | Baltimore Presbyterian | Weekly | Religious (*Presbyterian*) | 1872 | 2 00 |
| | Southern Farm and Fireside | Monthly | Agricultural, etc | 1872 | [illegible] |
| | Baltimorean | Weekly | News and politics | 1872 | 2 00 |
| | Volksfreund | Daily (*morning*) | News and politics (*German*) | 1879 | 6 50 |
| | Die Biene von Baltimore | Sunday | News and politics (*German*) | 1873 | 2 75 |
| | Elocutionist | Monthly | Literary | 1873 | 2 50 |
| | Baltimore Herald | do | Trade | 1873 | 1 00 |
| | School Journal | do | Collegiate | 1874 | 1 25 |
| | Herald | Daily (*morning*) | News and politics | 1875 | 3 00 |
| | Herald | Daily (*evening*) | do | 1879 | 3 00 |
| | Herald | Sunday | do | 1880 | 1 00 |
| | Jewish Chronicle | Weekly | Miscellaneous (*German*) | 1875 | 3 00 |
| | Evening Bulletin (*a*) | Daily (*evening*) | News and politics | 1876 | 6 00 |
| | Medical Journal | Semi-monthly | Medicine and surgery | 1877 | 3 00 |
| | Southern Atlantic | Monthly | Miscellaneous | 1877 | 3 00 |
| | Bunte Blaetter (*a*) | Weekly | Literary (*German*) | 1877 | 2 50 |
| | Live-Stock and Poultry Bulletin | do | Agricultural | 1877 | 1 00 |
| | Every Saturday | do | News and politics | 1877 | 2 50 |
| | Law Record | do | Law | 1878 | 3 00 |
| | Baltimore Tutor | Monthly | Educational | 1878 | 1 00 |
| | American Citizen (*b*) | Weekly | Miscellaneous | 1879 | 1 50 |
| | National Highway (*b*) | do | Railroads | 1879 | ...... |
| | True Democrat (*b*) | do | News and politics | 1879 | 1 00 |
| | Southern Review (*b*) | do | Literary | 1879 | ...... |
| | Baltimore Methodist | Semi-monthly | Religious (*Methodist Episcopal*) | 1879 | 1 00 |
| | Episcopal Church News | Weekly | Religious (*Protestant Episcopal*) | 1879 | 2 00 |
| | Baltimore Truth | do | Temperance | 1879 | 1 00 |
| | Protector | Semi-monthly | Secret society | 1880 | 1 00 |
| | American Journal of Philology | Quarterly | Science | 1880 | 3 00 |
| | Independent Methodist | Weekly | Religious (*Methodist Episcopal*) | 1880 | 1 00 |
| CALVERT CO.—*Population:* 10,538. | | | | | |
| Prince Frederick | Calvert Journal | Weekly | News and politics | 1866 | 1 50 |
| CAROLINE CO.—*Population:* 13,766. | | | | | |
| Denton | Denton Journal | Weekly | News and politics | 1845 | 1 00 |
| | American Union | do | do | 1860 | 1 50 |
| | Caroline Democrat | do | do | 1879 | 1 00 |
| Federalsburg | Maryland Courier | do | do | 1872 | 1 00 |
| Greensborough | Free Press | do | do | 1880 | 1 00 |
| CARROLL CO.—*Population:* 30,992. | | | | | |
| Westminster | American Sentinel | Weekly | News and politics | 1833 | 1 50 |
| | Democratic Advocate | do | do | 1865 | 2 00 |
| CECIL CO.—*Population:* 27,108. | | | | | |
| Elkton | Cecil Whig | Weekly | News and politics | 1841 | 2 00 |
| | Cecil Democrat | do | do | 1842 | 2 00 |
| | Weekly Visitor | do | do | 1877 | 1 25 |
| North East | North East Record | do | do | 1878 | 1 50 |
| Rising Sun | Rising Sun Journal | do | do | 1878 | 1 00 |
| CHARLES CO.—*Population:* 18,548. | | | | | |
| Port Tobacco | Port Tobacco Times | Weekly | News and politics | 1844 | 1 00 |
| | Maryland Independent | do | do | 1873 | 1 00 |
| DORCHESTER CO.—*Population:* 23,110. | | | | | |
| Cambridge | Cambridge Chronicle | Weekly | News and politics | 1823 | 1 00 |
| | Democrat and News | do | do | 1840 | 2 00 |
| | Cambridge Era | do | do | 1878 | 1 00 |
| FREDERICK CO.—*Population:* 50,482. | | | | | |
| Emmittsburg | Emmittsburg Chronicle | Weekly | News and politics | 1879 | 1 50 |
| Frederick | Frederick Examiner | do | do | 1803 | 2 00 |
| | Republican Citizen | do | do | 1826 | 2 00 |
| | Maryland Union | do | do | 1854 | 2 00 |
| | Times | Daily (*morning*) | do | 1876 | 4 00 |
| | Times | Weekly | do | 1876 | 1 00 |
| Liberty | Banner of Liberty | do | do | 1850 | 1 25 |
| Mechanicstown | Catoctin Clarion | do | do | 1871 | 1 50 |
| Middletown | Valley Register | do | do | 1844 | 1 50 |
| GARRETT CO.—*Population:* 12,175. | | | | | |
| Oakland | Garrett County Herald (*c*) | Weekly | News and politics | 1873 | 1 50 |
| | Oakland Republican | do | do | 1877 | 1 50 |
| | Oakland Democrat | do | do | 1878 | 1 50 |
| HARFORD CO.—*Population:* 28,042. | | | | | |
| Belair | Ægis and Intelligencer | Weekly | News and politics | 1856 | 1 50 |
| | Harford Democrat | do | do | 1868 | 1 50 |
| Havre de Grace | Havre Republican | do | do | 1868 | 1 00 |
| HOWARD CO.—*Population:* 16,140. | | | | | |
| Ellicott City | Ellicott City Times | Weekly | News and politics | 1870 | 2 00 |
| | American Progress | do | do | 1871 | 1 50 |
| KENT CO.—*Population:* 17,605. | | | | | |
| Chestertown | Kent News | Weekly | News and politics | 1825 | 2 00 |
| | Chestertown Transcript | do | do | 1862 | 1 50 |
| | Conference Advocate (*d*) | do | Religious (*Methodist*) | 1876 | 1 25 |
| MONTGOMERY CO.—*Population:* 24,759. | | | | | |
| Rockville | Montgomery Advocate | Weekly | News and politics | 1872 | 2 00 |
| PRINCE GEORGE'S CO.—*Population:* 26,451 | | | | | |
| College Station | Independent Farmer | Weekly | Agricultural | 1878 | 1 00 |
| Laurel | Laurel Gleaner | do | News and politics | 1878 | 1 50 |
| Upper Marlboro' | Marlboro' Gazette | do | do | 1836 | 2 00 |
| | Prince Georgian | do | do | 1802 | 2 00 |

*a* Suspended. *b* Suspended 1880. *c* Suspended June, 1880. *d* Suspended May, 1880.

## MARYLAND—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **Queen Anne co.**—*Population:* 19,257. | | | | | |
| Centreville | Maryland Citizen (*a*) | Weekly | News and politics | 1860 | $1 00 |
| | Centreville Observer | do | do | 1864 | 1 00 |
| | Centreville Record | do | do | 1874 | 1 00 |
| **Saint Mary's co.**—*Population:* 16,934. | | | | | |
| Leonardtown | St. Mary's Beacon | Weekly | News and politics | 1840 | 2 00 |
| **Somerset co.**—*Population:* 21,668. | | | | | |
| Crisfield | Crisfield Leader | Weekly | News and politics | 1872 | 1 00 |
| Princess Anne | Somerset Herald | do | do | 1861 | 1 00 |
| | Marylander | do | do | 1866 | 1 50 |
| Upper Fairmont | Conference Standard | do | Religious | 1877 | 1 00 |
| **Talbot co.**—*Population:* 19,065. | | | | | |
| Easton | Easton Star | Weekly | News and politics | 1800 | 1 50 |
| | Easton Gazette | do | do | 1816 | 1 50 |
| | Easton Ledger | do | do | 1860 | 1 50 |
| Saint Nicholas | Comet and Advertiser | do | do | 1866 | 1 00 |
| **Washington co.**—*Population:* 38,561. | | | | | |
| Hagerstown | News | Daily (*morning*) | News and politics | 1873 | 5 00 |
| | News | Weekly | do | 1873 | 1 00 |
| | Evening Globe | Daily (*evening*) | do | 1879 | 3 50 |
| | Weekly Globe | Weekly | do | 1879 | 1 00 |
| | Herald and Torchlight | do | do | 1814 | 1 50 |
| | Hagerstown Mail | do | do | 1828 | 2 00 |
| | The Odd Fellow | do | Secret society | 1840 | 1 50 |
| | Seminary Monthly (*b*) | Monthly | Collegiate | 1879 | ........ |
| Sharpsburg | Sharpsburg Enterprise | Weekly | News and politics | 1878 | 1 50 |
| Williamsport | Williamsport Pilot | do | do | 1870 | 1 50 |
| **Wicomico co.**—*Population:* 18,016. | | | | | |
| Salisbury | Salisbury Advertiser | Weekly | News and politics | 1867 | 1 00 |
| | Salisbury Times | do | do | 1879 | 1 00 |
| **Worcester co.**—*Population:* 19,539. | | | | | |
| Pocomoke City | Record and Gazette | Weekly | News and politics | 1865 | 1 00 |
| Snow Hill | Worcester County Shield | do | do | 1845 | 1 00 |
| | Democratic Messenger | do | do | 1869 | 1 00 |

## MASSACHUSETTS.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **Barnstable co.**—*Population:* 31,897. | | | | | |
| Barnstable | Barnstable Patriot | Weekly | News and politics | 1830 | $2 00 |
| Chatham | Chatham Monitor | do | do | 1872 | 2 00 |
| Harwich | Harwich Independent | do | do | 1872 | 2 00 |
| Provincetown | Provincetown Advocate | do | do | 1869 | 2 00 |
| Sandwich | Seaside Press | do | do | 1873 | 2 00 |
| Yarmouth | Yarmouth Register | do | do | 1836 | 2 00 |
| | Cape Cod Item | do | do | 1878 | 1 50 |
| **Berkshire co.**—*Population:* 69,032. | | | | | |
| Adams | Saturday Freeman | Weekly | News and politics | 1876 | 2 00 |
| Great Barrington | Berkshire Courier | do | do | 1834 | 2 00 |
| Lee | Valley Gleaner | do | do | 1857 | 1 75 |
| North Adams | Transcript | do | do | 1840 | 2 00 |
| | Hoosac Valley News | do | do | 1868 | 2 00 |
| | North Adams Advocate (*c*) | do | do | ........ | ........ |
| Pittsfield | Pittsfield Sun | do | do | 1800 | 2 00 |
| | Berkshire County Eagle | do | do | 1827 | 2 00 |
| Williamstown | Williams Athenæum | Bi-weekly | Collegiate | 1874 | 2 00 |
| **Bristol co.**—*Population:* 139,040. | | | | | |
| Attleborough | Attleborough Chronicle | Weekly | News and politics | 1872 | 2 00 |
| | Attleborough Advocate | do | do | 1875 | 2 00 |
| Easton | Easton Journal | do | do | 1872 | 2 00 |
| Fairhaven | Fairhaven Star | do | do | 1879 | 1 00 |
| Fall River | Fall River Monitor | do | do | 1826 | 1 50 |
| | Evening News | Daily (*evening*) | do | 1859 | 6 00 |
| | Weekly News | Weekly | do | 1845 | 2 00 |
| | Herald | Daily (*evening*) | do | 1872 | 6 00 |
| | Record (*d*) | Daily (*morning*) | do | 1878 | ........ |
| | Labor Standard | Weekly | Miscellaneous | 1874 | 2 00 |
| | Fall River Advance | do | News and politics | 1879 | 1 50 |
| | Sun | Daily (*evening*) | do | 1880 | 6 00 |
| Mansfield | Mansfield News | Weekly | do | 1873 | 2 00 |
| New Bedford | Mercury | Daily (*morning*) | do | 1832 | 6 00 |
| | Mercury | Weekly | do | 1808 | 2 00 |
| | Whaleman's Shipping List and Merchants' Transcript. | do | Trade | 1843 | 3 00 |
| | Evening Standard | Daily (*evening*) | News and politics | 1850 | 6 00 |
| | Republican Standard | Weekly | do | 1850 | 2 00 |
| | New Bedford Signal | do | do | 1878 | 1 00 |
| | Bristol County Journal (*e*) | do | do | 1878 | 1 50 |
| Taunton | Bristol County Republican | do | do | 1821 | 2 00 |
| | Gazette | Daily (*evening*) | do | 1848 | 6 00 |
| | Household Gazette | Weekly | do | 1831 | 2 00 |
| Westport | Church and Home | Monthly | Religious (*Congregational*) | 1880 | 50 |
| **Dukes co.**—*Population:* 4,300. | | | | | |
| Edgartown | Vineyard Gazette | Weekly | News and politics | 1845 | 1 50 |

*a* Suspended December, 1879.
*b* Suspended May, 1880.
*c* Suspended November 4, 1879.
*d* Suspended July 4, 1879.
*e* Also a monthly issue.

## MASSACHUSETTS—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| ESSEX CO.—*Population:* 244,535. | | | | | |
| Amesbury | Amesbury Villager (*a*) | Weekly | News and politics | 1828 | $1 50 |
| | Amesbury Journal | do | do | 1872 | 2 00 |
| Andover | Bibliothaca Sacra | Quarterly | Religious (*Theology; Evangelical*) | 1844 | 4 00 |
| Beverly | Beverly Citizen | Weekly | News and politics | 1859 | 2 00 |
| Danvers | Danvers Mirror | do | do | 1870 | 2 00 |
| Georgetown | Georgetown Advocate | do | do | 1874 | 2 00 |
| Gloucester | Cape Ann Valley Advertiser | do | do | 1853 | 2 50 |
| | Cape Ann Bulletin | do | do | 1878 | 2 00 |
| Haverhill | Essex Banner | do | do | 1834 | 2 00 |
| | Bulletin | Daily (*evening*) | do | 1870 | 5 00 |
| | Bulletin | Weekly | do | 1870 | 1 75 |
| | Gazette | Daily (*morning*) | do | 1877 | 5 00 |
| | Telephone | Daily (*evening*) | do | 1879 | 3 00 |
| | Haverhill Gazette | Weekly | do | 1798 | 1 00 |
| Ipswich | Ipswich Chronicle | do | do | 1872 | 2 00 |
| Lawrence | Lawrence Sentinel | do | do | 1854 | 2 00 |
| | American | Daily (*evening*) | do | 1863 | 6 00 |
| | American | Weekly | do | 1855 | 2 00 |
| | Eagle | Daily (*morning*) | do | 1867 | 5 00 |
| | Eagle | Weekly | do | 1867 | 1 50 |
| | Lawrence Journal | do | do | 1868 | 2 00 |
| | Catholic Herald | do | Religious (*Catholic*) | 1880 | 2 00 |
| Lynn | Lynn Reporter | do | News and politics | 1854 | 1 25 |
| | Lynn Transcript | do | do | 1867 | 2 00 |
| | Lynn Record | do | do | 1872 | 2 00 |
| | Lynn Vindicator (*b*) | do | do | 1876 | 2 00 |
| | Evening Item | Daily (*evening*) | do | 1876 | 2 50 |
| | City Item | Weekly | do | 1876 | 1 00 |
| Marblehead | Marblehead Messenger | do | do | 1872 | 2 00 |
| Merrimac | Riverside Press | do | do | 1876 | 1 50 |
| Methuen | Transcript and Essex Farmer | do | do | 1876 | 1 50 |
| | Methuen Enterprise and Salem Gleaner | do | do | 1880 | 1 50 |
| Newburyport | Herald | Daily (*morning*) | do | 1832 | 6 00 |
| | Herald | Weekly | do | 1793 | 2 00 |
| | Merrimac Valley Visitor (*a*) | do | do | 1872 | 2 00 |
| | Newburyport Germ | Semi-weekly | do | 1879 | 2 00 |
| Peabody | Peabody Press | Weekly | do | 1859 | 2 50 |
| | Peabody Reporter | do | do | 1875 | 1 50 |
| | Peabody Times (*c*) | do | do | ........ | 2 00 |
| Rockport | Rockport Gleaner | Monthly | Miscellaneous | 1872 | 75 |
| Salem | Salem Gazette | Semi-weekly | News and politics | 1768 | 3 50 |
| | Salem Register | do | do | 1800 | 3 50 |
| | Salem Observer | Weekly | do | 1823 | 2 00 |
| | Essex County Mercury | do | do | 1831 | 2 00 |
| | Fireside Favorite | Monthly | Literary | 1867 | 50 |
| | Salem Post | Weekly | News and politics | 1872 | 2 00 |
| | Salem Times (*a*) | do | do | 1879 | 1 00 |
| | Matrimonial Gazette (*c*) | Monthly | Miscellaneous | 1880 | ........ |
| Saugus | Evening News (*d*) | Weekly | News and politics | 1876 | 1 00 |
| Swampscott | Swampscott Enterprise | do | do | 1876 | 1 00 |
| FRANKLIN CO.—*Population:* 36,001. | | | | | |
| Greenfield | Gazette and Courier | Weekly | News and politics | 1792 | 2 00 |
| | Franklin County Standard (*e*) | do | do | 1880 | 1 50 |
| Orange | Journal of Industry | do | do | 1872 | 1 50 |
| Turner's Falls | Turner's Falls Reporter | do | do | 1872 | 2 00 |
| HAMPDEN CO.—*Population:* 104,142. | | | | | |
| Holyoke | Holyoke Transcript | Semi-weekly | News and politics | 1863 | 3 00 |
| | Holyoke Herald | Weekly | do | 1879 | 2 00 |
| | Holyoke News (*b*) | do | do | 1879 | ........ |
| | Holyoke Manufacturer (*f*) | Monthly | Trade | 1879 | 1 00 |
| | Paper World | do | do | 1880 | 2 00 |
| Palmer | Palmer Journal | Weekly | News and politics | 1850 | 1 75 |
| Springfield | Republican | Daily (*morning*) | do | 1844 | 9 00 |
| | Republican | Weekly | do | 1824 | 1 50 |
| | Republican | Sunday | do | 1878 | 2 00 |
| | Herald of Life | Weekly | Religious (*Adventist*) | 1863 | 2 00 |
| | Union | Daily (*evening*) | News and politics | 1864 | 6 00 |
| | Union | Weekly | do | 1864 | 1 50 |
| | New England Homestead | do | do | 1867 | 2 00 |
| | Familiar Science and Fanciers' Journal | Monthly | Miscellaneous | 1873 | 1 50 |
| | Good Company | do | Literary | 1878 | 3 00 |
| | Springfield Gazette | Weekly | News and politics | 1879 | 1 00 |
| | Out of Door Sports (*g*) | Monthly | Sporting | 1879 | ........ |
| | Manufacturers' and Industrial Gazette | do | Trade | 1880 | 1 00 |
| | Daily News | Daily (*evening*) | News and politics | 1880 | 3 00 |
| | Farm and Home (*h*) | Weekly | Agriculture, etc | 1880 | 50 |
| Westfield | Times and News Letter | do | News and politics | 1841 | 1 50 |
| | Westfield Advertiser | do | do | 1875 | 50 |
| HAMPSHIRE CO.—*Population:* 47,232. | | | | | |
| Amherst | Amherst Record | Weekly | News and politics | 1844 | 2 00 |
| | Amherst Student | Bi-weekly | Collegiate | 1866 | 2 00 |
| | Amherst Transcript (*i*) | Weekly | do | ........ | ........ |
| Easthampton | Easthampton Enterprise | do | News and politics | 1875 | 1 50 |
| | Easthampton News | do | do | 1879 | 1 00 |
| Northampton | Hampshire Gazette | do | do | 1786 | 2 00 |
| | Hampshire County Journal | do | do | 1860 | 1 50 |
| | Le Jean Baptiste | do | News and politics (*French*) | 1875 | 1 50 |
| Ware | Ware Standard (*j*) | do | News and politics | 1856 | 1 70 |
| | Ware Gazette (*k*) | do | do | 1868 | 1 55 |

*a* Suspended since the census year.
*b* Suspended December, 1879.
*c* Suspended August, 1880.
*d* An edition of Lynn "Daily Item".
*e* Suspended September, 1880.
*f* Suspended January, 1880.
*g* Suspended June, 1880.
*h* Edition of "New England Homestead".
*i* Suspended August, 1879.
*j* Edition of "Palmer Journal".
*k* Edition of "Barre Gazette".

## MASSACHUSETTS—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| MIDDLESEX CO.—*Population:* 317,830. | | | | | |
| Arlington | Arlington Advocate | Weekly | News and politics | 1871 | $1 50 |
| Ashland | Ashland Advertiser | do | do | 1869 | 2 00 |
| Auburndale | Lassell Leaves | Monthly | Collegiate | 1876 | 75 |
| Ayer | Turner's Public Spirit | Weekly | News and politics | 1868 | 1 00 |
| | Ayer Sentinel | do | do | 1878 | 1 00 |
| Cambridge | Cambridge Chronicle | do | do | 1846 | 2 50 |
| | Cambridge Press | do | do | 1866 | 2 50 |
| | Harvard Advocate | Bi-weekly | Collegiate | 1866 | 2 50 |
| | Harvard Crimson | do | do | 1873 | 2 50 |
| | Psyche | Monthly | Entomological | 1874 | 1 00 |
| | Cambridge Tribune | Weekly | News and politics | 1878 | 2 50 |
| | Cambridge News | do | do | 1879 | 1 00 |
| | Harvard Daily Echo | Daily (*evening*) | Collegiate | 1879 | 2 40 |
| | Telephone (*a*) | Daily (*morning*) | News and politics | | |
| | Harvard Register | Monthly | Collegiate | 1880 | 2 00 |
| | Harvard Lampoon (*b*) | do | do | | |
| Cambridgeport | American Protestant | Weekly | Secret society | 1870 | 2 00 |
| | Vox Humana (*c*) | Monthly | Musical | 1873 | 1 00 |
| College Hill | Tuftonian | do | Collegiate | 1874 | 1 00 |
| Concord | Concord Freeman | Weekly | News and politics | 1834 | 2 00 |
| Everett | Everett Free Press | do | do | 1873 | 2 00 |
| Holliston | Holliston Transcript | do | do | 1875 | 2 00 |
| Hopkinton | Hopkinton Banner (*d*) | do | do | | |
| Hudson | Hudson Pioneer | do | do | 1865 | 2 00 |
| | Hudson Register | do | do | 1880 | 2 00 |
| Lexington | Lexington Minute Men | do | do | 1871 | 1 50 |
| Lowell | Courier | Daily (*evening*) | do | 1845 | 6 00 |
| | Courier | Weekly | do | 1824 | 2 00 |
| | Vox Populi | Semi-weekly | do | 1840 | 2 00 |
| | Citizen | Daily (*evening*) | do | 1855 | 5 00 |
| | American Citizen | Weekly | do | 1855 | 2 00 |
| | Morning Times | Daily (*morning*) | do | 1872 | 6 00 |
| | Weekly Times | Weekly | do | 1872 | 2 00 |
| | Lowell Sun | do | do | 1878 | 2 00 |
| | Morning Mail | Daily (*morning*) | do | 1879 | 5 00 |
| | Mail | Semi-weekly | do | 1879 | 2 00 |
| Malden | Malden Mirror | Weekly | do | 1871 | 2 50 |
| Marlborough | Mirror-Journal | do | do | 1859 | 2 00 |
| | Marlborough Times | do | do | 1877 | 1 50 |
| | Marlborough Advertiser | do | do | 1877 | 2 00 |
| Maynard | Maynard Journal | do | do | 1875 | 2 00 |
| Medford | Medford Chronicle | do | do | 1872 | 1 50 |
| | Medford Reporter (*e*) | do | do | | |
| Melrose | Melrose Journal | do | do | 1879 | 2 00 |
| | Melrose Visitor (*f*) | do | do | | |
| Natick | Natick Bulletin | do | do | 1869 | 1 50 |
| | Natick Citizen | do | do | 1877 | 1 50 |
| Newton | Newton Journal | do | do | 1866 | 2 50 |
| | Newton Republican | do | do | 1873 | 1 50 |
| Reading | Reading Chronicle | do | do | 1868 | 2 00 |
| Somerville | Somerville Journal | do | do | 1870 | 2 00 |
| | Somerville Advertiser | do | do | 1878 | 1 50 |
| South Acton | South Acton Patriot | do | do | 1874 | 2 00 |
| South Framingham | Framingham Gazette | do | do | 1870 | 2 00 |
| Stoneham | Stoneham Independent | do | do | 1870 | 1 25 |
| Wakefield | Citizen and Banner | do | do | 1872 | 2 00 |
| Waltham | Waltham Free Press | do | do | 1863 | 2 00 |
| | Waltham Record | do | do | 1876 | 1 50 |
| | Waltham Advertiser (*g*) | do | do | 1880 | 1 00 |
| Watertown | Watertown Enterprise | do | do | 1879 | 1 25 |
| West Medford | West Medford Reporter | do | do | 1879 | 1 50 |
| West Newton | West Newton Transcript | do | do | 1878 | 2 50 |
| Woburn | Woburn Journal | do | do | 1851 | 2 00 |
| | Woburn Advertiser | do | do | 1871 | 1 50 |
| NANTUCKET CO.—*Population:* 3,727. | | | | | |
| Nantucket | Inquirer and Mirror | Weekly | News and politics | 1820 | 2 00 |
| | Nantucket Journal | do | do | 1878 | 2 00 |
| NORFOLK CO.—*Population:* 96,507. | | | | | |
| Brookline | Brookline Chronicle | Weekly | News and politics | 1874 | 2 50 |
| Canton | Canton Journal | do | do | 1876 | 2 00 |
| Dedham | Dedham Transcript | do | do | 1870 | 2 00 |
| East Weymouth | Weymouth Advance | do | do | 1879 | 2 00 |
| Foxborough | Foxborough Times | do | do | 1873 | 2 00 |
| Franklin | Franklin Sentinel | do | do | 1878 | 2 00 |
| | Sugar Planter | Monthly | Agriculture, etc | 1880 | 50 |
| Hyde Park | Norfolk County Gazette | Weekly | News and politics | 1813 | 2 50 |
| Medway | Medway Gazette (*d*) | do | do | 1874 | 2 00 |
| | Medway Magnet (*h*) | do | do | 1879 | 1 50 |
| Needham | Needham Chronicle and Advertiser | do | do | 1874 | 2 00 |
| Quincy | Quincy Patriot | do | do | 1837 | 2 50 |
| | Braintree Observer | do | do | 1878 | 2 00 |
| Randolph | Norfolk County Register | do | do | 1865 | 2 00 |
| Stoughton | Stoughton Sentinel | do | do | 1862 | 2 00 |
| Walpole | Walpole Enterprise | do | do | 1878 | 2 00 |
| Weymouth | Weymouth Gazette and Braintree Reporter | do | do | 1867 | 2 00 |
| PLYMOUTH CO.—*Population:* 74,018. | | | | | |
| Abington | Plymouth County Journal | Weekly | News and politics | 1872 | 2 00 |
| Brockton | Brockton Gazette | do | do | 1851 | 2 00 |
| | Brockton Advance | do | do | 1876 | 2 00 |
| | Evening Enterprise | Daily (*evening*) | do | 1879 | 6 00 |
| | Weekly Enterprise | Weekly | do | 1879 | 2 00 |
| Hingham | Hingham Journal and South Shore Advertiser | do | do | 1850 | 2 50 |
| Mattapoisett | Plymouth County Enterprise | do | do | 1879 | 75 |
| Middleborough | Middleborough Gazette | do | do | 1850 | 2 00 |
| | People's Fireside Journal | Monthly | Literary | 1878 | 75 |
| | Old Colony Dispatch | Weekly | News and politics | 1879 | 1 00 |

*a* Suspended.
*b* Suspended June, 1880.
*c* Suspended January, 1880.
*d* Edition of "Milford Journal".
*e* Suspended May, 1880.
*f* Merged with "Journal" September, 1880.
*g* Suspended January, 1881.
*h* Edition of "Franklin Sentinel".

## MASSACHUSETTS—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| PLYMOUTH CO.—Continued. | | | | | |
| Plymouth | Old Colony Memorial | Weekly | News and politics | 1822 | $2 50 |
| | Plymouth Free Press | do | do | 1872 | 2 00 |
| Rockland | Rockland Standard | do | do | 1853 | 2 00 |
| South Abington | South Abington Times | do | do | 1873 | 2 00 |
| Wareham | Wareham News (*a*) | do | do | 1865 | 2 00 |
| West Bridgewater | West Bridgewater News | do | do | 1880 | 75 |
| SUFFOLK CO.—*Population:* 387,927. | | | | | |
| Boston | Baptist Missionary Magazine | Monthly | Religious (*Baptist*) | 1803 | 1 10 |
| | Missionary Herald | do | Religious (*Congregational*) | 1804 | 1 10 |
| | The Contributor | do | Religious (*Evangelical*) | 1871 | 1 00 |
| | Boston Advertiser | Daily (*morning*) | News and politics | 1813 | 12 00 |
| | Boston Advertiser | Weekly | do | 1813 | 2 00 |
| | Boston Advertiser | Semi-weekly | do | 1813 | 3 00 |
| | Congregationalist and Boston Recorder | Weekly | Religious (*Congregational*) | 1816 | 3 00 |
| | Watchman and Reflector | do | Religious (*Baptist*) | 1819 | 3 00 |
| | Christian Leader | do | Religious (*Universalist*) | 1819 | 2 50 |
| | Christian Register | do | Religious (*Unitarian*) | 1821 | 3 20 |
| | New England Farmer | do | Agricultural | 1822 | 2 15 |
| | Zion's Herald | do | Religious (*Methodist Episcopal*) | 1823 | 2 50 |
| | Boston Courier | Sunday | News and politics | 1824 | 3 00 |
| | Boston Traveller | Daily (*evening*) | do | 1845 | 9 00 |
| | American Traveller | Weekly | do | 1838 | 1 50 |
| | Boston Traveller | Semi-weekly | do | 1824 | 3 00 |
| | Youths' Companion | Weekly | Juvenile | 1827 | 1 75 |
| | Boston Medical and Surgical Journal | do | Medical | 1828 | 5 00 |
| | Evening Transcript | Daily (*evening*) | News and politics | 1830 | 10 00 |
| | Boston Transcript | Weekly | do | 1830 | 2 00 |
| | Boston Investigator | do | do | 1830 | 3 00 |
| | Advocate of Peace | Monthly | Miscellaneous | 1831 | 1 00 |
| | Post | Daily (*morning*) | News and politics | 1831 | 10 00 |
| | Statesman and Post | Weekly | do | 1831 | 1 50 |
| | Press and Post | Semi-weekly | do | 1831 | 3 00 |
| | Journal | Daily (*morning*) | do | 1833 | 9 00 |
| | Journal | Daily (*evening*) | do | 1833 | 9 00 |
| | Journal | Weekly | do | 1833 | 1 50 |
| | Journal | Semi-weekly | do | 1833 | 4 00 |
| | Boston Pilot | Weekly | Religious (*Catholic*) | 1835 | 2 65 |
| | American Cultivator | do | Agricultural | 1838 | 2 50 |
| | Home Guardian | Monthly | Miscellaneous | 1838 | 1 25 |
| | Messiah's Herald | Weekly | Religious (*Adventist*) | 1840 | 2 25 |
| | Massachusetts Ploughman and Journal of Agriculture. | do | Agricultural | 1841 | 3 00 |
| | Commercial and Shipping List | Semi-weekly | Trade | 1843 | 8 00 |
| | Universalist Quarterly | Quarterly | Religious (*Universalist*) | 1844 | 3 00 |
| | Littell's Living Age | Weekly | Literary | 1844 | 8 00 |
| | Boston Home Journal | do | Family reading | 1846 | 2 50 |
| | Herald | Daily (*morning*) | News and politics | 1846 | 6 00 |
| | Herald | Daily (*evening*) | do | 1846 | 6 00 |
| | Herald | Sunday | do | 1846 | 2 00 |
| | New England Historical and Genealogical Register. | Quarterly | Historical | 1847 | 3 00 |
| | A. B. C. Pathfinder Gazette | Monthly | Railroads | 1849 | 2 50 |
| | Waverly Magazine | Weekly | Literary | 1850 | 5 00 |
| | Boston Myrtle | do | Religious (*Universalist*) | 1851 | 75 |
| | True Flag | do | Literary | 1851 | 2 50 |
| | Dwight's Journal of Music | Bi-weekly | Musical | 1852 | 2 50 |
| | A. B. C. Pathfinder Express List | Quarterly | Railroads, etc | 1852 | 75 |
| | World's Crisis | Weekly | Religious (*Adventist*) | 1854 | 2 00 |
| | Ballou's Magazine | Monthly | Literary | 1854 | 1 50 |
| | A. B. C. Pathfinder | Weekly | Railroad | 1856 | 3 00 |
| | Banner of Light | do | Religious (*Spiritualist*) | 1857 | 3 00 |
| | Atlantic Monthly | Monthly | Literary | 1857 | 4 00 |
| | Saturday Evening Express | Weekly | News and politics | 1857 | 3 00 |
| | Commercial Bulletin | do | Trade | 1859 | 4 00 |
| | New England Dial | do | Railroads, etc | 1859 | 3 60 |
| | Roxbury Gazette | do | News and politics | 1861 | 2 00 |
| | Young Pilgrim | Semi-monthly | Sunday school (*Adventist*) | 1862 | 45 |
| | Boston Commonwealth | Weekly | News and politics | 1862 | 2 50 |
| | Boston Times | Sunday | do | 1864 | 2 00 |
| | Harry Hazel's Yankee Blade | Weekly | Literary | 1864 | 2 00 |
| | Little Wanderers' Advocate | Quarterly | Miscellaneous | 1865 | 1 00 |
| | Inventors' and Manufacturers' Gazette | Monthly | Science and mechanics | 1866 | 50 |
| | New England Medical Gazette | do | Medical | 1866 | 1 00 |
| | American Journal of Pneumatics | Quarterly | Historical | 1866 | 2 00 |
| | Boston Journal of Chemistry and Popular Science Review. | Monthly | Scientific | 1866 | 1 00 |
| | The Christian | do | Religious (*Evangelical*) | 1866 | 1 00 |
| | American Law Review | do | Law | 1866 | 5 00 |
| | Gray's New England Real Estate Journal | do | Real estate | 1867 | 1 00 |
| | The Nursery | do | Juvenile | 1867 | 1 50 |
| | Home Circle | Weekly | Literary | 1867 | 2 00 |
| | Illustrated Police News | do | Miscellaneous | 1867 | 4 00 |
| | Our Dumb Animals | Monthly | do | 1868 | 1 00 |
| | Heathen Woman's Friend | do | Religious | 1869 | 50 |
| | East Boston Advocate | Weekly | News and politics | 1869 | 2 00 |
| | Folio | Monthly | Musical | 1869 | 1 60 |
| | Times of Refreshing | do | Religious | 1869 | 1 00 |
| | Literary World | Bi-weekly | Literary | 1870 | 2 00 |
| | Day Spring | Monthly | Sunday school | 1870 | 30 |
| | Free Religious Index | Weekly | Religious (*Radical*) | 1870 | 3 00 |
| | American Cabinet Maker | do | Trade | 1870 | 3 50 |
| | Woman's Journal | do | Literary | 1870 | 2 50 |
| | South Boston Enquirer | do | News and politics | 1871 | 2 00 |
| | Gleason's Companion | Monthly | Literary | 1871 | 1 00 |
| | Unitarian Review and Religious Magazine | do | Religious (*Unitarian*) | 1874 | 3 00 |
| | Little Christian | do | Sunday school | 1871 | 25 |
| | Globe | Daily (*morning*) | News and politics | 1872 | 6 00 |
| | Globe | Daily (*evening*) | do | 1872 | 6 00 |
| | Globe | Weekly | do | 1872 | 1 00 |
| | Globe | Sunday | do | 1872 | 2 00 |
| | Helping Hand | Monthly | Sunday school (*Baptist*) | 1872 | 40 |
| | Sunday School Lessons | do | Sunday school (*Unitarian*) | 1872 | 20 |

*a* Edition of "Middleboro' Gazette"

## MASSACHUSETTS—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **Suffolk co.—Continued.** | | | | | |
| Boston—Continued | Social Visitor | Monthly | Literary | 1872 | $1 00 |
| | West Roxbury News | Weekly | News and politics | 1872 | 2 00 |
| | Suburban News | do | do | 1872 | 2 00 |
| | Bunker Hill Times | do | do | 1872 | 2 00 |
| | Journal of Commerce | do | Trade | 1872 | 3 00 |
| | Boston Beacon | do | News and politics | 1873 | 2 00 |
| | Saturday Evening Gazette | do | do | 1813 | 3 50 |
| | Age to Come Herald | Monthly | Religious (*Adventist*) | 1874 | 1 00 |
| | Cottage Hearth (*a*) | do | Literary | 1874 | 1 50 |
| | United States Official Postal Guide | do | Postal matters | 1874 | 1 50 |
| | Wide Awake | do | Juvenile | 1875 | 2 00 |
| | Boston University Beacon | do | Collegiate | 1875 | 1 25 |
| | Golden Rule | Weekly | Moral and religious (*Unsectarian*) | 1875 | 2 00 |
| | New England Journal of Education | do | Collegiate | 1875 | 3 00 |
| | New England Staaten Zeitung | do | News and politics (*German*) | 1875 | 2 00 |
| | Knights of Honor Reporter (*b*) | Monthly | Secret society | 1875 | 50 |
| | Leader | do | Musical | 1875 | 1 00 |
| | American Architect | Weekly | Science | 1876 | 6 00 |
| | Banker and Tradesman | do | Trade | 1876 | 5 00 |
| | Voice of Angels | Bi-weekly | Religious (*Spiritualist*) | 1876 | 1 50 |
| | Richardson's Musical Hours | Monthly | Musical | 1876 | 1 50 |
| | Science Observer | Irregular | Scientific | 1877 | 50 |
| | Score | Monthly | Musical | 1877 | 1 15 |
| | Book Bulletin | Quarterly | General literature | 1877 | 30 |
| | American Punch | Monthly | Comic | 1877 | 50 |
| | Babyland | do | Juvenile | 1877 | 50 |
| | Good Times | do | do | 1877 | 1 00 |
| | Musical Monthly (*c*) | do | Musical | 1877 | 2 00 |
| | Granite Cutters' International Union Journal | do | Trade | 1877 | 50 |
| | Matrimonial Times | do | Matrimonial | 1877 | 50 |
| | New Jerusalem Magazine | do | Religious (*Swedenborgian*) | 1877 | 3 00 |
| | New England Grocer | Weekly | Trade | 1877 | 1 00 |
| | Primary Teacher | Monthly | Educational | 1877 | 1 00 |
| | Hotel Record | Daily (*morning*) | Hotel arrivals, etc | 1878 | 8 00 |
| | Household Companion | Monthly | General literature | 1878 | 1 50 |
| | East Boston Argus | Weekly | News and politics | 1878 | 1 00 |
| | Musical Record | do | Musical | 1878 | 2 00 |
| | Youth's Home Library | Monthly | Juvenile | 1878 | 1 25 |
| | Charlestown News | Weekly | News and politics | 1878 | 2 00 |
| | Reporter | do | Law | 1878 | 10 00 |
| | American Carpet Reporter | do | Trade | 1879 | 1 50 |
| | Bicycle World and Archery Field | do | Sporting | 1879 | 3 00 |
| | Boston Sunday Budget | Sunday | News and politics | 1879 | 2 50 |
| | Railroad Advertiser | Weekly | Trade | 1879 | 1 00 |
| | American Manufacturer and Exporter | Monthly | do | 1879 | 2 50 |
| | Donahoe's Magazine | do | General literature | 1879 | 2 00 |
| | Frank Leslie's Chatterbox | do | Juvenile | 1879 | 1 00 |
| | Temperance Cause | do | Temperance | 1879 | 35 |
| | Town and Country Magazine | do | General literature | 1879 | 50 |
| | Trifet's Monthly | do | do | 1879 | 50 |
| | Christian Times | do | Religious (*Evangelical*) | 1879 | 1 00 |
| | Economist | Weekly | Financial | 1879 | 3 00 |
| | New England Methodist | Monthly | Religious (*Methodist Episcopal*) | 1879 | 50 |
| | Musical Herald | do | Musical | 1880 | 1 50 |
| | The Orchestra | do | do | 1880 | 1 00 |
| | Printers' Magazine | do | Typographical | 1880 | 1 50 |
| | The Commoner | Weekly | News and politics | 1880 | 1 50 |
| | Fireman's Standard | Monthly | Secret society | 1880 | 1 00 |
| | Young Folk's World (*c*) | do | Juvenile | ...... | ...... |
| | Saturday Evening Star (*c*) | Weekly | News and politics | ...... | ...... |
| | Saturday Magazine (*d*) | do | do | ...... | ...... |
| | The Pansy | do | Juvenile | | 50 |
| Chelsea | Telegraph and Pioneer | do | News and politics | 1847 | 2 00 |
| | Chelsea Record | do | do | 1876 | 2 50 |
| | Chelsea News | Semi-weekly | do | 1878 | 1 50 |
| **Worcester co.**—*Population:* 226,897. | | | | | |
| Athol | Worcester West Chronicle | Weekly | News and politics | 1866 | 2 00 |
| | Athol Transcript | do | do | 1871 | 1 50 |
| Barre | Barre Gazette | do | do | 1834 | 1 50 |
| Berlin | Berlin Reporter | do | do | 1878 | 1 50 |
| Bolton | Bolton Express (*e*) | do | do | 1878 | 2 00 |
| Brookfield | Brookfield News (*f*) | do | do | 1873 | 2 00 |
| | Brookfield Monitor | Monthly | Temperance | 1879 | 50 |
| Clinton | Clinton Courant | Weekly | News and politics | 1846 | 1 75 |
| | Clinton Record | do | do | 1877 | 1 50 |
| Fitchburg | Sentinel | Daily (*evening*) | do | 1873 | 5 00 |
| | Sentinel | Weekly | do | 1839 | 1 50 |
| Gardner | Gardner News | do | do | 1869 | 1 50 |
| Grafton | Grafton Herald (*g*) | do | do | 1874 | 2 00 |
| Leominster | Leominster Enterprise | do | do | 1873 | 1 50 |
| | Leominster Record (*h*) | do | do | 1879 | 1 50 |
| Milford | Milford Journal | do | do | 1852 | 2 00 |
| Northborough | Northborough Farmer | do | Agriculture, etc | 1873 | 2 00 |
| North Brookfield | North Brookfield Journal | do | News and politics | 1871 | 1 50 |
| Princeton | Princeton Word | Monthly | do | 1872 | 75 |
| Shrewsbury | Shrewsbury News | Weekly | do | 1874 | 2 00 |
| Southborough | Southborough Press | do | do | 1874 | 2 00 |
| Southbridge | Southbridge Journal | do | do | 1861 | 2 00 |
| | Temple Star | Monthly | Society, temperance | 1874 | 75 |
| | Southbridge Transcript (*i*) | Weekly | News and politics | ...... | ...... |
| Spencer | Spencer Sun | do | do | 1872 | 2 00 |
| Uxbridge | Worcester South Compendium | do | do | 1868 | 1 75 |
| Warren | Warren Herald | do | do | 1877 | 1 50 |
| Webster | Webster Times | do | do | 1859 | 2 00 |
| | Webster Eagle | do | do | 1880 | 1 00 |
| Westborough | Westborough Chronotype | do | do | 1867 | 2 00 |
| West Boylston | West Boylston Herald (*h*) | do | do | 1879 | 1 50 |
| Winchendon | Winchendon Journal (*j*) | do | do | 1871 | 1 50 |
| | Winchendon Courier | do | do | 1878 | 1 50 |

*a* Suspended in December, 1879.
*b* Published in connection with the "Christian".
*c* Suspended.
*d* Suspended February, 1880.
*e* Merged with the "Berlin Reporter".
*f* Edition of the "Spencer Sun".
*g* Edition of "Milford Journal".
*h* Edition of "Clinton Record".
*i* Suspended June, 1879.
*j* Suspended November, 1880.

## MASSACHUSETTS—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| WORCESTER CO.—Continued. | | | | | |
| Worcester | Massachusetts Spy | Daily (*morning*) | News and politics | 1845 | $8 00 |
| | Massachusetts Spy | Weekly | do | 1770 | 2 00 |
| | Evening Gazette | Daily (*evening*) | do | 1843 | 8 00 |
| | Ægis and Gazette | Weekly | do | 1801 | 1 50 |
| | Le Travailleur | Semi-weekly | News and politics (*French*) | 1874 | 2 20 |
| | Daily Times | Daily (*evening*) | News and politics | 1879 | 5 00 |
| | Bulletin of Y. M. C. A. | Weekly | Religious | 1879 | 25 |
| | Le Bien Public (*a*) | Tri-weekly | News and politics (*French*) | 1879 | 1 50 |
| | Saturday Evening Journal (*a*) | Weekly | News and politics | 1879 | 50 |
| | Le Courrier de Worcester | do | News and politics (*French*) | 1880 | 1 50 |
| | Worcester Bulletin (*b*) | do | News and politics | 1873 | ........ |

## MICHIGAN.

| | | | | | |
|---|---|---|---|---|---|
| ALCONA CO.—*Population:* 3,107. | | | | | |
| Harrisville | Alcona County Review | Weekly | News and politics | 1866 | $1 50 |
| ALLEGAN CO.—*Population:* 37,815. | | | | | |
| Allegan | Allegan Democrat | Weekly | News and politics | 1868 | 1 50 |
| | Allegan Tribune | do | do | 1880 | 1 00 |
| | Allegan Herald | do | do | 1880 | 1 50 |
| | Allegan Journal | do | do | 1880 | 1 50 |
| Otsego | Otsego Union | do | do | 1875 | 1 50 |
| Plainwell | Independent Republic | do | do | 1876 | 1 00 |
| Saugatuck | Lake Shore Commercial | do | do | 1868 | 1 00 |
| ALPENA CO.—*Population:* 8,789. | | | | | |
| Alpena | Alpena County Pioneer | Weekly | News and politics | 1865 | 2 00 |
| | Alpena Argus | do | do | 1871 | 1 50 |
| | Alpena Frolic (*c*) | Monthly | Miscellaneous | 1875 | ........ |
| | Alpena Reporter | Weekly | News and politics | 1879 | 1 50 |
| ANTRIM CO.—*Population:* 5,237. | | | | | |
| Elk Rapids | Traverse Bay Progress | Weekly | News and politics | 1872 | 1 50 |
| Mancelona | Antrim County Herald | do | do | 1879 | 1 50 |
| BARRY CO.—*Population:* 25,317. | | | | | |
| Hastings | Hastings Republican Banner | Weekly | News and politics | 1856 | 1 50 |
| | Hastings Home Journal | do | do | 1868 | 1 50 |
| | Barry County Sentinel (*d*) | do | do | 1878 | 1 00 |
| Middleville | Middleville Republican | do | do | 1870 | 1 00 |
| Nashville | Nashville Citizen (*e*) | do | do | ........ | ........ |
| | Nashville News | do | do | 1873 | 1 50 |
| BAY CO.—*Population:* 38,081. | | | | | |
| Bay City | Tribune | Daily (*morning*) | News and politics | 1870 | 8 00 |
| | Tribune | Weekly | do | 1870 | 1 50 |
| | Lumberman's Gazette | do | Trade | 1872 | 3 00 |
| | Morning News | Daily (*morning*) | News and politics | 1877 | 3 00 |
| | Michigan Freie Presse | Weekly | News and politics (*German*) | 1878 | 2 00 |
| | Le Courrier | do | News and politics (*French*) | 1878 | 1 50 |
| | Evening Press | Daily (*evening*) | News and politics | 1879 | 3 00 |
| | Echo (*f*) | Weekly | do | 1879 | ........ |
| | Le Petriete | do | News and politics (*French*) | 1880 | ........ |
| | National Globe | do | News and politics | 1880 | 1 00 |
| West Bay City | Bay County Examiner | do | do | 1879 | 1 50 |
| | Herald (*g*) | do | do | 1869 | 1 50 |
| BENZIE CO.—*Population:* 3,433. | | | | | |
| Benzonia | Benzie County Journal | Weekly | News and politics | 1871 | 1 50 |
| Crystal Lake | Frankfort Express | do | do | 1870 | 2 00 |
| BERRIEN CO.—*Population:* 36,785. | | | | | |
| Benton Harbor | Benton Harbor Palladium | Weekly | News and politics | 1868 | 1 50 |
| | Benton Harbor Times | do | do | 1875 | 1 50 |
| Berrien Springs | Berrien County Journal | do | do | 1874 | 1 50 |
| | Berrien Springs Era | do | do | 1875 | 1 50 |
| Buchanan | Berrien County Record | do | do | 1867 | 1 50 |
| | Buchanan Reporter | do | do | 1879 | 1 50 |
| Niles | Niles Democrat | do | do | 1842 | 1 50 |
| | Niles Republican | do | do | 1866 | 1 50 |
| | Niles Mirror | do | do | 1876 | 2 00 |
| Saint Joseph | Traveler and Herald | do | do | 1860 | 1 25 |
| | Republican | do | do | 1874 | 1 50 |
| | Lake Shore Daily News | Daily (*evening*) | do | 1877 | 3 00 |
| Three Oaks | Michigan Independent | Weekly | do | 1875 | 1 50 |
| BRANCH CO.—*Population:* 27,941. | | | | | |
| Coldwater | Coldwater Republican | Semi-weekly | News and politics | 1866 | 2 00 |
| | Coldwater Reporter | Weekly | do | 1872 | 1 50 |
| | Coldwater Press | do | do | 1877 | 1 00 |
| Quincy | Quincy Times | do | do | 1868 | 1 25 |
| | Literary Reporter | Monthly | General literature | 1872 | 50 |
| | Quincy Herald | Weekly | News and politics | 1878 | 1 50 |
| Sherwood | Sherwood Advocate | do | do | 1880 | ........ |
| Union | Union City Register | do | do | 1869 | 1 00 |
| CALHOUN CO.—*Population:* 38,452. | | | | | |
| Albion | Albion Mirror | Weekly | News and politics | 1855 | 1 50 |
| | Albion Record | do | do | 1868 | 1 25 |
| | Albion Republican | do | do | 1879 | 1 50 |
| | College Monthly (*h*) | Monthly | Collegiate | ........ | ........ |
| Athens | Athens News | Weekly | News and politics | 1879 | 1 00 |

*a* Suspended.
*b* Suspended June, 1880.
*c* Suspended May, 1880.
*d* Suspended November, 1879.
*e* Suspended July, 1879.
*f* Suspended April, 1880.
*g* Suspended December, 1879.
*h* Suspended June, 1879.

## MICHIGAN—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| CALHOUN CO.—Continued. | | | | | |
| Battle Creek | Daily Journal | Daily (*evening*) | News and politics | 1872 | $6 50 |
| | Weekly Journal | Weekly | do | 1851 | 1 50 |
| | Youth's Instructor | do | Sunday school (*Adventist*) | 1852 | 75 |
| | Youth's Instructor | Monthly | Sunday school (*Adventist*) | 1852 | 50 |
| | Advent Review and Sabbath Herald | Weekly | Religious (*Adventist*) | 1861 | 2 00 |
| | Good Health | Monthly | Medicine and surgery | 1866 | 1 00 |
| | Battle Creek Tribune | Weekly | News and politics | 1870 | 1 50 |
| | Advent Tidende | Semi-monthly | Religious (*Adventist; Danish and Norwegian*). | 1872 | 1 00 |
| | Advent Harolden | Monthly | Religious (*Adventist; Swedish*) | 1874 | 75 |
| | College Record | do | Collegiate | 1877 | 10 |
| | Die Stimme der Wahrheit | do | Religious (*German*) | 1879 | 50 |
| | Game Fanciers' Journal | do | Agricultural | 1879 | 50 |
| | Battle Creek Moon | Daily (*evening*) | News and politics | 1879 | 4 50 |
| | Battle Creek Moon | Weekly | do | 1879 | 1 00 |
| Homer | Homer Index | do | do | 1870 | 1 25 |
| Marshall | Democratic Expounder | do | do | 1836 | 1 50 |
| | Marshall Statesman | do | do | 1839 | 1 50 |
| | Daily Chronicle | Daily (*evening*) | do | 1879 | 3 25 |
| | Weekly Chronicle | Weekly | do | 1879 | 1 00 |
| Tekonsha | Tekonsha News | do | do | 1878 | 1 25 |
| CASS CO.—*Population:* 22,009. | | | | | |
| Cassopolis | National Democrat | Weekly | News and politics | 1850 | 1 50 |
| | Cassopolis Vigilant | do | do | 1872 | 1 50 |
| Dowagiac | Dowagiac Republican | do | do | 1858 | 1 50 |
| | Cass County News (*a*) | Daily (*evening*) | do | 1879 | 2 50 |
| | Journal (*b*) | Weekly | do | 1880 | ...... |
| Edwardsburg | Edwardsburg Argus | do | do | 1874 | 1 50 |
| Marcellus | Marcellus News | do | do | 1877 | 1 50 |
| CHARLEVOIX CO.—*Population:* 5,115. | | | | | |
| Charlevoix | Charlevoix Sentinel | Weekly | News and politics | 1869 | 1 50 |
| Evangeline | Bayne City Standard | do | do | 1880 | 1 50 |
| CHEBOYGAN CO.—*Population:* 6,524. | | | | | |
| Cheboygan | Northern Tribune | Weekly | News and politics | 1875 | 2 00 |
| | Cheboygan Democrat | do | do | 1880 | 2 00 |
| CLARE CO.—*Population:* 4,187. | | | | | |
| Clare | Clare County Press | Weekly | News and politics | 1878 | 1 50 |
| Farwell | Farwell Register | do | do | 1872 | 1 50 |
| CLINTON CO.—*Population:* 28,100. | | | | | |
| Maple Rapids | Maple Rapids Dispatch | Weekly | News and politics | 1878 | 1 50 |
| Ovid | Ovid Register | do | do | 1866 | 1 00 |
| Saint John's | Clinton and Shiawassee Union | do | do | 1879 | 75 |
| | Clinton Republican | do | do | 1856 | 1 50 |
| | Clinton Independent | do | do | 1867 | 1 50 |
| | Home Chronicle (*c*) | do | do | 1878 | 1 00 |
| CRAWFORD CO.—*Population:* 1,159. | | | | | |
| Grayling | Crawford Avalanche | Weekly | News and politics | 1879 | 1 50 |
| DELTA CO.—*Population:* 6,812. | | | | | |
| Escanaba | Iron Port | Weekly | News and politics | 1869 | 2 50 |
| EATON CO.—*Population:* 31,225. | | | | | |
| Bellevue | Bellevue Gazette | Weekly | News and politics | 1871 | 1 50 |
| Charlotte | Charlotte Republican | do | do | 1854 | 1 50 |
| | Charlotte Leader | do | do | 1856 | 1 50 |
| Eaton Rapids | Eaton Rapids Journal | do | do | 1864 | 1 50 |
| Grand Ledge | Grand Ledge Independent | do | do | 1869 | 1 50 |
| Vermontville | Vermontville Hawk | do | do | 1874 | 1 50 |
| EMMET CO.—*Population:* 6,639. | | | | | |
| Little Traverse | Little Traverse Republican | Weekly | News and politics | 1876 | 1 50 |
| | Emmet County Independent | do | do | 1878 | 1 50 |
| Petoskey | Emmet County Democrat | do | do | 1875 | 1 50 |
| | Petoskey City Record | do | do | 1878 | 1 50 |
| GENESEE CO.—*Population:* 39,220. | | | | | |
| Flint | Genesee Democrat | Weekly | News and politics | 1847 | 1 50 |
| | Genesee Sunday Democrat | Sunday | do | 1847 | 1 50 |
| | Wolverine Citizen | Weekly | do | 1850 | 1 50 |
| | Flint Globe | do | do | 1866 | 1 50 |
| | Deaf Mute Mirror | do | Educational | 1874 | 50 |
| | Flint Journal | do | News and politics | 1876 | 1 00 |
| | Our State Union | Monthly | Temperance | 1880 | 60 |
| Flushing | Flushing Patrol | Weekly | News and politics | 1878 | 1 50 |
| Fentonville | Fenton Gazette | do | do | 1865 | 1 50 |
| | Fenton Independent | do | do | 1868 | 1 50 |
| Linden | Linden Record | do | do | 1878 | 1 25 |
| GLADWIN CO.—*Population:* 1,127. | | | | | |
| Cedar | Gladwin County Record | Weekly | News and politics | 1878 | 1 00 |
| GRAND TRAVERSE CO.—*Population:* 8,422. | | | | | |
| Traverse City | Grand Traverse Herald | Weekly | News and politics | 1858 | 2 00 |
| | Traverse Bay Eagle | do | do | 1864 | 1 50 |
| GRATIOT CO.—*Population:* 21,936. | | | | | |
| Alma | Alma Index | Weekly | News and politics | 1879 | 1 00 |
| Ithaca | Gratiot County Journal | do | do | 1865 | 1 50 |
| | Gratiot County Democrat | do | do | 1878 | 1 50 |
| Saint Louis | St. Louis Herald | do | do | 1869 | 1 00 |
| | St. Louis Leader | do | do | 1879 | 1 50 |

*a* Suspended February, 1879.

*b* Suspended after census year.

*c* Suspended July, 1879.

## MICHIGAN—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| HILLSDALE CO.—*Population:* 32,723. | | | | | |
| Hillsdale | Hillsdale Standard | Weekly | News and politics | 1846 | $1 50 |
| | Hillsdale Democrat | do | do | 1852 | 1 50 |
| | Hillsdale Business | do | do | 1870 | 1 50 |
| | Hillsdale Herald | do | Collegiate | 1878 | 1 00 |
| Jonesville | Jonesville Independent | do | News and politics | 1856 | 1 50 |
| | Hillsdale County Gazette | do | do | 1878 | 1 00 |
| Litchfield | Litchfield Gazette | do | do | 1874 | 1 50 |
| Reading | Reading Telephone | do | do | 1879 | 1 50 |
| HOUGHTON CO.—*Population:* 22,473. | | | | | |
| Houghton | Portage Lake Mining Gazette | Weekly | News and mining | 1859 | 3 00 |
| Hancock | Northwestern Mining Journal | do | do | 1873 | 3 00 |
| HURON CO.—*Population:* 20,089. | | | | | |
| Bad Axe | Huron Tribune | Weekly | News and politics | 1876 | 1 50 |
| Port Austin | Huron County News | do | do | 1862 | 1 50 |
| Sand Beach | Huron Times | do | do | 1880 | 1 50 |
| INGHAM CO.—*Population:* 33,676. | | | | | |
| Lansing | Lansing Journal | Weekly | News and politics | 1847 | 1 50 |
| | Lansing Republican | do | do | 1855 | 1 00 |
| | Lansing Republican | Tri-weekly | do | 1855 | 3 00 |
| | Lansing Sentinel | Weekly | do | 1879 | 1 00 |
| Leslie | Leslie Local | do | do | 1876 | 1 25 |
| Mason | Ingham County News | do | do | 1859 | 1 50 |
| | Ingham County Democrat | do | do | 1876 | 1 50 |
| Williamston | Wlliamston Enterprise | do | do | 1873 | 1 00 |
| IONIA CO.—*Population:* 33,872. | | | | | |
| Hubbardstown | Hubbardstown Advertiser | Weekly | News and politics | 1870 | 1 50 |
| Ionia | Ionia Sentinel | Daily (*morning*) | do | 1879 | 6 50 |
| | Sentinel | Weekly | do | 1866 | 1 50 |
| | Ionia Standard | do | do | 1869 | 1 50 |
| | Ionia National | do | do | 1878 | 1 00 |
| Lyons | Lyons Plaindealer | do | do | 1877 | 1 00 |
| | Lyons Echo | do | do | 1878 | 1 00 |
| Portland | Portland Observer | do | do | 1867 | 1 50 |
| Pewamo | Plaindealer | do | do | 1877 | 1 00 |
| Saranac | Saranac Local | do | do | 1877 | 1 20 |
| IOSCO CO.—*Population:* 6,873. | | | | | |
| Au Sable | Au Sable and Oscoda News | Weekly | News and politics | 1877 | 2 00 |
| Tawas City | Iosco County Gazette | do | do | 1868 | 2 00 |
| ISABELLA CO.—*Population:* 12,159. | | | | | |
| Mount Pleasant | Isabella County Enterprise | Weekly | News and politics | 1864 | 1 50 |
| | Isabella Times | do | do | 1877 | 1 50 |
| Salt River | North-Western Tribune | do | do | 1879 | 1 50 |
| JACKSON CO.—*Population:* 42,031. | | | | | |
| Concord | Concord News | Weekly | News and politics | 1871 | 1 00 |
| | Our Reporter | Bi-monthly | Educational | 1879 | 50 |
| | Our Home Enterprise | Weekly | News and politics | 1879 | 1 50 |
| Grass Lake | Grass Lake News | do | do | 1879 | 1 50 |
| Jackson | Citizen | Daily (*evening*) | do | 1865 | 7 20 |
| | Citizen | Weekly | do | 1837 | 1 50 |
| | Patriot | Daily (*morning*) | do | 1870 | 7 20 |
| | Patriot | Weekly | do | 1844 | 1 50 |
| | Michigan Volksfreund | do | News and politics (*German*) | 1871 | 2 00 |
| | Saturday Evening Star | do | News and politics | 1879 | 2 00 |
| | Industrial Liberator | do | do | 1880 | 1 50 |
| | Billet (*a*) | do | do | | |
| Springport | Springport Signal | do | do | 1876 | 1 25 |
| KALAMAZOO CO.—*Population:* 34,342. | | | | | |
| Augusta | News (*b*) | Weekly | News and politics | | |
| Fulton | Sentinel | do | do | 1879 | 1 00 |
| Kalamazoo | Gazette | Daily (*morning*) | do | 1877 | 8 00 |
| | Gazette | Weekly | do | 1833 | 1 50 |
| | Telegraph | Daily (*evening*) | do | 1868 | 8 00 |
| | Telegraph | Weekly | do | 1837 | 1 50 |
| | Freemasons' Monthly | Monthly | Secret society | 1868 | 1 50 |
| | College Index | Semi-annually | Collegiate | 1877 | 50 |
| | Kalamazoo Mail | Weekly | News and politics | 1878 | 1 50 |
| Schoolcraft | Dispatch and News | do | do | 1869 | 1 50 |
| | Grange Visitor | Semi-monthly | Agriculture, etc | 1875 | 50 |
| Vicksburg | Vicksburg Monitor | Weekly | News and politics | 1875 | 1 50 |
| | Vicksburg Commercial | do | do | 1879 | 1 50 |
| KALKASKA CO.—*Population:* 2,937. | | | | | |
| Kalkaska | Kalkaskaian | Weekly | News and politics | 1874 | 1 50 |
| | Kalkaska Leader | do | do | 1878 | 1 50 |
| KENT CO.—*Population:* 73,253. | | | | | |
| Cedar Springs | Cedar Springs Clipper | Weekly | News and politics | 1879 | 2 00 |
| Grand Rapids | Morning Democrat | Daily (*morning*) | do | 1856 | 8 00 |
| | Democrat | Weekly | do | 1842 | 1 50 |
| | Eagle | Daily (*evening*) | do | 1856 | 10 00 |
| | Eagle | Weekly | do | 1844 | 1 50 |
| | Times | Daily (*morning*) | do | 1870 | 6 00 |
| | Times | Weekly | do | 1870 | 1 00 |
| | Saturday Evening Post | do | do | 1873 | 2 00 |
| | Vrijheids Banier | do | News and politics (*Hollandish*) | 1868 | 2 00 |
| | De Standaard | Semi-weekly | News and politics (*Hollandish*) | 1875 | 2 00 |
| | Michigan Staats-Zeitung | Weekly | News and politics (*German*) | 1874 | 1 50 |
| | Sonntags-Blatt | Sunday | News and politics (*German*) | 1878 | 1 50 |

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*a* Suspended.

*b* Suspended, 1880.

## MICHIGAN—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| KENT CO.— Continued. | | | | | |
| Grand Rapids—Continued | Evening Leader | Daily (*evening*) | News and politics | 1879 | $6 00 |
| | Weekly Leader | Weekly | do | 1879 | 1 00 |
| | Saturday Review | do | Trade | 1879 | 2 00 |
| | Agricultural World | do | Agricultural | 1879 | 1 50 |
| Kent | Kent City Herald | do | News and politics | 1878 | 1 00 |
| Lowell | Lowell Journal | do | do | 1865 | 1 00 |
| Rockford | Rockford Register | do | do | 1871 | 1 50 |
| Sparta | Sparta Sentinel | do | do | 1876 | 1 25 |
| LAKE CO.—*Population:* 3,233. | | | | | |
| Baldwin | Lake County Star | Weekly | News and politics | 1873 | 1 50 |
| LAPEER CO.—*Population:* 30,138. | | | | | |
| Almont | Almont Herald | Weekly | News and politics | 1875 | 1 50 |
| Imlay City | Imlay City Herald | do | do | 1880 | 1 00 |
| Lapeer | Lapeer Clarion | do | do | 1850 | 1 50 |
| | Lapeer Democrat | do | do | 1875 | 1 50 |
| North Branch | North Branch Gazette | do | do | 1872 | 1 25 |
| LEELANAW CO.—*Population:* 6,253. | | | | | |
| Burdickville | Burdickville Meteor (*a*) | Weekly | News and politics | | |
| Northport | Leelanaw Enterprise | do | do | 1877 | 1 00 |
| Sutton's Bay | Leelanaw Tribune | do | do | 1873 | 1 00 |
| LENAWEE CO.—*Population:* 48,343. | | | | | |
| Adrian | Times and Expositor | Daily (*evening*) | News and politics | 1853 | 8 00 |
| | Times and Expositor | Weekly | do | 1834 | 1 50 |
| | Adrian Journal | do | do | 1866 | 1 50 |
| | Adrian Press | do | do | 1873 | 1 50 |
| | Repertory | Monthly | Collegiate | 1876 | 1 50 |
| | Methodist Protestant Magazine | do | Religious (*Methodist Protestant*) | 1879 | 1 50 |
| | Billet Doux | Weekly | Society, art, etc | 1880 | 1 50 |
| | Sunday Morning Call (*b*) | Sunday | do | 1878 | 1 20 |
| | National Greenback (*a*) | Weekly | News and politics | 1867 | 2 00 |
| Blissfield | Blissfield Advance | do | do | 1874 | 1 25 |
| Clinton | Clinton News | do | do | 1879 | 1 25 |
| Deerfield | Deerfield Record | do | do | 1878 | 1 00 |
| Hudson | Hudson Gazette | do | do | 1858 | 1 50 |
| | Hudson Post | do | do | 1868 | 1 50 |
| Morenci | State Line Observer | do | do | 1875 | 1 50 |
| Tecumseh | Tecumseh Herald | do | do | 1850 | 1 50 |
| LIVINGSTON CO.—*Population:* 22,251. | | | | | |
| Brighton | Brighton Citizen | Weekly | News and politics | 1871 | 1 00 |
| | Weekly Argus and Gazette | do | do | 1880 | 1 00 |
| Fowlerville | Fowlerville Review | do | do | 1874 | 1 00 |
| Howell | Livingston Republican | do | do | 1855 | 1 50 |
| | Livingston Democrat | do | do | 1857 | 2 00 |
| MACOMB CO.—*Population:* 31,627. | | | | | |
| Armada | Armada Telegraph | Bi-weekly | News and politics | 1876 | 1 00 |
| Mount Clemens | Mount Clemens Monitor | Weekly | do | 1857 | 1 50 |
| | Mount Clemens Press | do | do | 1863 | 1 50 |
| Richmond | Richmond Review | do | do | 1878 | 1 50 |
| Romeo | Observer | do | do | 1866 | 1 50 |
| | Romeo Democrat | do | do | 1880 | 1 50 |
| Utica | The Utica Sentinel | do | do | 1876 | 1 50 |
| MACKINAC CO.—*Population:* 2,902. | | | | | |
| Saint Ignace | Mackinac County Sentinel | Weekly | News and politics | 1880 | 1 50 |
| MANISTEE CO.—*Population:* 12,532. | | | | | |
| Manistee | Times and Standard | Weekly | News and politics | 1862 | 2 00 |
| | Manistee Times | do | do | 1865 | 2 00 |
| | Manistee Advocate | do | do | 1874 | 2 00 |
| | Manistee Independent | do | do | 1879 | 1 00 |
| MARQUETTE CO.—*Population:* 25,394. | | | | | |
| Ishpeming | Iron Home (*c*) | Weekly | Science and mechanics | 1874 | 2 50 |
| | Agitator | do | News and politics | 1879 | 2 00 |
| Marquette | Mining Journal | do | Science and mechanics | 1846 | 3 00 |
| Negaunee | Iron Herald | do | News and politics | 1873 | 2 50 |
| MASON CO.—*Population:* 10,065. | | | | | |
| Ludington | Mason County Record | Weekly | News and politics | 1867 | 2 00 |
| | Ludington Weekly Appeal | do | do | 1873 | 2 00 |
| | Ludington Democrat | do | do | 1878 | 1 00 |
| MECOSTA CO.—*Population:* 13,973. | | | | | |
| Big Rapids | Pioneer Magnet | Weekly | News and politics | 1862 | 2 00 |
| | Big Rapids Herald | do | do | 1876 | 1 50 |
| | Big Rapids Current | do | do | 1879 | 1 50 |
| MENOMINEE CO.—*Population:* 11,987. | | | | | |
| Menominee | Menominee Herald | Weekly | News and politics | 1864 | 2 00 |
| Norway | Iron Chronicle | do | do | 1880 | |
| Quinnesec | Menominee Range | do | do | 1879 | 2 00 |
| MIDLAND CO.—*Population:* 6,893. | | | | | |
| Midland City | Midland Independent (*d*) | Weekly | News and politics | 1866 | 2 00 |
| | Midland Democrat | do | do | 1880 | 1 50 |
| | Courier (*e*) | do | do | | |
| MISSAUKEE CO.—*Population:* 1,553. | | | | | |
| Lake City | Lake City Republican Journal | Weekly | News and politics | 1877 | 1 50 |

*a* Suspended April, 1880.
*b* Consolidated with "Billet Doux", June, 1880.
*c* Suspended January, 1880.
*d* Now called "Republican".
*e* Suspended 1880.

## MICHIGAN—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| MONROE CO.—*Population:* 33,624. | | | | | |
| Dundee | Dundee Reporter | Weekly | News and politics | 1877 | $1 50 |
| Monroe | Monroe Commercial | do | do | 1825 | 1 50 |
| | Michigan Herald | Monthly | Secret society | 1878 | 40 |
| | Monroe Democrat | Weekly | News and politics | 1880 | 1 50 |
| | Monroe Ledger (*a*) | do | do | | |
| | Monroe Moniter (*a*) | do | do | | |
| MONTCALM CO.—*Population:* 33,148. | | | | | |
| Greenville | Greenville Independent | Weekly | News and politics | 1854 | 1 50 |
| | Greenville Democrat | do | do | 1870 | 1 50 |
| | News | Daily (*morning*) | do | 1879 | 2 50 |
| | News | Sunday | do | 1879 | 1 50 |
| | Bee | Daily (*evening*) | do | 1880 | 3 00 |
| | Greenville Democrat | Weekly | do | 1880 | 1 00 |
| Howard City | Howard Record | do | do | 1872 | 1 50 |
| Lakeview | Lakeview Enterprise | do | do | 1879 | 1 50 |
| Montcalm | Montcalm County Journal (*b*) | do | do | | |
| Stanton | Montcalm Herald | do | do | 1867 | 1 50 |
| | Stanton Clipper | do | do | 1879 | 1 50 |
| MUSKEGON CO.—*Population:* 26,586. | | | | | |
| Holton | Holton Banner | Weekly | News and politics | 1879 | 1 00 |
| Montague | Montague Lumberman | do | do | 1873 | 2 00 |
| Muskegon | News and Reporter | Semi-weekly | do | 1857 | 2 00 |
| | Chronicle | Daily (*evening*) | do | 1879 | 4 00 |
| | Chronicle | Weekly | do | 1858 | 2 00 |
| | Muskegon Journal | do | do | 1877 | 2 00 |
| Whitehall | Whitehall Forum | do | do | 1860 | 2 00 |
| NEWAYGO CO.—*Population:* 14,688. | | | | | |
| Alleyton | Alleyton and White Cloud Echo | Weekly | News and politics | 1878 | 1 00 |
| Fremont | Fremont Indicator | do | do | 1878 | 2 00 |
| Newaygo | Newaygo Republican | do | do | 1856 | 1 50 |
| | Newaygo Tribune | do | do | 1875 | 1 50 |
| White Cloud | White Cloud Telegraph | do | do | 1880 | |
| OAKLAND CO.—*Population:* 41,537. | | | | | |
| Birmingham | Birmingham Eccentric | Weekly | News and politics | 1880 | 1 00 |
| Holly | Holly Register | do | do | 1864 | 1 00 |
| | Oakland County Advertiser | do | do | 1877 | 1 00 |
| Milford | Milford Times | do | do | 1871 | 1 50 |
| Oxford | Oxford Journal | do | do | 1875 | 1 50 |
| | Oxford Globe | do | do | 1879 | 1 50 |
| | Oxford Democrat (*c*) | do | do | 1879 | 1 00 |
| Pontiac | Pontiac Gazette | do | do | 1836 | 1 50 |
| | Pontiac Bill Poster | do | do | 1868 | 1 50 |
| | Pontiac Enterprise | do | do | 1879 | 1 00 |
| Rochester | Rochester Era | do | do | 1873 | 1 50 |
| | Rochester Spectator | do | do | 1879 | 1 50 |
| South Lyon | South Lyon Sentinel (*b*) | do | do | 1879 | 1 00 |
| | South Lyon Herald (*b*) | do | do | | |
| OCEANA CO.—*Population:* 11,699. | | | | | |
| Hart | Oceana County Journal | Weekly | News and politics | 1868 | 1 50 |
| | Hart Argus | do | do | 1877 | 1 50 |
| Hesperia | Hesperian (*d*) | do | do | 1876 | 1 00 |
| | Investigator (*e*) | do | do | 1877 | 1 00 |
| Pentwater | Pentwater News | do | do | 1861 | 1 50 |
| Shelby | Shelby Independent | do | do | 1880 | 1 50 |
| OGEMAW CO.—*Population:* 1,914. | | | | | |
| West Branch | West Branch Herald | Weekly | News and politics | 1879 | 1 50 |
| ONTONAGON CO.—*Population:* 2,565. | | | | | |
| Ontonagon | Ontonagon Miner | Weekly | News and politics | 1855 | 2 50 |
| OSCEOLA CO.—*Population:* 10,777. | | | | | |
| Burdell | Fustin Advance | Weekly | News and politics | 1878 | 1 00 |
| Evart | Evart Review | do | do | 1872 | 2 00 |
| Hersey | Osceola Outline | do | do | 1870 | 2 00 |
| Reed City | Reed City Clarion | do | do | 1872 | 1 50 |
| OTSEGO CO.—*Population:* 1,974. | | | | | |
| Gaylord | Otsego County Herald | Weekly | News and politics | 1875 | 1 50 |
| OTTAWA CO.—*Population:* 33,126. | | | | | |
| Grand Haven | News and Journal | Weekly | News and politics | 1851 | 2 00 |
| | Grand Haven Herald | do | do | 1869 | 2 00 |
| | Ottawa County Courier | do | do | 1872 | 1 50 |
| Holland | De Hollander | do | News and politics (*Hollandish*) | 1850 | 1 50 |
| | De Grondwet | do | News and politics (*Hollandish*) | 1860 | 1 50 |
| | De Hope | do | Religious (*Reformed; Hollandish*) | 1866 | 2 00 |
| | De Wachter | do | Religious (*Reformed; Hollandish*) | 1868 | 1 50 |
| | Holland City News | do | News and politics | 1872 | 1 50 |
| Spring Lake | Spring Lake Republican | do | do | 1879 | 1 00 |
| PRESQUE ISLE CO.—*Population:* 3,113. | | | | | |
| Rogers City | Presque Isle County Advance | Weekly | News and politics | 1878 | 1 50 |
| ROSCOMMON CO.—*Population:* 1,459. | | | | | |
| Roscommon | Roscommon Pioneer | Weekly | News and politics | 1875 | 1 50 |
| SAGINAW CO.—*Population:* 59,095. | | | | | |
| Chesaning | Chesaning Argus | Weekly | News and politics | 1877 | 1 25 |
| | Chesaning Magnet | do | do | 1879 | 1 00 |
| East Saginaw | Herald | Daily (*morning*) | do | 1872 | 8 00 |
| | Herald | Sunday | do | 1857 | 1 00 |

*a* Suspended March, 1880.
*b* Suspended.
*c* Suspended July, 1879.
*d* Succeeded by "Enterprise" (White Cloud), September, 1880.
*e* Edition of the "Alleyton Echo".

## MICHIGAN—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| SAGINAW CO.—Continued. | | | | | |
| East Saginaw—Continued | Courier | Daily (*morning*) | News and politics | 1869 | $8 0 |
| | Courier | Weekly | do | 1869 | 1 5 |
| | Saginaw Zeitung | do | News and politics (*German*) | 1869 | 2 5 |
| | Saginaw Bulletin (*a*) | do | News and politics | 1879 | 2 0 |
| | Saginaw Democrat | do | do | 1879 | 1 5 |
| Saginaw | News | Daily (*evening*) | do | 1877 | 6 0 |
| | News | Weekly | do | 1877 | 1 5 |
| | Saginawian | do | do | 1869 | 2 0 |
| Saint Charles | Business | do | do | 1878 | 1 0 |
| SAINT CLAIR CO.—*Population:* 46,197. | | | | | |
| Capac | Capac Argus | Weekly | News and politics | 1879 | 1 00 |
| Fort Gratiot | Fort Gratiot Enterprise | do | do | 1878 | 1 50 |
| Port Huron | Commercial | do | do | 1849 | 1 25 |
| | Commercial | Sunday | do | 1873 | 2 00 |
| | Times | Daily (*evening*) | do | 1872 | 6 00 |
| | Times | Weekly | do | 1869 | 1 50 |
| | Evening Journal | Daily (*evening*) | do | 1879 | 4 00 |
| | Saturday Journal | Weekly | do | 1872 | 1 00 |
| | Call | Daily (*evening*) | do | 1878 | 5 00 |
| | Call | Weekly | do | 1878 | 1 00 |
| Saint Clair | Saint Clair Republican | do | do | 1856 | 1 50 |
| SAINT JOSEPH CO.—*Population:* 26,626. | | | | | |
| Burr Oak | Burr Oak Gazette | Weekly | News and politics | 1878 | 1 50 |
| | Burr Oak Times | do | do | 1878 | 1 50 |
| Centreville | Saint Joseph County Republican | do | do | 1845 | 1 50 |
| | Centreville Crusader | do | do | 1870 | 1 00 |
| | Michigan Industrial Liberator | do | do | 1880 | 1 25 |
| Colon | Colon Enterprise (*b*) | do | do | 1871 | 2 00 |
| Constantine | Saint Joseph County Advertiser and Constantine Mercury. | do | do | 1845 | 2 00 |
| Mendon | Mendon Times | do | do | 1874 | 1 50 |
| | Globe | do | do | 1875 | 1 50 |
| | Mendon Tribune (*c*) | do | do | 1877 | 2 00 |
| Sturgis | Sturgis Journal | do | do | 1860 | 1 50 |
| | Saturday Evening Leader (*d*) | do | do | 1876 | 1 50 |
| | Sturgiser Zeitung | do | News and politics (*German*) | 1878 | 1 75 |
| | Michigan Democrat | do | News and politics | 1880 | 1 00 |
| Three Rivers | News Reporter | do | do | 1860 | 1 50 |
| | Threo Rivers Herald | do | do | 1868 | 2 00 |
| | Three Rivers Tribune | do | do | 1878 | 1 50 |
| White Pigeon | White Pigeon Journal | do | do | 1876 | 1 50 |
| SANILAC CO.—*Population:* 26,341. | | | | | |
| Croswell | Croswell Democrat | Weekly | News and politics | 1880 | 1 50 |
| Lexington | Sanilac Jeffersonian | do | do | 1858 | 1 50 |
| Marlette | Marlette Index | do | do | 1878 | 1 00 |
| Port Sanilac | Sanilac County Reporter | do | do | 1877 | 1 50 |
| SCHOOLCRAFT CO.—*Population:* 1,575. | | | | | |
| Manistique | Schoolcraft County Pioneer | Weekly | News and politics | 1880 | 2 00 |
| SHIAWASSEE CO.—*Population:* 27,059. | | | | | |
| Bancroft | Bancroft Sentinel | Weekly | News and politics | 1880 | ........ |
| Corunna | Shiawassee County American | do | do | 1854 | 1 50 |
| | Shiawassee County Atlas | do | do | 1874 | 1 50 |
| Laingsburg | Laingsburg News | do | do | 1877 | 1 00 |
| Morrice | Leader | do | do | 1880 | 1 50 |
| Owosso | Times (*e*) | do | do | 1879 | ........ |
| | Owosso Press | do | do | 1868 | 1 50 |
| | Owosso Republican (*f*) | do | do | ........ | ........ |
| Vernon | Vernon Herald | do | do | 1879 | 1 00 |
| TUSCOLA CO.—*Population:* 25,738. | | | | | |
| Caro | Tuscola Advertiser | Weekly | News and politics | 1868 | 1 50 |
| | Caro Citizen | do | do | 1878 | 1 50 |
| Vassar | Tuscola County Pioneer | do | do | 1857 | 1 50 |
| VAN BUREN CO.—*Population:* 30,807. | | | | | |
| Bangor | Bangor Reflector | Weekly | News and politics | 1874 | 1 50 |
| Decatur | Van Buren County Republican | do | do | 1867 | 1 50 |
| Hartford | Hartford Day Spring | do | do | 1871 | 1 50 |
| Lawrence | Lawrence Advertiser (*g*) | do | do | 1875 | 1 50 |
| Paw Paw | Paw Paw Free Press and Courier | do | do | 1844 | 1 50 |
| | True Northerner | do | do | 1855 | 1 50 |
| South Haven | South Haven Sentinel | do | do | 1867 | 1 50 |
| WASHTENAW CO.—*Population:* 41,848. | | | | | |
| Ann Arbor | Ann Arbor Argus | Weekly | News and politics | 1845 | 1 50 |
| | Ann Arbor Courier | do | do | 1861 | 1 50 |
| | Chronicle | Bi-weekly | Collegiate | 1867 | 2 00 |
| | Ann Arbor Register | Weekly | News and politics | 1872 | 50 |
| | Physician and Surgeon | Monthly | Medicine and surgery | 1879 | 2 00 |
| | Washtenaw Post | Weekly | News and politics (*German*) | 1879 | 1 50 |
| | The University | Semi-monthly | Collegiate | 1879 | 1 50 |
| Chelsea | Chelsea Herald | Weekly | News and politics | 1871 | 1 50 |
| Dexter | Dexter Leader | do | do | 1868 | 1 50 |
| Manchester | Manchester Enterprise | do | do | 1867 | 1 50 |
| Ypsilanti | Ypsilanti Sentinel | do | do | 1844 | 1 50 |
| | Ypsilanti Commercial | do | do | 1864 | 1 00 |
| | The Ypsilantian | do | do | 1880 | 1 50 |
| WAYNE CO.—*Population:* 166,444. | | | | | |
| Detroit | Post and Tribune | Daily (*morning*) | News and politics | 1836 | 10 00 |
| | Post and Tribune | Weekly | do | 1830 | 1 50 |
| | Post and Tribune | Tri-weekly | do | 1830 | 5 00 |

*a* Merged in the "Saginaw Democrat".
*b* Edition of "Sturgis Journal".
*c* Edition of "Saint Joseph Republican".
*d* Consolidated with "Journal" March, 1880.
*e* Suspended July, 1880.
*f* Suspended May, 1880.
*g* Suspended August, 1880.

## MICHIGAN—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **Wayne** co.—Continued. | | | | | |
| Detroit—Continued | Free Press | Daily (*morning*) | News and politics | 1831 | $10 00 |
| | Free Press | Sunday | do | | 2 00 |
| | Free Press | Tri-weekly | do | 1831 | 4 00 |
| | Michigan Volksblatt | Daily (*evening*) | News and politics (*German*) | 1857 | 7 80 |
| | Michigan Volksblatt | Weekly | News and politics (*German*) | 1853 | 2 50 |
| | Michigan Journal und Herold | do | News and politics (*German*) | 1855 | 2 50 |
| | Detroit Commercial Advertiser | do | News and politics | 1861 | 2 00 |
| | American Observer | Monthly | Medical | 1864 | 2 50 |
| | Abend-Post | Daily (*evening*) | News and politics (*German*) | 1866 | 7 80 |
| | Familien Blaetter | Weekly | News and politics (*German*) | 1866 | 2 50 |
| | Michigan Farmer and State Journal of Agriculture. | do | Agricultural | 1869 | 1 65 |
| | Michigan Christian Herald | do | Religious (*Baptist*) | 1870 | 2 00 |
| | Wayne County Courier | do | News and politics | 1870 | 1 00 |
| | Western Home Journal | do | Religious (*Catholic*) | 1872 | 2 00 |
| | Evening News | Daily (*evening*) | News and politics | 1873 | 5 00 |
| | Detroit Echo | Weekly | do | 1873 | 1 00 |
| | Public Leader | do | do | 1874 | 3 00 |
| | Amphion | Monthly | Music | 1874 | 1 10 |
| | Michigan Christian Advocate | Weekly | Religious (*Methodist Episcopal*) | 1875 | 1 50 |
| | Detroit Weekly Price Current | do | Commercial | 1875 | 1 00 |
| | Die Stimme Der Wahrheit | do | Religious (*Catholic; German*) | 1875 | 2 50 |
| | Michigan Truthteller | do | Temperance | 1875 | 1 00 |
| | International Hotel Reporter | Daily (*morning*) | Miscellaneous | 1876 | 12 00 |
| | Detroiter Sonntags-Zeitung | Sunday | News and politics (*German*) | 1876 | 2 00 |
| | Therapeutic Gazette | Monthly | Medicine and surgery | 1877 | 1 00 |
| | Detroit Lancet | do | do | 1877 | 3 00 |
| | Michigan Medical News | Semi-monthly | do | 1878 | 1 00 |
| | Lever | Weekly | Temperance | 1878 | 1 50 |
| | Michigan Homestead | do | Agricultural | 1878 | 1 50 |
| | Sunday Herald | Sunday | News and family reading | 1879 | 2 00 |
| | Detroit Graphic | Weekly | Miscellaneous | 1879 | 4 00 |
| | Illustrated Medical Journal | Quarterly | Medicine and surgery | 1880 | 50 |
| | Every Saturday | Weekly | News and politics | 1880 | 1 50 |
| | Michigan Sun (*a*) | do | do | | |
| | Our Dioceses (*b*) | do | do | | |
| Northville | Northville Weekly Record | do | do | 1868 | 1 50 |
| Wayne | Wayne County Review | do | do | 1877 | 1 00 |
| | Wayne County Tidings (*c*) | do | do | 1876 | 1 00 |
| Wyandotte | Wyandotte Herald | do | do | 1878 | 1 25 |
| **Wexford** co.—*Population:* 6,815. | | | | | |
| Cadillac | Cadillac News | Weekly | News and politics | 1872 | 1 50 |
| Manton | Manton Tribune | do | do | 1878 | 1 00 |
| Sherman | Wexford County Pioneer | do | do | 1872 | 1 50 |

## MINNESOTA.

| | | | | | |
|---|---|---|---|---|---|
| **Anoka** co.—*Population:* 7,108. | | | | | |
| Anoka | Anoka County Union | Weekly | News and politics | 1865 | $1 50 |
| | Anoka City Herald | do | do | 1865 | 1 50 |
| **Becker** co.—*Population:* 5,218. | | | | | |
| Detroit | Detroit Record | Weekly | News and politics | 1872 | 2 00 |
| **Benton** co.—*Population:* 3,012. | | | | | |
| Sauk Rapids | Sauk Rapids Sentinel | Weekly | News and politics | 1873 | 2 00 |
| **Big Stone** co.—*Population:* 3,688. | | | | | |
| Ortonville | Ortonville North Star | Weekly | News and politics | 1878 | 1 50 |
| | Big Stone County Herald | do | do | 1879 | 1 50 |
| **Blue Earth** co.—*Population:* 22,889. | | | | | |
| Lake Crystal | Public Spirit | Weekly | News and politics | 1877 | 2 00 |
| Mapleton | Mapleton Censor | do | do | 1880 | 1 50 |
| Mankato | Mankato Free Press | do | do | 1857 | 2 00 |
| | Mankato Review | do | do | 1869 | 1 50 |
| | Minnesota Beobachter | do | News and politics (*German*) | 1873 | 2 00 |
| **Brown** co.—*Population:* 12,018. | | | | | |
| New Ulm | New Ulm Post | Weekly | News and politics (*German*) | 1864 | 2 00 |
| | New Ulm Review | do | News and politics | 1878 | 1 50 |
| Sleepy Eye | Sleepy Eye Herald | do | do | 1880 | 1 50 |
| **Carver** co.—*Population:* 14,140. | | | | | |
| Chaska | Valley Herald | Weekly | News and politics | 1862 | 1 50 |
| Carver | Carver Free Press | do | do | 1875 | 1 50 |
| **Chippewa** co.—*Population:* 5,408. | | | | | |
| Montevideo | Chippewa County Leader | Weekly | News and politics | 1877 | 2 00 |
| | Montevideo Republican | do | do | 1879 | 2 00 |
| **Chisago** co.—*Population:* 7,982. | | | | | |
| Rush City | Rush City Post | Weekly | News and politics | 1875 | 2 00 |
| Taylor's Falls | Taylor's Falls Journal | do | do | 1860 | 2 00 |
| **Clay** co.—*Population:* 5,887. | | | | | |
| Glyndon | Red River Valley News | Weekly | News and politics | 1878 | 2 00 |
| Moorhead | Moorhead Advocate | do | do | 1872 | 2 00 |
| **Cottonwood** co.—*Population:* 5,533. | | | | | |
| Windom | Windom Reporter | Weekly | News and politics | 1871 | 2 00 |
| **Crow Wing** co.—*Population:* 2,319. | | | | | |
| Brainerd | Brainerd Tribune | Weekly | News and politics | 1872 | 2 00 |

[a] Suspended October, 1879.

[b] Suspended 1880.

[c] Suspended in census year.

## MINNESOTA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| DAKOTA CO.—*Population:* 17,391. | | | | | |
| Farmington | Farmington Press | Weekly | News and politics | 1870 | $2 00 |
| Hastings | Hastings Gazette | do | do | 1857 | 2 00 |
| | Hastings Union | do | do | 1864 | 2 00 |
| | Hastings New Era | do | do | 1875 | 1 00 |
| DODGE CO.—*Population:* 11,344. | | | | | |
| Claremont | Claremont Times (*a*) | Weekly | News and politics | | |
| Kasson | Dodge County Republican | do | do | 1857 | 1 50 |
| Mantorville | Mantorville Express | do | do | 1867 | 1 50 |
| DOUGLAS CO.—*Population:* 9,130. | | | | | |
| Alexandria | Alexandria Post | Weekly | News and politics | 1868 | 1 50 |
| | Douglas County News | do | do | 1878 | 1 50 |
| FARIBAULT CO.—*Population:* 13,016. | | | | | |
| Blue Earth City | Blue Earth City Bee | Weekly | News and politics | 1864 | 1 50 |
| | Blue Earth Post | do | do | 1869 | 1 50 |
| Winnebago City | Winnebago City Times | do | do | 1862 | 1 50 |
| | Winnebago City Press (*b*) | do | do | 1864 | 1 50 |
| | Winnebago City Sun (*b*) | do | do | | |
| Wells | Wells Advocate | do | do | 1873 | 1 50 |
| FILLMORE CO.—*Population:* 28,162. | | | | | |
| Chatfield | Democrat | Weekly | News and politics | 1856 | 1 50 |
| | Times (*c*) | do | do | 1879 | |
| Fountain | Fillmore County Radical | do | do | 1879 | 1 50 |
| Lanesboro' | Lanesborough Journal | do | do | 1874 | 2 00 |
| Preston | Preston Republican | do | do | 1861 | 2 00 |
| Rushford | Rushford Star | do | do | 1872 | 2 00 |
| Spring Valley | Spring Valley Vidette | do | do | 1868 | 2 00 |
| Wykoff | Deutsche Zeitung (*d*) | do | News and politics (*German*) | 1879 | 1 50 |
| | Dollar Weekly (*e*) | do | News and politics | 1878 | 1 00 |
| FREEBORN CO.—*Population:* 16,069. | | | | | |
| Albert Lea | Freeborn County Standard | Weekly | News and politics | 1857 | 2 00 |
| | Albert Lea Enterprise | do | do | 1872 | 2 00 |
| | Sondre Minnesota | do | News and politics (*Norwegian*) | 1879 | 1 50 |
| Alden | Alden Eagle (*f*) | do | News and politics | 1879 | 2 00 |
| GOODHUE CO.—*Population:* 29,651. | | | | | |
| Cannon Falls | Cannon Falls Beacon | Weekly | News and politics | 1876 | 2 00 |
| Pine Island | Pine Island News | do | do | 1878 | 2 00 |
| Red Wing | Goodhue County Republican | do | do | 1857 | 2 00 |
| | Red Wing Argus | do | do | 1864 | 2 00 |
| | Red Wing Advance | do | do | 1873 | 2 00 |
| Zumbrota | Independent | do | do | 1875 | 2 00 |
| GRANT CO.—*Population:* 3,004. | | | | | |
| Herman | Herman Herald | Weekly | News and politics | 1879 | 2 00 |
| HENNEPIN CO.—*Population:* 67,013. | | | | | |
| Minneapolis | National Republican | Weekly | News and politics | 1861 | 2 00 |
| | Tribune | Daily (*morning*) | do | 1866 | 12 00 |
| | Farmers' Union and Tribune | Sunday | do | 1866 | 1 15 |
| | Minneapolis Freie Presse | Weekly | News and politics (*German*) | 1869 | 2 00 |
| | Hennepin County Mirror | do | News and politics | 1872 | 1 50 |
| | Budstikken | do | News and politics (*Norwegian*) | 1873 | 2 20 |
| | Northwestern Miller | do | Trade | 1873 | 3 00 |
| | Minnesota Stats Tidning | do | News and politics (*Swedish*) | 1877 | 2 00 |
| | Mississippi Valley Lumberman and Manufacturer. | do | Trade | 1876 | 2 50 |
| | Minnesota Farmer | Monthly | Agricultural | 1877 | 1 00 |
| | Ariel | do | Collegiate | 1877 | 1 00 |
| | Housekeeper | do | Miscellaneous | 1877 | 75 |
| | Evening Journal | Daily (*evening*) | News and politics | 1878 | 6 00 |
| | Bell's Daily Times (*g*) | Daily (*evening*) | do | 1878 | |
| | Saturday Evening Spectator | Weekly | do | 1879 | 2 00 |
| | Minneapolis Weekly | do | do | 1880 | 2 00 |
| | Boys and Girls of Minnesota | do | Juvenile | 1880 | 50 |
| | Poultry and Farm Journal | Monthly | Agricultural | 1880 | 1 00 |
| | Farm and Home (*h*) | Weekly | News and politics | | |
| | Liberty Blade (*c*) | do | do | | |
| HOUSTON CO.—*Population:* 16,332. | | | | | |
| Caledonia | Houston County Journal | Weekly | News and politics | 1864 | 1 50 |
| Hokah | Hokah Blade (*i*) | do | do | 1876 | 1 50 |
| | Hokah Herald (*f*) | do | do | 1879 | 2 00 |
| ISANTI CO.—*Population:* 5,063. | | | | | |
| Cambridge | Isanti County Press | Weekly | News and politics | 1874 | 1 50 |
| JACKSON CO.—*Population:* 4,806. | | | | | |
| Jackson | Jackson Republic | Weekly | News and politics | 1870 | 1 50 |
| KANDIYOHI CO.—*Population:* 10,159. | | | | | |
| Willmar | Willmar Republican-Gazette | Weekly | News and politics | 1871 | 1 50 |
| | Western Minnesota Press | do | News and politics (*English and Norwegian*). | 1880 | 2 00 |
| KITTSON CO.—*Population:* 905. | | | | | |
| Saint Vincent | Saint Vincent Herald | Weekly | News and politics | 1880 | 2 00 |
| LAC-QUI-PARLE CO.—*Population:* 4,891. | | | | | |
| Lac-qui-parle | Independent | Weekly | News and politics | 1879 | 1 50 |
| LE SUEUR CO.—*Population:* 16,103. | | | | | |
| Le Sueur | Le Sueur County News | Weekly | News and politics | 1879 | 1 50 |
| Montgomery | Montgomery Standard | do | do | 1876 | 1 50 |
| Waterville | Le Sueur County Chronicle (*f*) | do | do | 1878 | 1 50 |

*a* Suspended September, 1879.
*b* Consolidated with "Times".
*c* Suspended November, 1879.
*d* Suspended since 1880.
*e* Suspended.
*f* Suspended June, 1880.
*g* Suspended May, 1880.
*h* Consolidated with "Spectator".
*i* Suspended October, 1880.

## MINNESOTA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| LINCOLN CO.—*Population:* 2,945. | | | | | |
| Lake Benton | Lake Benton Times | Weekly | News and politics | 1879 | $2 00 |
| Tyler | Lincoln County Tribune | do | do | 1879 | 2 00 |
| LYON CO.—*Population:* 6,257. | | | | | |
| Marshall | Marshall Messenger | Weekly | News and politics | 1874 | 2 00 |
| | Lyon County News | do | do | 1879 | 1 50 |
| Tracy | Tracy Gazette | do | do | 1879 | 2 00 |
| McLEOD CO.—*Population:* 12,342. | | | | | |
| Glencoe | Glencoe Register | Weekly | News and politics | 1857 | 1 50 |
| | Glencoe Enterprise | do | do | 1873 | 1 50 |
| MARTIN CO.—*Population:* 5,249. | | | | | |
| Fairmont | Martin County Sentinel | Weekly | News and politics | 1874 | 1 50 |
| MEEKER CO.—*Population:* 11,739. | | | | | |
| Grove City | Meeker County Tribune | Weekly | News and politics | 1879 | 1 00 |
| | Vjyresninger Tidehoarf | do | Miscellaneous (*Swedish*) | 1877 | 2 00 |
| Litchfield | Litchfield News-Ledger | do | News and politics | 1868 | 1 50 |
| | Litchfield Independent | do | do | 1876 | 1 50 |
| MILLE LACS CO.—*Population:* 1,501. | | | | | |
| Princeton | Princeton Union | Weekly | News and politics | 1876 | 2 00 |
| MORRISON CO.—*Population:* 5,875. | | | | | |
| Little Falls | Little Falls Transcript | Weekly | News and politics | 1876 | 1 50 |
| MOWER CO.—*Population:* 16,799. | | | | | |
| Austin | Austin Register | Weekly | News and politics | 1863 | 2 00 |
| | Mower County Transcript | do | do | 1868 | 2 00 |
| Grand Meadow | News | do | do | 1878 | 1 25 |
| | Mercury (*a*) | do | do | 1880 | 2 00 |
| Le Roy | Independent | do | do | 1875 | 2 00 |
| MURRAY CO.—*Population:* 3,604. | | | | | |
| Currie | Currie Cyclone | Weekly | News and politics | 1876 | 2 00 |
| | Murray County Pioneer | do | do | 1877 | 1 50 |
| NICOLLET CO.—*Population:* 12,333. | | | | | |
| Saint Peter | St. Peter Tribune | Weekly | News and politics | 1860 | 2 00 |
| | St. Peter Times | do | do | 1878 | 2 00 |
| NOBLES CO.—*Population:* 4,435. | | | | | |
| Worthington | Worthington Advance | Weekly | News and politics | 1872 | 2 00 |
| | Worthington Journal | do | do | 1876 | 2 00 |
| OLMSTED CO.—*Population:* 21,543. | | | | | |
| Oronoco | Oronoco Journal | Weekly | News and politics | 1880 | 1 50 |
| Rochester | Rochester Post | do | do | 1859 | 2 00 |
| | Rochester Record and Union | do | do | 1871 | 2 00 |
| OTTER TAIL CO.—*Population:* 18,675. | | | | | |
| Fergus Falls | Fergus Falls Journal | Weekly | News and politics | 1873 | 1 50 |
| | Fergus Falls Advocate | do | do | 1877 | 2 00 |
| PINE CO.—*Population:* 1,365. | | | | | |
| Pine City | Pine County Record | Weekly | News and politics | 1878 | 1 50 |
| PIPE STONE CO.—*Population:* 2,092. | | | | | |
| Pipe Stone | Pipe Stone County Star | Weekly | News and politics | 1879 | 2 00 |
| POLK CO.—*Population:* 11,433. | | | | | |
| Ada | Ada Alert | Weekly | News and politics | 1880 | 2 00 |
| Crookston | Polk County Journal | do | do | 1877 | 2 00 |
| | Crookston Chronicle | do | do | 1879 | 2 00 |
| | Northern Tier (*b*) | do | do | 1879 | 2 00 |
| Fisher's Landing | Fisher's Landing Bulletin | do | do | 1880 | 2 00 |
| POPE CO.—*Population:* 5,874. | | | | | |
| Glenwood | Pope County Press | Weekly | News and politics | 1874 | 2 00 |
| RAMSEY CO.—*Population:* 45,890. | | | | | |
| Saint Paul | Pioneer Press | Daily (*morning*) | News and politics | 1854 | 12 00 |
| | Pioneer Press | Tri-weekly | do | 1849 | 6 00 |
| | Pioneer Press | Weekly | do | 1849 | 1 15 |
| | Pioneer Press | Sunday | do | 1854 | 1 15 |
| | Die Volkszeitung | Daily (*evening*) | News and politics (*German*) | 1877 | 9 00 |
| | Die Volkszeitung | Weekly | News and politics (*German*) | 1854 | 2 00 |
| | Minnehaha | Sunday | News and politics (*German*) | 1854 | 1 50 |
| | North-Western Chronicle | Weekly | Religious (*Catholic*) | 1866 | 2 50 |
| | Evening Dispatch | Daily (*evening*) | News and politics | 1868 | 7 00 |
| | St. Paul Dispatch | Weekly | do | 1868 | 1 00 |
| | Der Wanderer | do | Religious (*Catholic; German*) | 1867 | 2 50 |
| | Minnesota Demokrat | do | News and politics (*German*) | 1876 | 2 50 |
| | Le Canadien | do | News and politics (*French*) | 1877 | 2 50 |
| | Globe | Daily (*morning*) | News and politics | 1878 | 7 20 |
| | Globe | Weekly | do | 1878 | 1 15 |
| | Sunday Globe | Sunday | do | 1878 | 1 50 |
| | Hotel Reporter | Daily (*morning*) | Miscellaneous | 1878 | 3 00 |
| | Ancient Order of United Workmen | Monthly | Secret society | 1879 | 1 00 |
| | News (*c*) | Daily (*evening*) | News and politics | | |
| | Folkebladet (*d*) | Weekly | News and politics (*Swedish*) | 1878 | 2 00 |
| | Deutsche Warte (*e*) | do | News and politics (*German*) | 1878 | 1 50 |
| | Independent Farmer and Fireside Companion (*f*). | Monthly | Agricultural | 1879 | 1 50 |
| REDWOOD CO.—*Population:* 5,375. | | | | | |
| Lambenton | Lamberton Commercial | Weekly | News and politics | 1878 | 1 50 |
| Redwood | Redwood Gazette | do | do | 1869 | 2 00 |

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*a* Removed to Austin May, 1880.
*b* Suspended July, 1880.
*c* Suspended January, 1880.
*d* Removed to Chicago.
*e* Edition of "Deutsche Warte" at Chicago.
*f* Suspended December 1879.

## MINNESOTA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **Renville co.**—*Population:* 10,791. | | | | | |
| Beaver Falls | Renville Times | Weekly | News and politics | 1871 | $1 50 |
| Bird Island | Bird Island Post | do | do | 1879 | 1 50 |
| Renville Station | Renville News (*a*) | do | do | 1879 | 1 50 |
| **Rice co.**—*Population:* 22,481. | | | | | |
| Dundas | Dundas Enterprise (*b*) | Weekly | News and politics | 1879 | 1 00 |
| Faribault | Faribault Republican | do | do | 1856 | 2 00 |
| | Faribault Democrat | do | do | 1870 | 2 00 |
| | Mute's Companion | Semi-monthly | Educational | 1876 | 50 |
| Northfield | Rice County Journal | Weekly | News and politics | 1872 | 2 00 |
| | Northfield News | do | do | 1876 | 1 50 |
| | Nordlyset (*b*) | do | News and politics (*Swedish*) | | |
| | Northfield Ledger (*c*) | do | News and politics | | |
| **Rock co.**—*Population:* 3,669. | | | | | |
| Lu Verne | Rock County Herald | Weekly | News and politics | 1873 | 2 00 |
| **Saint Louis co.**—*Population:* 4,504. | | | | | |
| Duluth | Duluth Tribune | Weekly | News and politics | 1870 | 2 00 |
| | Lake Superior News | do | do | 1878 | 2 00 |
| **Scott co.**—*Population:* 13,516. | | | | | |
| Jordan | Scott County Advocate | Weekly | News and politics | 1878 | 2 00 |
| Prior Lake | Prior Lake Times | do | do | 1878 | 1 00 |
| Shakopee | Shakopee Argus | do | do | 1861 | 2 00 |
| | Shakopee Courier | do | do | 1877 | 2 00 |
| **Sherburne co.**—*Population:* 3,855. | | | | | |
| Elk River | Elk River News | Weekly | News and politics | 1871 | 1 00 |
| | Sherburne County Star | do | do | 1876 | 1 00 |
| **Sibley co.**—*Population:* 10,637. | | | | | |
| Henderson | Sibley County Independent | Weekly | News and politics | 1873 | 1 50 |
| **Stearns co.**—*Population:* 21,956. | | | | | |
| Melrose | Melrose Record | Weekly | News and politics | 1877 | 2 00 |
| Saint Cloud | St. Cloud Journal-Press | do | do | 1857 | 2 00 |
| | St. Cloud Times | do | do | 1861 | 2 00 |
| | Der Nordstern | do | Religious (*Catholic; German*) | 1874 | 2 50 |
| Sauk Centre | Sauk Centre Herald | do | News and politics | 1869 | 2 00 |
| **Steele co.**—*Population:* 12,460. | | | | | |
| Owatonna | Owatonna Journal | Weekly | News and politics | 1862 | 2 00 |
| | People's Press | do | do | 1874 | 2 00 |
| | Owatonna Review | do | Temperance | 1875 | 1 50 |
| | Steele County Herald | do | News and politics | 1880 | 1 00 |
| **Stevens co.**—*Population:* 3,911. | | | | | |
| Morris | Morris Tribune | Weekly | News and politics | 1876 | 2 00 |
| **Swift co.**—*Population:* 7,473. | | | | | |
| Appleton | Appleton Recorder | Weekly | News and politics | 1879 | 1 50 |
| | Riverside Press | do | do | 1880 | 1 50 |
| Benson | Benson Times | do | do | 1875 | 2 00 |
| | Benson Advocate (*d*) | do | do | | |
| De Graff | Swift County Courier (*e*) | do | do | 1879 | 2 00 |
| **Todd co.**—*Population:* 6,133. | | | | | |
| Long Prairie | Todd County Argus | Weekly | News and politics | 1876 | 1 50 |
| **Wabasha co.**—*Population:* 18,206. | | | | | |
| Elgin | Minnesota Union | Weekly | News and politics | 1879 | 1 00 |
| Lake City | Lake City Leader | do | do | 1865 | 2 00 |
| | Lake Sentinel | do | do | 1870 | 2 00 |
| Mazeppa | Mazeppa Tribune | do | do | 1877 | 1 50 |
| Plainview | Plainview News | do | do | 1874 | 1 50 |
| Wabasha | Wabasha County Herald | do | do | 1856 | 2 00 |
| | Wabasha Bulletin | do | do | 1878 | 2 00 |
| **Wadena co.**—*Population:* 2,080. | | | | | |
| Verndale | Verndale Journal | Weekly | News and politics | 1879 | 2 00 |
| Wadena | Northern Pacific Farmer | do | do | 1877 | 1 50 |
| **Waseca co.**—*Population:* 12,385. | | | | | |
| Janesville | Janesville Argus | Weekly | News and politics | 1874 | 1 50 |
| Waseca | Minnesota Radical and Liberty Blade | do | do | 1863 | 2 00 |
| | Waseca County Herald | do | do | 1877 | 1 50 |
| | Waseca Leader (*f*) | do | do | 1876 | 1 50 |
| **Washington co.**—*Population:* 19,563. | | | | | |
| Stillwater | Stillwater Messenger | Weekly | News and politics | 1856 | 2 00 |
| | Stillwater Gazette | do | do | 1870 | 2 00 |
| | Stillwater Lumberman | do | do | 1875 | 2 00 |
| | St. Croix Post | do | News and politics (*German*) | 1876 | 2 00 |
| **Watonwan co.**—*Population:* 5,104. | | | | | |
| Madelia | Madelia Times | Weekly | News and politics | 1871 | 2 00 |
| Saint James | Saint James Journal | do | do | 1878 | 2 00 |
| **Wilkin co.**—*Population:* 1,906. | | | | | |
| Breckenridge | Red River Free Press | Weekly | News and politics | 1879 | 2 00 |
| Campbell | Campbell Enterprise | do | do | 1873 | 2 00 |
| **Winona co.**—*Population:* 27,197. | | | | | |
| Saint Charles | St. Charles Times | Weekly | News and politics | 1873 | 2 00 |
| | St. Charles Union | do | do | 1877 | 1 50 |
| Winona | Republican | Daily (*evening*) | do | 1860 | 9 00 |
| | Republican | Weekly | do | 1855 | 1 15 |
| | Winona Herald | do | do | 1869 | 2 00 |
| | Winona Democrat | do | do | 1872 | 50 |
| | Winona Adler | do | News and politics (*German*) | 1873 | 2 00 |

*a* Suspended February, 1881.
*b* Suspended February, 1880.
*c* Suspended July, 1879.
*d* Suspended December, 1879.
*e* Suspended June, 1880.
*f* Consolidated with the "Herald".

## MINNESOTA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **WRIGHT CO.**—*Population:* 18,104. | | | | | |
| Delano | Wright County Eagle | Weekly | News and politics | 1872 | $1 00 |
| Howard Lake | People's Advocate | do | do | 1877 | 1 00 |
| Monticello | Wright County Times | do | do | 1870 | 1 00 |
| **YELLOW MEDICINE CO.**—*Population:* 5,884. | | | | | |
| Canby | Canby News | Weekly | News and politics | 1878 | 1 50 |
| Granite Falls | Granite Falls Journal | do | do | 1876 | 2 00 |

## MISSISSIPPI.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **ADAMS CO.**—*Population:* 22,649. | | | | | |
| Natchez | Democrat and Courier | Daily (*morning*) | News and politics | 1865 | $9 00 |
| | Democrat and Courier | Weekly | do | 1865 | 2 00 |
| | Natchez Pilot | Daily (*evening*) | do | 1880 | 6 00 |
| | Natchez New Era | Tri-weekly | do | 1880 | 4 00 |
| | Natchez Sun (*a*) | Weekly | do | ........ | ........ |
| **ALCORN CO.**—*Population:* 14,272. | | | | | |
| Corinth | Subsoiler and Democrat | Weekly | News and politics | 1873 | 2 00 |
| | Corinth Herald | do | do | 1879 | 1 75 |
| | Banner of Truth | Monthly | Religious (*Unsectarian*) | 1880 | 1 00 |
| | Corinth Record (*b*) | Weekly | News and politics | 1878 | ........ |
| **AMITE CO.**—*Population:* 14,004. | | | | | |
| Liberty | Southern Herald | Weekly | News and politics | 1866 | 2 00 |
| **ATTALA CO.**—*Population:* 19,988. | | | | | |
| Kosciusko | Kosciusko Central Star | Weekly | News and politics | 1866 | 2 00 |
| **BENTON CO.**—*Population:* 11,023. | | | | | |
| Ashland | Ashland Register | Weekly | News and politics | 1879 | 1 50 |
| | Benton County Argus | do | do | 1872 | 2 00 |
| **BOLIVAR CO.**—*Population:* 18,652. | | | | | |
| Rosedale | Rosedale Leader | Weekly | News and politics | 1879 | 2 00 |
| | Rosedale Journal | do | do | 1877 | 3 00 |
| **CALHOUN CO.**—*Population:* 13,492. | | | | | |
| Pittsboro' | Calhoun Reporter | Weekly | News and politics | 1878 | 1 50 |
| **CARROLL CO.**—*Population:* 17,795. | | | | | |
| Carrollton | Courier Conservative | Weekly | News and politics | 1865 | 2 00 |
| **CHICKASAW CO.**—*Population:* 17,905. | | | | | |
| Houston | Houston Patriot (*b*) | Weekly | News and politics | 1878 | 1 50 |
| Okolona | Chickasaw Messenger | do | do | 1872 | 2 00 |
| | Southern States (*c*) | do | do | 1872 | 2 00 |
| **CHOCTAW CO.**—*Population:* 9,036. | | | | | |
| Chester | Inland Recorder | Weekly | News and politics | 1877 | 1 50 |
| **CLAIBORNE CO.**—*Population:* 16,768. | | | | | |
| Port Gibson | Southern Reveille | Weekly | News and politics | 1876 | 2 50 |
| **CLARKE CO.**—*Population:* 15,021. | | | | | |
| Enterprise | Enterprise Courier | Weekly | News and politics | 1870 | 2 00 |
| Shubuta | Mississippi Messenger | do | do | 1879 | 2 00 |
| **CLAY CO.**—*Population:* 17,367. | | | | | |
| West Point | West Point Echo | Weekly | News and politics | 1878 | 2 00 |
| **COAHOMA CO.**—*Population:* 13,568. | | | | | |
| Friar's Point | Friar's Point Gazette | Weekly | News and politics | 1878 | 2 00 |
| | Coahomian (*b*) | do | do | 1876 | 2 00 |
| **COPIAH CO.**—*Population:* 27,552. | | | | | |
| Crystal Springs | Crystal Springs Monitor | Weekly | News and politics | 1871 | 2 00 |
| Hazlehurst | Copiahan | do | do | 1865 | 2 50 |
| **DE SOTO CO.**—*Population:* 22,924. | | | | | |
| Hernando | De Soto Times | Weekly | News and politics | 1866 | 1 50 |
| **FRANKLIN CO.**—*Population:* 9,729. | | | | | |
| Meadville | Franklin Banner (*d*) | Weekly | News and politics | 1876 | 2 00 |
| **GRENADA CO.**—*Population:* 12,071. | | | | | |
| Grenada | Grenada Sentinel | Weekly | News and politics | 1855 | 2 00 |
| | Grenada New South | do | do | 1878 | 2 00 |
| **HARRISON CO.**—*Population:* 7,895. | | | | | |
| Handsboro' | Handsboro' Advertiser | Weekly | News and politics | 1879 | 2 00 |
| Pass Christian | Sea Shore Gazette (*e*) | do | do | 1878 | 2 50 |
| **HINDS CO.**—*Population:* 43,958. | | | | | |
| Edwards | Hinds County Bulletin (*b*) | Weekly | News and politics | 1879 | 2 00 |
| Jackson | Jackson Clarion | do | do | 1837 | 2 00 |
| | Jackson Comet | do | do | 1876 | 2 00 |
| | Jackson Independent (*b*) | do | do | 1879 | 1 00 |
| | Baptist Record | do | Religious (*Baptist*) | 1877 | 2 00 |
| | Mississippi Republican | do | News and politics | 1879 | 1 00 |
| Raymond | Hinds County Gazette | do | do | 1844 | 2 00 |
| Terry | Terry Independent (*f*) | do | do | 1880 | ........ |

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*a* Suspended November, 1879.
*b* Suspended.
*c* Suspended January, 1881.
*d* Suspended June, 1880.
*e* Removed to Bay Saint Louis in April, 1880, and suspended in April, 1881.
*f* Suspended 1880.

## MISSISSIPPI—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| HOLMES CO.—*Population: 27,164.* | | | | | |
| Lexington | Lekington Advertiser | Weekly | News and politics | 1841 | $2 00 |
| | Holmes County Times (*a*) | do | do | 1880 | ....... |
| ISSAQUENA CO.—*Population:* 10,004. | | | | | |
| Mayersville | Mayersville Spectator | Weekly | News and politics | 1879 | 2 00 |
| JACKSON CO.—*Population:* 7,607. | | | | | |
| Pascagoula | Democrat-Star | Weekly | News and politics | 1850 | 2 50 |
| JEFFERSON CO.—*Population:* 17,314. | | | | | |
| Fayette | Fayette Chronicle | Weekly | News and politics | 1866 | 2 00 |
| KEMPER CO.—*Population:* 15,719. | | | | | |
| Scooba | Kemper Herald | Weekly | News and politics | 1876 | 2 00 |
| LA FAYETTE CO.—*Population:* 21,671. | | | | | |
| Oxford | Oxford Falcon | Weekly | News and politics | 1865 | 2 00 |
| | Oxford Eagle | do | do | 1876 | 2 00 |
| LAUDERDALE CO.—*Population:* 21,501. | | | | | |
| Lauderdale | Lauderdale Bee | Weekly | News and politics | 1880 | 1 00 |
| | Lauderdale Review (*b*) | do | do | 1879 | 2 00 |
| Meridian | Mercury | Daily (*morning*) | do | 1867 | 8 00 |
| | Meridian Mercury | Weekly | do | 1867 | 1 50 |
| | Southern Baptist | do | Religious (*Baptist*) | 1875 | 2 20 |
| | Eastern Observer | do | News and politics | 1880 | 1 50 |
| | Meridian News (*c*) | Tri-weekly | do | 1879 | 5 00 |
| | Southern Homestead | Weekly | do | 1874 | 2 00 |
| | Mississippi Methodist | do | Religious (*Methodist Episcopal*) | 1880 | 2 00 |
| LAWRENCE CO.—*Population:* 9,420. | | | | | |
| Monticello | Sunny South (*d*) | Weekly | News and politics | 1878 | 1 50 |
| LEAKE CO.—*Population:* 13,146. | | | | | |
| Carthage | Carthaginian | Weekly | News and politics | 1872 | 2 00 |
| LEE CO.—*Population:* 20,470. | | | | | |
| Tupelo | Tupelo Journal | Weekly | News and politics | 1872 | 2 00 |
| LE FLORE CO.—*Population:* 10,246. | | | | | |
| Greenwood | Yazoo Valley Flag | Weekly | News and politics | 1878 | 2 00 |
| LINCOLN CO.—*Population:* 13,547. | | | | | |
| Brookhaven | Brookhaven Ledger | Weekly | News and politics | 1840 | 2 00 |
| LOWNDES CO.—*Population:* 28,244. | | | | | |
| Columbus | Columbus Index | Weekly | News and politics | 1865 | 2 00 |
| | Columbus Index | Tri-weekly | do | 1865 | 6 00 |
| | Patron of Husbandry | Weekly | Agricultural | 1873 | 1 00 |
| | Independent (*e*) | do | News and politics | 1875 | 2 00 |
| | Columbus Dispatch | do | do | 1880 | 2 00 |
| | Columbus Dispatch | Tri-weekly | do | 1880 | 5 00 |
| MADISON CO.—*Population:* 25,866. | | | | | |
| Canton | American Citizen | Weekly | News and politics | 1850 | 2 00 |
| | Canton Mail | do | do | 1865 | 2 00 |
| MARSHALL CO.—*Population:* 29,330. | | | | | |
| Holly Springs | Holly Springs Reporter | Weekly | News and politics | 1865 | 1 00 |
| | Holly Springs South | do | do | 1870 | 2 00 |
| MONROE CO.—*Population:* 28,553. | | | | | |
| Aberdeen | Aberdeen Examiner | Weekly | News and politics | 1866 | 2 50 |
| | Aberdeen Examiner | Tri-weekly | do | 1866 | 8 00 |
| | Aberdeen Weekly | Weekly | do | 1877 | 2 00 |
| | Aberdeenian | Monthly | Collegiate | 1880 | 75 |
| MONTGOMERY CO.—*Population:* 13,348. | | | | | |
| Winona | Winona Advance | Weekly | News and politics | 1868 | 2 00 |
| NEWTON CO.—*Population:* 13,436. | | | | | |
| Newton | Newton Report | Weekly | News and politics | 1877 | 2 00 |
| NOXUBEE CO.—*Population:* 29,874. | | | | | |
| Macon | Macon Beacon | Weekly | News and politics | 1850 | 3 00 |
| | Mississippi Sun | do | do | 1875 | 2 00 |
| OKTIBBEHA CO.—*Population:* 15,978. | | | | | |
| Starkville | East Mississippi Times | Weekly | News and politics | 1868 | 2 00 |
| | Southern Live-stock Journal | do | Live stock | 1876 | 2 00 |
| | Oktibbeha Citizen | do | News and politics | 1877 | 2 00 |
| PANOLA CO.—*Population:* 28,352. | | | | | |
| Sardis | Panola Star | Weekly | News and politics | 1855 | 2 00 |
| Batesville | Batesville Blade | do | do | 1876 | 1 50 |
| PIKE CO.—*Population:* 16,688. | | | | | |
| McComb City | Intelligencer (*f*) | Weekly | News and politics | 1875 | 2 00 |
| Magnolia | Magnolia Gazette | do | do | 1872 | 2 00 |
| | Herald (*f*) | do | do | ........ | ........ |
| Summit | Summit Conservative Times | do | do | 1865 | 2 00 |
| | Summit Sentinel | do | do | 1873 | 2 50 |
| PONTOTOC CO.—*Population:* 13,858. | | | | | |
| Pontotoc | Pontotoc Democrat | Weekly | News and politics | 1877 | 2 00 |
| PRENTISS CO.—*Population:* 12,158. | | | | | |
| Booneville | Booneville Pleader | Weekly | News and politics | 1876 | 1 50 |

*a* Suspended November, 1880.
*b* Suspended March, 1880.
*c* Consolidated with "Homestead" March, 1880.
*d* Suspended since census year.
*e* Suspended October, 1880.
*f* Suspended.

## MISSISSIPPI—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| RANKIN CO.—*Population:* 16,752. | | | | | |
| Brandon | Brandon Republican | Weekly | News and politics | 1847 | $2 50 |
| | Brandon Record | do. | do | 1878 | 1 50 |
| SCOTT CO.—*Population:* 10,845. | | | | | |
| Forest | Forest Register | Weekly | News and politics | 1866 | 2 00 |
| SIMPSON CO.—*Population:* 8,008. | | | | | |
| Westville | Westville News | Weekly | News and politics | 1872 | 2 00 |
| SUMNER CO.—*Population:* 9,534. | | | | | |
| Walthall | Walthall Pioneer | Weekly | News and politics | 1878 | 2 00 |
| TALLAHATCHIE CO.—*Population:* 10,926. | | | | | |
| Charleston | Tallahatchie Sentinel | Weekly | News and politics | 1856 | 2 00 |
| TATE CO.—*Population:* 18,721. | | | | | |
| Senatobia | Senatobia Express (*a*) | Weekly | News and politics | 1879 | 2 00 |
| TIPPAH CO.—*Population:* 12,867. | | | | | |
| Ripley | Ripley Advertiser | Weekly | News and politics | 1842 | 1 50 |
| | Southern Sentinel | do | do | 1879 | 1 50 |
| | Broad Axe (*b*) | do | do | | |
| TISHOMINGO CO.—*Population:* 8,774. | | | | | |
| Iuka | Iuka Mirror | Weekly | News and politics | 1877 | 1 50 |
| TUNICA CO.—*Population:* 8,461. | | | | | |
| Austin | Austin Cotton Plant | Weekly | News and politics | 1867 | 1 00 |
| UNION CO.—*Population:* 13,030. | | | | | |
| New Albany | New Albany Democrat | Weekly | News and politics | 1870 | 1 00 |
| WARREN CO.—*Population:* 31,238. | | | | | |
| Vicksburg | Daily Herald | Daily (*morning*) | News and politics | 1864 | 10 00 |
| | Weekly Herald | Weekly | do | 1865 | 2 00 |
| | Commercial | Daily (*evening*) | do | 1877 | 6 00 |
| | Commercial | Weekly | do | 1877 | 1 00 |
| | Planters' Journal | Monthly | Agricultural | 1880 | 2 00 |
| WASHINGTON CO.—*Population:* 25,367. | | | | | |
| Greenville | Greenville Times | Weekly | News and politics | 1868 | 3 50 |
| | Local and Advertiser (*c*) | Semi-weekly | do | 1878 | 4 00 |
| WILKINSON CO.—*Population:* 17,815. | | | | | |
| Woodville | Woodville Republican | Weekly | News and politics | 1826 | 2 00 |
| WINSTON CO.—*Population:* 10,087. | | | | | |
| Louisville | Winston County Index | Weekly | News and politics | 1878 | 1 50 |
| YALOBUSHA CO.—*Population:* 15,649. | | | | | |
| Coffeeville | Coffeeville Times | Weekly | News and politics | 1860 | 1 50 |
| | Yalobusha Standard | do | do | 1879 | 1 50 |
| Water Valley | Water Valley Courier | do | do | 1867 | 2 00 |
| | Mississippi Central | do | do | 1869 | 2 00 |
| YAZOO CO.—*Population:* 33,845. | | | | | |
| Yazoo | Yazoo City Herald | Weekly | News and politics | 1872 | 2 00 |
| | Yazoo Sentinel | do | do | 1876 | 2 00 |

## MISSOURI.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| ADAIR CO.—*Population:* 15,190. | | | | | |
| Kirksville | Kirksville Journal | Weekly | News and politics | 1865 | $1 00 |
| | Kirksville Democrat | do | do | 1869 | 1 25 |
| | Missouri Teacher | Monthly | Educational | 1880 | 75 |
| | Kirksville Graphic | Weekly | News and politics | 1880 | 1 50 |
| ANDREW CO.—*Population:* 16,318. | | | | | |
| Bolckow | Bolckow Independent | Weekly | News and politics | 1879 | 1 00 |
| Savannah | Savannah Democrat | do | do | 1876 | 1 50 |
| | Savannah Reporter | do | do | 1876 | 1 50 |
| ATCHISON CO.—*Population:* 14,556. | | | | | |
| Rockport | Atchison County Journal | Weekly | News and politics | 1863 | 1 50 |
| | Atchison Democrat | do | do | 1876 | 1 50 |
| | Atchison County Mail | do | do | 1878 | 1 50 |
| AUDRAIN CO.—*Population:* 19,732. | | | | | |
| Mexico City | Mexico Ledger | Weekly | News and politics | 1852 | 1 50 |
| | Audrain County Press | do | do | 1879 | 1 50 |
| | Herald | Daily (*morning*) | do | 1879 | 7 50 |
| | Herald | Weekly | do | 1879 | 1 00 |
| | Intelligencer | Daily (*evening*) | do | 1880 | 5 00 |
| | Intelligencer | Weekly | do | 1872 | 1 50 |
| Vandalia | Vandalia Leader | do | do | 1875 | 1 25 |
| BARRY CO.—*Population:* 14,405. | | | | | |
| Cassville | Cassville Democrat | Weekly | News and politics | 1871 | 1 00 |
| | Cassville Republican | do | do | 1874 | 1 00 |
| BARTON CO.—*Population:* 10,332. | | | | | |
| Lamar | Lamar Independent | Weekly | News and politics | 1873 | 1 50 |
| | Barton County Advocate | do | do | 1874 | 1 00 |
| | Lamar Liberal | Monthly | Miscellaneous | 1879 | 1 00 |
| BATES CO.—*Population:* 25,381. | | | | | |
| Butler | Bates County Record | Weekly | News and politics | 1866 | 1 50 |
| | Bates County Times | do | do | 1878 | 1 25 |
| | Bates County Democrat | do | do | 1879 | 1 50 |
| | Butler Independent | do | do | 1880 | 1 25 |

## MISSOURI—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **Benton co.**—*Population:* 12,396. | | | | | |
| Warsaw | Warsaw Times | Weekly | News and politics | 1865 | $1 25 |
| | Warsaw Register | do | do | 1879 | 1 00 |
| **Bollinger co.**—*Population:* 11,130. | | | | | |
| Marble Hill | Marble Hill Herald | Weekly | News and politics. | 1872 | 1 50 |
| | American Palladium | do | do | 1878 | 1 00 |
| **Boone co.**—*Population:* 25,422. | | | | | |
| Columbia | Missouri Statesman | Weekly | News and politics | 1843 | 2 00 |
| | Missouri Herald | do | do | 1869 | 1 50 |
| | University Missourian | Monthly | Collegiate | 1871 | 1 00 |
| | Boone County Sentinel | Weekly | News and politics | 1877 | 1 50 |
| Ashland | Ashland Bugle | do | do | 1877 | 1 00 |
| Centralia | Our Fireside Guard | do | do | 1866 | 1 50 |
| Rocheport | Commercial | do | do | 1879 | 1 00 |
| Sturgeon | Sturgeon Leader | do | do | 1869 | 1 50 |
| **Buchanan co.**—*Population:* 49,792. | | | | | |
| Easton | Buchanan County Journal (*a*) | Weekly | News and politics | 1879 | |
| Saint Joseph | Gazette | Daily (*morning*) | do | 1845 | 9 00 |
| | Gazette | Weekly | do | 1845 | 1 00 |
| | Gazette | Tri-weekly | do | 1845 | 4 50 |
| | Volksblatt | Daily (*evening*) | News and politics (*German*) | 1858 | 9 00 |
| | Volksblatt | Weekly | News and politics (*German*) | 1858 | 2 00 |
| | Herald | Daily (*morning*) | News and politics | 1862 | 9 00 |
| | Dollar Herald | Weekly | do | 1862 | 1 00 |
| | Temperance Bugle and Standard | do | Temperance | 1878 | 1 50 |
| | Evening News | Daily (*evening*) | News and politics | 1879 | 3 00 |
| | Western News | Weekly | do | 1879 | 1 00 |
| | Good Way | do | Religious (*Primitive Christian*) | 1879 | 1 25 |
| | Saturday Democrat | do | News and politics | 1879 | 2 00 |
| | Commercial Advices and Price Current | do | Commercial, etc | 1879 | 1 50 |
| **Butler co.**—*Population:* 6,011. | | | | | |
| Poplar Bluff | Butler County Citizen | Weekly | News and politics | 1869 | 1 50 |
| | Southeast Missourian (*b*) | do | do | 1879 | 1 25 |
| **Caldwell co.**—*Population:* 13,646. | | | | | |
| Breckinridge | Breckenridge Bulletin | Weekly | News and politics | 1875 | 1 25 |
| Hamilton | News-Graphic | do | do | 1868 | 1 50 |
| | Hamiltonian | do | do | 1878 | 1 00 |
| Kingston | Caldwell County Sentinel | do | do | 1867 | 1 25 |
| **Callaway co.**—*Population:* 23,670. | | | | | |
| Fulton City | Fulton Telegraph | Weekly | News and politics | 1839 | 2 00 |
| | Fulton Enterprise | do | do | 1871 | 2 00 |
| | Westminster Monthly | Monthly | Collegiate | 1871 | 1 00 |
| | Callaway Gazette | Weekly | News and politics | 1877 | 2 00 |
| **Camden co.**—*Population:* 7,266. | | | | | |
| Linn Creek | Camden Reveille | Weekly | News and politics | 1879 | 1 00 |
| **Cape Girardeau co.**—*Population:* 20,998. | | | | | |
| Cape Girardeau | Cape Girardeau News | Weekly | News and politics | 1865 | 1 50 |
| | Die Zeitung (*a*) | do | News and politics (*German*) | 1879 | 1 25 |
| | College Message | Semi-monthly | Collegiate | 1874 | 1 25 |
| | Normal Worker | Monthly | Educational | 1879 | 75 |
| | Courier | Weekly | News and politics | 1880 | 1 50 |
| Jackson | Missouri Cash Book | do | do | 1871 | 1 50 |
| **Carroll co.**—*Population:* 23,274. | | | | | |
| Carrollton | Carrollton Journal | Weekly | News and politics | 1855 | 1 50 |
| | Carroll Record | do | do | 1867 | 1 50 |
| | Carrollton Democrat | do | do | 1875 | 1 50 |
| | Triple Link | Semi-monthly | Secret society | 1879 | 1 00 |
| Norborne | Independent | Weekly | News and politics | 1876 | 1 50 |
| **Carter co.**—*Population:* 2,168. | | | | | |
| Van Buren | Van Buren Times | Weekly | News and politics | 1876 | 1 00 |
| **Cass co.**—*Population:* 22,431. | | | | | |
| Harrisonville | Times-Courier | Weekly | News and politics | 1870 | 1 50 |
| | Cass News | do | do | 1878 | 1 50 |
| | Cass Herald (*a*) | do | do | 1879 | 1 50 |
| | Vindicator | do | do | 1879 | 1 00 |
| Pleasant Hill | Review | do | do | 1866 | 1 50 |
| | Western Dispatch | do | do | 1872 | 1 50 |
| **Cedar co.**—*Population:* 10,741. | | | | | |
| Stockton | Stockton Journal | Weekly | News and politics | 1869 | 1 00 |
| | Stockton Stalwart | do | do | 1879 | 1 00 |
| | Anti-Bulldozer | do | do | 1880 | 1 00 |
| **Chariton co.**—*Population:* 25,224. | | | | | |
| Brunswick | The Brunswicker | Weekly | News and politics | 1848 | 1 50 |
| | Brunswick News | do | do | 1875 | 1 50 |
| Keytesville | Chariton Courier | do | do | 1871 | 1 50 |
| Salisbury | Salisbury Press | do | do | 1871 | 1 50 |
| **Christian co.**—*Population:* 9,628. | | | | | |
| Ozark | Ozark Leader | Weekly | News and politics | 1864 | 1 00 |
| | Ozark Republican | do | do | 1876 | 1 00 |
| **Clark co.**—*Population:* 15,031. | | | | | |
| Alexandria | Alexandria Commercial | Weekly | News and politics | 1849 | 1 50 |
| Kahoka | Clark County Gazette | do | do | 1870 | 1 50 |
| | Journal | do | do | 1878 | 1 50 |
| **Clay co.**—*Population:* 15,572. | | | | | |
| Liberty | Liberty Tribune | Weekly | News and politics | 1846 | 2 00 |
| | Liberty Advance | do | Miscellaneous | 1875 | 2 00 |
| | Jewell Student | Monthly | Collegiate | 1880 | 1 00 |

*a* Suspended.

*b* Suspended December, 1880.

## MISSOURI—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| CLINTON CO.—*Population:* 16,073. | | | | | |
| Cameron | Cameron Observer | Weekly | News and politics | 1868 | $2 00 |
| | Vindicator | do | do | 1876 | 2 00 |
| Lathrop | Monitor | do | do | 1870 | 1 50 |
| | Herald | do | do | 1880 | 1 50 |
| Plattsburg | County Register | do | do | 1866 | 1 50 |
| | Lever | do | do | 1873 | 3 00 |
| | Purifier | do | do | 1880 | 2 00 |
| COLE CO.—*Population:* 15,515. | | | | | |
| Jefferson City | Tribune | Daily (*morning*) | News and politics | 1864 | 7 20 |
| | People's Tribune | Weekly | do | 1864 | 1 50 |
| | State Journal | Daily (*evening*) | do | 1872 | 3 60 |
| | State Journal | Weekly | do | 1872 | 1 50 |
| | Missouri Volksfreund | do | News and politics (*German*) | 1876 | 2 00 |
| | Staats-Zeitung | do | News and politics (*German*) | 1878 | 1 50 |
| | Eclipse | Daily (*evening*) | News and politics | 1878 | 5 20 |
| | Missouri Bar | Weekly | Law | 1879 | 3 00 |
| COOPER CO.—*Population:* 21,596. | | | | | |
| Boonville | Boonville Advertiser | Weekly | News and politics | 1840 | 1 50 |
| | Der Central Missourier | do | News and politics (*German*) | 1868 | 2 00 |
| | Boonville Topic | do | News and politics | 1877 | 1 50 |
| CRAWFORD CO.—*Population:* 10,756. | | | | | |
| Steelville | Crawford Mirror | Weekly | News and politics | 1872 | 1 50 |
| | Crawford Sentinel | do | do | 1872 | 1 00 |
| DADE CO.—*Population:* 12,557. | | | | | |
| Greenfield | Greenfield Vidette | Weekly | News and politics | 1866 | 1 50 |
| | Dade County Advocate | do | do | 1874 | 1 50 |
| DALLAS CO.—*Population:* 9,263. | | | | | |
| Buffalo | Buffalo Reflex | Weekly | News and politics | 1875 | 1 00 |
| | Buffalo Register | do | do | 1879 | 1 50 |
| DAVIESS CO.—*Population:* 19,145. | | | | | |
| Gallatin | North Missourian | Weekly | News and politics | 1864 | 1 50 |
| | Gallatin Democrat | do | do | 1866 | 1 50 |
| | Jamesport Gazette | do | do | 1877 | 2 50 |
| DE KALB CO.—*Population:* 13,334. | | | | | |
| Maysville | Maysville Register | Weekly | News and politics | 1866 | 1 50 |
| | De Kalb County Republican | do | do | 1877 | 1 50 |
| Stewartsville | Stewartsville Independent | do | do | 1877 | 1 50 |
| DENT CO.—*Population:* 10,646. | | | | | |
| Salem | Salem Monitor | Weekly | News and politics | 1868 | 1 00 |
| | Dent County Democrat | do | do | 1880 | 1 00 |
| DOUGLAS CO.—*Population:* 7,753. | | | | | |
| Ava | Ava Times | Weekly | News and politics | 1879 | 1 00 |
| DUNKLIN CO.—*Population:* 9,604. | | | | | |
| Kennett | Dunklin County Advance | Weekly | News and politics | 1877 | 1 50 |
| FRANKLIN CO.—*Population:* 26,534. | | | | | |
| Union | Record | Weekly | News and politics | 1874 | 1 25 |
| Washington | Franklin County Observer | do | do | 1861 | 1 50 |
| | Die Washingtoner Post | do | News and politics (*German*) | 1869 | 2 00 |
| | Franklin County Democrat | do | News and politics | 1871 | 1 50 |
| | People's Palladium | Semi-monthly | Miscellaneous | 1879 | 1 00 |
| GASCONADE CO.—*Population:* 11,153. | | | | | |
| Hermann | Hermanner Volksblatt | Weekly | News and politics (*German*) | 1855 | 2 00 |
| | Advertiser-Courier | do | News and politics | 1872 | 1 50 |
| | Gasconade Independent | do | do | 1879 | 1 00 |
| GENTRY CO.—*Population:* 17,176. | | | | | |
| Albany | Albany Ledger | Weekly | News and politics | 1868 | 1 50 |
| | American Freeman | do | do | 1874 | 1 50 |
| Stanberry | Stanberry News | do | do | 1880 | 1 50 |
| | Stanberry Sentinel | do | do | 1880 | 1 50 |
| GREENE CO.—*Population:* 28,801. | | | | | |
| North Springfield | Patriot-Advertiser | Weekly | News and politics | 1864 | 1 50 |
| | Times-Leader | do | do | 1867 | 2 00 |
| | Southwester | do | do | 1876 | 1 25 |
| | Greenback News | do | do | 1878 | 1 25 |
| | North Springfield Watchword | Monthly | Temperance | 1879 | 50 |
| Springfield | Springfield Extra | Daily (*evening*) | News and politics | 1879 | 5 00 |
| GRUNDY CO.—*Population:* 15,185. | | | | | |
| Trenton | Trenton Republican | Weekly | News and politics | 1862 | 1 50 |
| | Grundy County Times | do | do | 1871 | 1 50 |
| | Grand River College Courant | Monthly | Collegiate | 1876 | 50 |
| | Trenton Star | Weekly | News and politics | 1879 | 1 50 |
| HARRISON CO.—*Population:* 20,304. | | | | | |
| Bethany | Bethany Republican | Weekly | News and politics | 1873 | 1 50 |
| | Broad-Ax | do | do | 1877 | 1 50 |
| Eagleville | Eagleville Clipper | do | do | 1877 | 1 00 |
| HENRY CO.—*Population:* 23,906. | | | | | |
| Clinton | Henry County Democrat | Weekly | News and politics | 1869 | 1 50 |
| | Clinton Advocate | do | do | 1876 | 1 50 |
| Montrose | News (*a*) | do | do | 1879 | 1 50 |
| | Prohibition Advocate (*b*) | do | Temperance | 1879 | ........ |
| Windsor | Windsor Review | do | News and politics | 1876 | 1 00 |
| HICKORY CO.—*Population:* 7,387. | | | | | |
| Hermitage | New Era (*b*) | Weekly | News and politics | 1876 | 1 25 |
| Wheatland | Wheatland Star | do | do | 1877 | 1 00 |

*a* Suspended September, 1880.

*b* Suspended June, 1879.

## MISSOURI—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| HOLT CO.—*Population:* 15,509. | | | | | |
| Corning | Corning Herald | Weekly | News and politics | 1879 | $1 50 |
| Craig | Craig Gazette | do | do | 1879 | 1 50 |
| Mound City | Holt County News | do | do | 1879 | 1 50 |
| Oregon | Holt County Sentinel | do | do | 1864 | 1 50 |
| | Holt County Press | do | do | 1876 | 1 50 |
| HOWARD CO.—*Population:* 18,428. | | | | | |
| Fayette | Howard County Advertiser | Weekly | News and politics | 1840 | 1 50 |
| | Missouri Independent | do | do | 1879 | 1 00 |
| Glasgow | Glasgow Journal | do | do | 1868 | 1 50 |
| | Central Missourian | do | do | 1879 | 1 50 |
| HOWELL CO.—*Population:* 8,814. | | | | | |
| West Plains | Journal | Weekly | News and politics | 1870 | 1 00 |
| IRON CO.—*Population:* 8,183. | | | | | |
| Ironton | Iron County Register | Weekly | News and politics | 1867 | 1 50 |
| JACKSON CO.—*Population:* 82,325. | | | | | |
| Independence | Independence Sentinel | Weekly | News and politics | 1866 | 1 50 |
| | National Crisis | do | do | 1879 | 1 00 |
| | Independence Democrat (*a*) | do | do | 1877 | 1 50 |
| Kansas City | Journal | Daily (*morning*) | do | 1854 | 10 00 |
| | Journal | Weekly | do | 1854 | 1 50 |
| | Journal | Tri-weekly | do | 1854 | 4 00 |
| | Post und Tribuene | Daily (*morning*) | News and politics (*German*) | 1858 | 10 00 |
| | Post und Tribuene | Weekly | News and politics (*German*) | 1872 | 2 00 |
| | Times | Daily (*morning*) | News and politics | 1868 | 12 00 |
| | Times | Weekly | do | 1868 | 1 50 |
| | Times | Tri-weekly | do | 1868 | 5 00 |
| | Pioneer | Daily (*evening*) | do | 1879 | 4 00 |
| | Pioneer | Weekly | do | 1873 | 1 50 |
| | Kansas City Price Current | do | Commercial | 1873 | 2 00 |
| | Herold | Daily (*evening*) | News and politics (*German*) | 1880 | 10 00 |
| | Herold | Weekly | News and politics (*German*) | 1874 | 2 00 |
| | Evening Mail | Daily (*evening*) | News and politics | 1875 | 8 00 |
| | Mail | Weekly | do | 1875 | 1 50 |
| | Camp's Emigrant Guide | Monthly | Miscellaneous | 1875 | 1 00 |
| | Review of Science and Industry | do | Science and mechanics | 1877 | 2 50 |
| | Commercial Indicator | Weekly | Commercial | 1878 | 2 00 |
| | Kansas City Gazette (*b*) | do | News and politics | 1879 | 1 50 |
| | Saturday Evening Herald | do | Miscellaneous | 1879 | 2 00 |
| | Stock Farm and Home Weekly (*b*) | do | Agricultural | 1879 | 1 50 |
| | Western Religious Herald (*b*) | do | Religious (*Unsectarian*) | 1879 | 2 00 |
| | National Grocer | Bi-weekly | Trade | 1879 | 1 25 |
| | Western Cultivator (*b*) | Weekly | Agricultural | 1879 | |
| | Western Sentinel (*b*) | do | News and politics | 1879 | |
| | Liberal Advocate (*b*) | do | Religious (*Unsectarian*) | 1879 | |
| | Church Guide (*b*) | do | Religious (*Unsectarian*) | 1879 | |
| | Exodus (*c*) | do | News and politics | 1879 | 1 00 |
| | Mid-Continent Presbyterian | do | Religious (*Presbyterian*) | 1880 | 2 00 |
| JASPER CO.—*Population:* 32,019. | | | | | |
| Carthage | Banner | Daily (*evening*) | News and politics | 1866 | 8 00 |
| | Banner | Weekly | do | 1866 | 1 50 |
| | Patriot | Daily (*morning*) | do | 1876 | 7 00 |
| | Patriot | Weekly | do | 1869 | 1 50 |
| | People's Press | do | do | 1872 | 1 50 |
| | Southwestern Weekly (*d*) | do | do | 1879 | 1 50 |
| | Christian Polemic | Monthly | Religious (*Unsectarian*) | 1870 | 50 |
| | Republican (*b*) | Weekly | News and politics | 1879 | |
| Joplin | News | Daily (*evening*) | do | 1875 | 8 00 |
| | Mining News | Weekly | do | 1872 | 2 00 |
| | Herald | Daily (*morning*) | do | 1877 | 8 00 |
| | Sunday Herald | Sunday | do | 1877 | 2 00 |
| | Dispatch (*b*) | Daily (*evening*) | do | | |
| Webb | Webb City Times | Weekly | do | 1879 | 1 50 |
| JEFFERSON CO.—*Population:* 18,736. | | | | | |
| De Soto | Messenger | Weekly | News and politics | 1878 | 1 50 |
| Hillsboro' | Jefferson Democrat | do | do | 1866 | 1 50 |
| | De Soto Herald | do | do | 1880 | 1 50 |
| JOHNSON CO.—*Population:* 28,172. | | | | | |
| Holden | Enterprise | Weekly | News and politics | 1867 | 1 50 |
| | Daily Advance (*e*) | Daily (*morning*) | do | 1878 | |
| | Avalanche (*a*) | Weekly | do | 1879 | |
| Knob Noster | Knob Noster Gem | do | do | 1878 | 1 00 |
| Warrensburg | Standard | Daily (*morning*) | do | 1878 | 6 00 |
| | Standard | Weekly | do | 1865 | 1 50 |
| | Journal-Democrat | do | do | 1866 | 1 50 |
| | Warrensburg Press (*b*) | do | do | 1878 | 1 00 |
| | Warrensburg News (*b*) | Semi-weekly | do | 1874 | 5 00 |
| KNOX CO.—*Population:* 13,047. | | | | | |
| Edina | Edina Sentinel | Weekly | News and politics | 1866 | 1 00 |
| | Knox County Democrat | do | do | 1870 | 1 25 |
| | National Weekly (*b*) | do | do | 1879 | 1 50 |
| LACLEDE CO.—*Population:* 11,524. | | | | | |
| Lebanon | Anti-Monopolist | Weekly | News and politics | 1873 | 1 00 |
| | Rustic Leader | Tri-weekly | do | 1873 | 1 50 |
| | Lebanon Journal | Weekly | do | 1875 | 1 00 |
| | American Bee Keeper | Monthly | Agricultural | 1879 | 1 00 |
| | Laclede Leader (*f*) | Weekly | News and politics | 1879 | 1 00 |
| LA FAYETTE CO.—*Population:* 25,710. | | | | | |
| Higginsville | La Fayette County Advance | Weekly | News and politics | 1879 | 2 00 |
| Lexington | Lexington Register | do | do | 1865 | 2 00 |
| | Missouri Thalbote | do | News and politics (*German*) | 1871 | 2 00 |
| | Lexington Intelligencer | do | News and politics | 1871 | 2 00 |
| | La Fayette County Sentinel | do | do | 1876 | 1 50 |

*a* Suspended December, 1879.
*b* Suspended in census year.
*c* Suspended July, 1880.
*d* Suspended June, 1880.
*e* Changed to "Weekly Enterprise".
*f* Merged in "Lebanon Rustic".

## MISSOURI—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| LAWRENCE CO.—*Population:* 17,583. | | | | | |
| Mount Vernon | Fountain and Journal | Weekly | News and politics | 1867 | $1 00 |
| | Lawrence Chieftain | do | do | 1876 | 1 00 |
| Marionville | Southwest Missourian | do | do | 1877 | 1 00 |
| Pierce City | Empire | do | do | 1875 | 1 00 |
| | Record | do | do | 1876 | 1 50 |
| | Emigrants' Guide | Monthly | Miscellaneous | 1879 | 50 |
| LEWIS CO.—*Population:* 15,925. | | | | | |
| Canton | Canton Press | Weekly | News and politics | 1862 | 1 50 |
| | Canton News | do | do | 1880 | 1 50 |
| La Grange | Democrat | do | do | 1872 | 1 50 |
| Monticello | Lewis County Journal | do | do | 1878 | 1 00 |
| LINCOLN CO.—*Population:* 17,426. | | | | | |
| Troy | Troy Herald | Weekly | News and politics | 1865 | 1 50 |
| | Troy Press | do | do | 1878 | 1 50 |
| LINN CO.—*Population:* 20,016. | | | | | |
| Brookfield | Brookfield Gazette | Weekly | News and politics | 1867 | 1 50 |
| | Brookfield Chronicle | do | do | 1876 | 1 00 |
| Bucklin | Bucklin Advertiser | do | do | 1880 | 1 00 |
| Linneus | Linneus Bulletin | do | do | 1871 | 1 50 |
| LIVINGSTON CO.—*Population:* 20,196. | | | | | |
| Chillicothe | Chillicothe Constitution | Weekly | News and politics | 1860 | 1 50 |
| | Tribune | do | do | 1865 | 1 50 |
| | Chillicothe Crisis | do | do | 1877 | 1 50 |
| Utica | Utica Herald | do | do | 1873 | 1 00 |
| McDONALD CO.—*Population:* 7,816. | | | | | |
| Pineville | Pineville News | Weekly | News and politics | 1874 | 1 00 |
| | Pineville Pilot (*a*) | do | do | 1879 | 1 00 |
| MACON CO.—*Population:* 26,222. | | | | | |
| La Plata | Home Press | Weekly | News and politics | 1876 | 1 00 |
| Macon | North Missouri Register | do | do | 1870 | 1 50 |
| | Macon Republican | do | do | 1871 | 1 25 |
| | Messenger of Peace | Semi-monthly | Religious (*Primitive Baptist*) | 1874 | 1 50 |
| | Macon Greenback (*b*) | Weekly | News and politics | 1877 | 1 50 |
| | Missouri Temperance Advocate | Semi-monthly | Temperance | 1879 | 1 00 |
| | Macon Democrat (*c*) | Weekly | News and politics | 1879 | ...... |
| | Macon News (*c*) | do | do | 1879 | 1 50 |
| MADISON CO.—*Population:* 8,876. | | | | | |
| Fredericktown | Plaindealer | Weekly | News and politics | 1873 | 1 50 |
| MARIES CO.—*Population:* 7,304. | | | | | |
| Vienna | Maries County Courier | Weekly | News and politics | 1873 | 1 00 |
| MARION CO.—*Population:* 24,837. | | | | | |
| Hannibal | Hannibal Courier (*c*) | Daily (*evening*) | News and politics | 1863 | 6 00 |
| | Clipper-Herald | Daily (*evening*) | do | 1874 | 7 20 |
| | Clipper-Herald | Weekly | do | 1871 | 1 00 |
| | Great Southwest | Monthly | Railroads, etc | 1876 | 1 00 |
| | Morning Journal | Daily (*morning*) | News and politics | 1878 | 5 00 |
| | Hannibal Independent | Weekly | do | 1879 | 1 50 |
| | American Chess Journal (*c*) | Monthly | Miscellaneous | 1877 | 3 00 |
| Palmyra | Palmyra Spectator | Weekly | do | 1839 | 1 50 |
| | Marion County Democrat | do | News and politics | 1872 | 1 50 |
| MERCER CO.—*Population:* 14,673. | | | | | |
| Princeton | Princeton Advance | Weekly | News and politics | 1866 | 1 50 |
| | Princeton Telegraph | do | do | 1873 | 1 25 |
| MILLER CO.—*Population:* 9,805. | | | | | |
| Tuscumbia | Miller County Vindicator | Weekly | News and politics | 1878 | 1 00 |
| | Osage Valley Banner | do | do | 1879 | 1 00 |
| MISSISSIPPI CO.—*Population:* 9,270. | | | | | |
| Charleston | Courier-Gazette | Weekly | News and politics | 1857 | 1 25 |
| | Charleston Enterprise | do | do | 1875 | 1 25 |
| | Charleston Sentinel | do | do | 1879 | 1 50 |
| MONITEAU CO.—*Population:* 14,346. | | | | | |
| California | California Democrat | Weekly | News and politics | 1870 | 1 50 |
| | Moniteau Monitor | do | do | 1880 | 1 50 |
| Tipton | Tipton Times | do | do | 1877 | 1 50 |
| MONROE CO.—*Population:* 19,071. | | | | | |
| Monroe City | Monroe City News | Weekly | News and politics | 1875 | 1 25 |
| Madison | Madison Gazette (*b*) | do | do | 1879 | ...... |
| Paris | Paris Mercury | do | do | 1843 | 1 50 |
| | Monroe County Appeal | do | do | 1868 | 1 50 |
| MONTGOMERY CO.—*Population:* 16,249. | | | | | |
| Jonesburg | Jonesburg Journal | Weekly | News and politics | 1879 | 1 25 |
| Montgomery City | Montgomery Standard | do | do | 1865 | 1 50 |
| | Montgomery Ray | do | do | 1871 | 1 00 |
| Middletown | North Missouri Sentinel | do | do | 1879 | 1 25 |
| New Florence | Optic | do | do | 1877 | 1 25 |
| Wellsville | Advertiser | do | do | 1879 | 1 00 |
| | Wide Awake | do | do | 1880 | 1 50 |
| MORGAN CO.—*Population:* 10,132. | | | | | |
| Versailles | Versailles Gazette | Weekly | News and politics | 1871 | 1 50 |
| NEW MADRID CO.—*Population:* 7,694. | | | | | |
| New Madrid | Record-Tribune (*c*) | Weekly | News and politics | 1867 | 1 50 |
| | South-East Chronicle | do | do | 1879 | 1 50 |
| NEWTON CO.—*Population:* 18,947. | | | | | |
| Neosho | Neosho Journal | Weekly | News and politics | 1866 | 1 50 |
| | Neosho Times | do | do | 1869 | 1 50 |
| | Miner and Mechanic | Daily (*evening*) | do | 1879 | 5 00 |
| | Miner and Mechanic | Weekly | do | 1873 | 1 50 |
| Seneca | Seneca Signal (*d*) | do | do | 1870 | 1 00 |

*a* Suspended December, 1880. *b* Suspended November, 1880. *c* Suspended. *d* Suspended February, 1881.

## MISSOURI—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **Nodaway co.**—*Population:* 29,544. | | | | | |
| Barnard | Barnard Times | Weekly | News and politics | 1877 | $1 25 |
| Burlington Junction | Burlington Junction Post | do | do | 1879 | 1 50 |
| Graham | Graham News (*a*) | do | do | 1879 | 1 00 |
| Hopkins | Hopkins Journal | do | do | 1875 | 2 00 |
| Maryville | Nodaway Democrat | do | do | 1869 | 1 50 |
| | Maryville Republican | do | do | 1870 | 1 75 |
| | Legal Tender News (*a*) | do | do | 1877 | ....... |
| **Oregon co.**—*Population:* 5,791. | | | | | |
| Alton | Alton Democrat | Weekly | News and politics | 1877 | 1 00 |
| **Osage co.**—*Population:* 11,824. | | | | | |
| Chamois | Chamois Liberalist | Weekly | News and politics | 1879 | 1 00 |
| Linn | Osage County News | do | do | 1866 | 1 00 |
| **Ozark co.**—*Population:* 5,618. | | | | | |
| Gainesville | Ozark County News (*a*) | Weekly | News and politics | 1879 | ....... |
| **Pemiscot co.**—*Population:* 4,299. | | | | | |
| Gayoso | Gayoso Democrat | Weekly | News and politics | 1878 | 1 50 |
| **Perry co.**—*Population:* 11,895. | | | | | |
| Perryville | Perryville Union | Weekly | News and politics | 1862 | 1 50 |
| | People's Forum (*a*) | do | do | 1874 | 1 50 |
| | Perry County Sun | do | do | 1880 | 1 50 |
| **Pettis co.**—*Population:* 27,271. | | | | | |
| Sedalia | Sedalia Eagle | Weekly | News and politics | 1865 | 1 50 |
| | Sedalia Times (*b*) | do | do | 1865 | 2 00 |
| | Democrat | Daily (*morning*) | do | 1871 | 10 00 |
| | Democrat | Weekly | do | 1868 | 1 50 |
| | Bazoo | Daily (*evening*) | do | 1869 | 10 00 |
| | Bazoo | Weekly | do | 1869 | 1 00 |
| | Sunday Morning Bazoo | Sunday | do | 1869 | 2 50 |
| | Sedalia Journal | Weekly | News and politics (*German*) | 1877 | 1 50 |
| | Sunday Morning Eagle | Sunday | News and politics | 1878 | 1 50 |
| | Sedalia Register | Monthly | Miscellaneous | 1878 | 20 |
| | Sprig of Myrtle | do | Secret society | 1879 | 75 |
| | Saturday Evening Call | Weekly | News and politics | 1879 | 1 00 |
| | Evening News | Daily (*evening*) | do | 1880 | 6 00 |
| **Phelps co.**—*Population:* 12,568. | | | | | |
| Rolla | Rolla Herald | Weekly | News and politics | 1866 | 1 50 |
| | Rolla New Era | do | do | 1875 | 1 50 |
| **Pike co.**—*Population:* 26,715. | | | | | |
| Bowling Green | Post-Observer | Weekly | News and politics | 1870 | 1 50 |
| | Bowling Green Times | do | do | 1875 | 1 50 |
| Clarksville | Clarksville Sentinel | do | do | 1866 | 1 50 |
| Frankford | Chronicle | do | do | 1878 | 1 00 |
| Louisiana | Journal | do | do | 1854 | 1 50 |
| | Riverside Press | do | do | 1868 | 1 50 |
| **Platte co.**—*Population:* 17,366. | | | | | |
| Platte City | Platte Landmark | Weekly | News and politics | 1865 | 1 50 |
| | Platte County Advocate (*c*) | do | do | 1874 | 1 25 |
| Weston | Missouri Commercial | do | do | 1872 | 1 50 |
| **Polk co.**—*Population:* 15,734. | | | | | |
| Bolivar | Bolivar Free Press | Weekly | News and politics | 1867 | 1 50 |
| | Bolivar Herald | do | do | 1871 | 1 50 |
| **Pulaski co.**—*Population:* 7,250. | | | | | |
| Richland | Richland Sentinel | Weekly | News and politics | 1872 | 1 00 |
| Waynesville | Pulaski County Tribune | do | do | 1879 | 1 00 |
| **Putnam co.**—*Population:* 13,555. | | | | | |
| Unionville | Unionville Republican | Weekly | News and politics | 1865 | 1 50 |
| | New Century | do | do | 1876 | 1 50 |
| **Ralls co.**—*Population:* 11,838. | | | | | |
| New London | Ralls County Record | Weekly | News and politics | 1865 | 1 50 |
| | Ralls County Guide | do | do | 1879 | 1 50 |
| **Randolph co.**—*Population:* 22,751. | | | | | |
| Huntsville | Huntsville Herald | Weekly | News and politics | 1868 | 1 00 |
| Moberly | Monitor | Daily (*evening*) | do | 1873 | 6 00 |
| | Monitor | Weekly | do | 1869 | 1 50 |
| | Headlight | Daily (*evening*) | do | 1872 | 6 00 |
| | Headlight | Weekly | do | 1872 | 1 50 |
| | Moberly News (*a*) | do | do | 1879 | ....... |
| | Moberly Chronicle | Daily (*morning*) | do | 1880 | 5 00 |
| | Moberly Chronicle | Weekly | do | 1880 | 1 50 |
| **Ray co.**—*Population:* 20,190. | | | | | |
| Richmond | Conservator | Weekly | News and politics | 1852 | 1 50 |
| | Richmond Democrat | do | do | 1873 | 1 50 |
| **Reynolds co.**—*Population:* 5,722. | | | | | |
| Centreville | Reynolds County Outlook | Weekly | News and politics | 1877 | 1 00 |
| **Ripley co.**—*Population:* 5,377. | | | | | |
| Doniphan | Doniphan Prospect | Weekly | News and politics | 1874 | 1 50 |
| | Current River News | do | do | 1878 | 1 50 |
| **Saint Charles co.**—*Population:* 23,065. | | | | | |
| Saint Charles | St. Charles Cosmos | Weekly | News and politics | 1836 | 2 00 |
| | St. Charles Demokrat | do | News and politics (*German*) | 1852 | 2 00 |
| | News | do | News and politics | 1866 | 2 00 |
| **Saint Clair co.**—*Population:* 14,125. | | | | | |
| Appleton City | Appleton City Leader | Weekly | News and politics | 1878 | 1 25 |
| Osceola | Osceola Sun | do | do | 1878 | 1 00 |
| | Voice of the People | do | do | 1878 | 1 00 |

*a* Suspended in census year. *b* Merged with "Daily News", Sedalia. *c* Merged with Platte City "Landmark".

## MISSOURI—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **SAINT FRANÇOIS CO.**—*Population:* 13,822. | | | | | |
| Bonne Terre | St. François County Banner (*a*) | Weekly | News and politics | 1878 | $1 25 |
| Farmington | Reveille | do | do | 1879 | 1 00 |
| | Times | do | do | 1874 | 1 50 |
| | Farmington New Era (*a*) | do | do | 1871 | 1 00 |
| **SAINTE GENEVIEVE CO.**—*Popul'n:* 10,390. | | | | | |
| Sainte Genevieve | Fair Play | Weekly | News and politics | 1872 | 1 50 |
| | Freie Blaetter (*b*) | do | News and politics (*German*) | 1876 | 2 00 |
| **SAINT LOUIS CITY.**—*Population:* 350, 518. | | | | | |
| Saint Louis | Missouri Republican | Daily (*morning*) | News and politics | 1830 | 12 00 |
| | Missouri Republican | Sunday | do | 1808 | 1 00 |
| | Missouri Republican | Tri-weekly | do | 1808 | 5 00 |
| | Anzeiger Des Westens | Daily (*morning*) | News and politics (*German*) | 1834 | 10 00 |
| | Anzeiger Des Westens | Weekly | News and politics (*German*) | 1834 | 2 00 |
| | Anzeiger Des Westens | Sunday | News and politics (*German*) | 1834 | 2 00 |
| | Medical and Surgical Journal | Semi-monthly | Medicine and surgery | 1843 | 4 00 |
| | Der Lutheraner | do | Religious (*Lutheran; German*) | 1844 | 1 00 |
| | Central Christian Advocate | Weekly | Religious (*Methodist*) | 1846 | 2 20 |
| | Colman's Rural World | do | Agricultural | 1848 | 1 50 |
| | Der Herold des Glaubens | do | Religious (*Catholic; German*) | 1850 | 2 50 |
| | St. Louis Christian Advocate | do | Religious (*Methodist*) | 1851 | 2 00 |
| | Globe-Democrat | Daily (*morning*) | News and politics | 1852 | 12 00 |
| | Globe-Democrat | Sunday | do | 1852 | 1 00 |
| | Globe-Democrat | Semi-weekly | do | 1852 | 3 00 |
| | Globe-Democrat | Tri-weekly | do | 1852 | 5 00 |
| | Post-Dispatch | Daily (*evening*) | do | 1853 | 9 00 |
| | Post-Dispatch | Weekly | do | 1853 | 1 00 |
| | Post-Dispatch | Tri-weekly | do | 1853 | 4 50 |
| | Die Abendschule | Weekly | News and politics (*German*) | 1853 | 2 00 |
| | Ford's Christian Repository | Monthly | Religious (*Baptist*) | 1855 | 2 50 |
| | Lehre und Wehre | do | Religious (*Lutheran; German*) | 1855 | 2 00 |
| | Westliche Post | Daily (*morning*) | News and politics (*German*) | 1857 | 10 00 |
| | Westliche Post | Weekly | News and politics (*German*) | 1857 | 2 00 |
| | Age of Steel | do | Science and mechanics | 1857 | 3 00 |
| | Christian Monitor | Monthly | Religious | 1862 | 1 50 |
| | Christian | Weekly | Religious (*Disciples*) | 1863 | 2 00 |
| | Central Baptist | do | Religious (*Baptist*) | 1865 | 2 00 |
| | Evangelisch-Lutherisches Schulblatt | Monthly | Religious (*Lutheran; German*) | 1865 | 1 00 |
| | Little Sower | do | News and politics | 1865 | 1 00 |
| | St. Louis Presbyterian | Weekly | Religious (*Presbyterian*) | 1866 | 2 50 |
| | Times | Daily (*morning*) | News and politics | 1866 | 9 00 |
| | Times | Weekly | do | 1866 | 1 00 |
| | Times | Sunday | do | 1866 | 2 00 |
| | Times | Tri-weekly | do | 1866 | 4 00 |
| | Journal of Agriculture and Farmer | Weekly | Agricultural | 1866 | 1 00 |
| | Journal of Speculative Philosophy | Quarterly | Philosophical | 1867 | 3 00 |
| | Western Insurance Review | Monthly | Insurance | 1867 | 3 00 |
| | American Journal of Education | do | Educational | 1868 | 1 00 |
| | St. Louis Commercial Gazette | Weekly | Commercial | 1868 | 2 00 |
| | Western Trade Journal | do | Trade | 1869 | 3 00 |
| | Missouri Dental Journal | Monthly | Medicine and surgery | 1869 | 2 50 |
| | Western Watchman | Weekly | Religious (*Catholic*) | 1869 | 2 50 |
| | Midland Farmer | Monthly | Agricultural | 1870 | 50 |
| | Church News | do | Religious (*Episcopal*) | 1870 | 1 00 |
| | Illustrated Magazine | do | Literary | 1870 | 1 00 |
| | Inland Magazine | do | do | 1871 | 3 00 |
| | Southern Law Review | Bi-monthly | Law | 1872 | 5 00 |
| | Amerika | Daily (*morning*) | News and politics (*German*) | 1872 | 8 00 |
| | Amerika | Weekly | News and politics (*German*) | 1872 | 2 00 |
| | Sonntags Blatt | Sunday | News and politics (*German*) | 1872 | 2 00 |
| | Dry Goods and Grocery Reporter | Weekly | Commercial | 1872 | 3 00 |
| | American Medical Journal | Monthly | Medicine and surgery | 1873 | 2 00 |
| | Medical Brief | do | do | 1873 | 1 00 |
| | Clinical Record | do | do | 1874 | 2 00 |
| | Eclectic Medical Journal | do | do | 1874 | 2 00 |
| | Central Law Journal | Weekly | Law | 1874 | 5 00 |
| | Western | Bi-monthly | Literary | 1875 | 2 00 |
| | American Baptist Flag | Weekly | Religious (*Baptist*) | 1875 | 2 00 |
| | St. Louis Evangelist | Monthly | Religious (*Presbyterian*) | 1875 | 50 |
| | Texas Presbyterian | Weekly | Religious (*Presbyterian*) | 1876 | 2 50 |
| | El Comercio del Valle | Monthly | Commercial (*Spanish and English*) | 1876 | 2 00 |
| | National Tribune | Weekly | Educational | 1876 | 2 00 |
| | Volkstimme des Westens | Daily (*morning*) | News and politics (*German*) | 1877 | 10 00 |
| | Volkstimme des Westens | Weekly | News and politics (*German*) | 1877 | 2 00 |
| | Volkstimme des Westens | Sunday | News and politics (*German*) | 1877 | 2 00 |
| | St. Louis Practical Photographer | Monthly | Art | 1877 | 3 00 |
| | St. Louis Observer | Weekly | Religious (*Presbyterian*) | 1877 | 2 00 |
| | Student Life | Monthly | Collegiate | 1878 | 1 00 |
| | St. Louis Grocer | Weekly | Commercial | 1878 | 1 50 |
| | St. Louis Spirit | do | News and politics | 1878 | 2 00 |
| | Clinical Review | Monthly | Medicine and surgery | 1878 | 2 00 |
| | Le Patriote | Weekly | Miscellaneous (*French*) | 1878 | 2 50 |
| | Kunkel's Musical Review | Monthly | Music | 1878 | 1 50 |
| | St. Louis Brewer | do | Trade | 1878 | 1 50 |
| | St. Louis Miller | Semi-monthly | do | 1878 | 2 00 |
| | Hotel Reporter | Daily (*morning*) | Miscellaneous | 1878 | 12 00 |
| | Agriculturalist and Floral Guide (*a*) | Monthly | Agricultural | 1879 | ........ |
| | Exporter and Importer | do | Commercial | 1879 | 2 00 |
| | Handels Zeitung (*a*) | Weekly | Commercial (*German*) | 1879 | 2 00 |
| | Fonetic Teacher | Monthly | Educational | 1879 | 50 |
| | Missouri Workman (*c*) | do | Society | 1879 | 50 |
| | Overseer | do | Secret society | 1879 | 1 00 |
| | Humorist | Weekly | Miscellaneous (*German*) | 1879 | 1 50 |
| | Freedman's Journal (*d*) | Monthly | News and politics | 1879 | ........ |
| | Fireside Visitor | do | General literature | 1871 | 1 00 |
| | Railway Register | Weekly | Railroads | 1879 | ........ |
| | Christian at Home | do | Religious (*Unsectarian*) | 1879 | 1 50 |
| | Truth | Monthly | Religious (*Unsectarian*) | 1874 | 1 00 |
| | Jewish Tribune | Weekly | Religious (*Jewish*) | 1879 | 2 50 |
| | Courier of Medicine and Collateral Science | Monthly | Medicine and surgery | 1879 | 3 00 |
| | National Prohibitionist (*a*) | Weekly | Temperance | 1879 | ........ |
| | Western Live-Stock Journal | do | Trade | 1879 | 1 50 |

● Suspended. *b* Removed to Chester, Ill. *c* Merged in the "Overseer". *d* Suspended January, 1881.

## MISSOURI—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| SAINT LOUIS CITY—Continued | Hackstaff's Monthly | Monthly | Literary | 1880 | $2 50 |
| | Carondelet Advertiser | Weekly | News and politics | 1880 | 2 00 |
| | Hildreth's Weekly (*a*) | do | do | 1880 | 2 50 |
| SAINT LOUIS CO.—*Population:* 31,888. | | | | | |
| Clayton | Star-Republican | Weekly | News and politics | 1877 | 2 00 |
| | Clayton Democrat | do | do | 1879 | 2 00 |
| | Mt. Olive Mail (*b*) | do | do | 1877 | ....... |
| SALINE CO.—*Population:* 29,911. | | | | | |
| Brownsville | Brownsville Herald | Weekly | News and politics | 1874 | 1 50 |
| Marshall | Progress | Daily (*evening*) | do | 1865 | 4 00 |
| | Saline County Progress | Weekly | do | 1865 | 1 50 |
| | Saline County Democrat | do | do | 1872 | 2 00 |
| | Marshall News | do | do | 1879 | 1 00 |
| | Independent Missourian | do | do | 1880 | 1 00 |
| Miami | Miami Index | do | do | 1874 | 1 50 |
| Slater | Slater Sentinel (*c*) | do | do | 1879 | 1 50 |
| | Monitor | do | do | 1880 | 1 50 |
| SCHUYLER CO.—*Population:* 10,470. | | | | | |
| Glenwood | Criterion | Weekly | News and politics | 1870 | 1 50 |
| Lancaster | Excelsior | do | do | 1866 | 1 50 |
| SCOTLAND CO.—*Population:* 12,508. | | | | | |
| Memphis | Memphis Reveille | Weekly | News and politics | 1865 | 1 50 |
| | Memphis Conservator | do | do | 1866 | 1 50 |
| | Memphis Democrat | do | do | 1872 | 1 50 |
| | Memphis News | do | do | 1876 | 1 50 |
| | Greenback Tribune | do | do | 1879 | 1 50 |
| SCOTT CO.—*Population:* 8,587. | | | | | |
| Benton | Benton Dispatch | Weekly | News and politics | 1867 | 1 50 |
| | Benton Record | do | do | 1879 | 1 00 |
| | Benton Express | do | do | 1880 | 1 25 |
| SHANNON CO.—*Population:* 3,441. | | | | | |
| Eminence | Eminence Argus | Weekly | News and politics | 1874 | 1 25 |
| SHELBY CO.—*Population:* 14,024. | | | | | |
| Clarence | Clarence Tribune (*c*) | Weekly | News and politics | 1875 | 1 00 |
| Shelbina | Shelbina Democrat | do | do | 1868 | 1 50 |
| Shelbyville | Shelby County Herald | do | do | 1871 | 1 50 |
| STODDARD CO.—*Population:* 13,431. | | | | | |
| Bloomfield | Enterprise-Messenger | Weekly | News and politics | 1875 | 1 50 |
| | Vindicator | do | do | 1878 | 1 00 |
| Dexter | Christian Union | do | Religious (*Baptist*) | 1880 | 1 00 |
| STONE CO.—*Population:* 4,404. | | | | | |
| Galena | Galena Times | Weekly | News and politics | 1878 | 1 00 |
| SULLIVAN CO.—*Population:* 16,569. | | | | | |
| Milan | Sullivan Standard | Weekly | News and politics | 1872 | 1 50 |
| | Milan Republican | do | do | 1875 | 1 50 |
| | Milan Ventilator (*c*) | do | do | 1879 | ....... |
| TANEY CO.—*Population:* 5,599. | | | | | |
| Forsyth | White River Herald | Weekly | News and politics | 1879 | 1 00 |
| TEXAS CO.—*Population:* 12,206. | | | | | |
| Houston | Houston Democrat | Weekly | News and politics | 1873 | 1 00 |
| | Houston Herald | do | do | 1878 | 1 00 |
| VERNON CO.—*Population:* 19,369. | | | | | |
| Nevada | Vernon County Democrat | Weekly | News and politics | 1872 | 2 00 |
| | Nevada Ledger | do | do | 1873 | 1 50 |
| | Democrat-Criterion | do | do | 1879 | 1 00 |
| WARREN CO.—*Population:* 10,806. | | | | | |
| Warrenton | Missouri Banner | Weekly | News and politics | 1865 | 1 50 |
| | Warrenton Sentinel | do | do | 1880 | 1 50 |
| WASHINGTON CO.—*Population:* 12,896. | | | | | |
| Potosi | Potosi Independent | Weekly | News and politics | 1871 | 1 50 |
| WAYNE CO.—*Population:* 9,096. | | | | | |
| Greenville | Greenville Journal | Weekly | News and politics | 1877 | 1 00 |
| WEBSTER CO.—*Population:* 12,175. | | | | | |
| Marshfield | Webster County News | Weekly | News and politics | 1870 | 1 00 |
| | Marshfield Chronicle | do | do | 1877 | 1 50 |
| WORTH CO.—*Population:* 8,203. | | | | | |
| Grant City | Grant City Star | Weekly | News and politics | 1867 | 1 50 |
| | Worth County Times | do | do | 1873 | 1 50 |
| WRIGHT CO.—*Population:* 9,712. | | | | | |
| Hartville | Wright County Home Talk (*c*) | Weekly | News and politics | 1877 | 1 00 |

## MONTANA TERRITORY.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| BEAVER HEAD CO.—*Population:* 2,712. | | | | | |
| Glendale | Atlantis (*d*) | Weekly | News and politics | 1879 | $5 00 |
| CHOTEAU CO.—*Population:* 3,058. | | | | | |
| Fort Benton | Benton Record | Weekly | News and politics | 1875 | 5 00 |
| CUSTER CO.—*Population:* 2,510. | | | | | |
| Miles City | Yellowstone Journal | Weekly | News and politics | 1879 | 4 00 |

*a* Suspended May, 1880. *b* Merged with the "Town and Country", Providence, R. I. *c* Suspended. *d* Consolidated with "Inter-Mountain Freeman".

## MONTANA TERRITORY—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **DEER LODGE CO.**—*Population:* 8,876. | | | | | |
| Butte | Daily Miner | Daily (*morning*) | News and politics | 1879 | $18 00 |
| | Butte Miner | Weekly | do | 1876 | 5 00 |
| | Frontier Index (*a*) | do | do | 1850 | 5 00 |
| | Inter-Mountain Freeman | Sunday | do | 1850 | 5 00 |
| Deer Lodge City | New Northwest | Weekly | do | 1869 | 5 00 |
| **GALLATIN CO.**—*Population:* 3,643. | | | | | |
| Bozeman | Avant Courier | Weekly | News and politics | 1871 | 3 50 |
| **LEWIS AND CLARKE CO.**—*Population:* 6,521. | | | | | |
| Helena | Herald | Daily (*morning*) | News and politics | 1866 | 18 00 |
| | Herald | Weekly | do | 1866 | 5 00 |
| | Independent | Daily (*morning*) | do | 1867 | 24 00 |
| | Independent | Weekly | do | 1867 | 5 00 |
| | Morning Capital | Daily (*morning*) | do | 1880 | 10 00 |
| **MADISON CO.**—*Population:* 3,915. | | | | | |
| Sheridan | Messenger | Weekly | News and politics | 1879 | 3 00 |
| Virginia City | Madisonian | do | do | 1873 | 5 00 |
| **MEAGHER CO.**—*Population:* 2,743. | | | | | |
| White Sulphur Springs | Rocky Mountain Husbandman | Weekly | Agricultural | 1875 | 4 00 |
| **MISSOULA CO.**—*Population:* 2,537. | | | | | |
| Missoula | Weekly Missoulian | Weekly | News and politics | 1872 | 5 00 |

## NEBRASKA.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **ADAMS CO.**—*Population:* 10,235. | | | | | |
| Hastings | Adams County Gazette (*b*) | Weekly | News and politics | 1872 | $2 00 |
| | Hastings Journal | do | do | 1873 | 2 00 |
| | Central Nebraskan | Semi-weekly | do | 1878 | 2 00 |
| Juniata | Herald | Weekly | do | 1876 | 1 00 |
| **ANTELOPE CO.**—*Population:* 3,953. | | | | | |
| Elkhorn | Pen and Plow | Weekly | News and politics | 1877 | 1 50 |
| Neligh | Republican | do | do | 1879 | 2 00 |
| **BOONE CO.**—*Population:* 4,170. | | | | | |
| Albion | Boone County Argus | Weekly | News and politics | 1876 | 2 00 |
| | Boone County News | do | do | 1879 | 1 50 |
| **BUFFALO CO.**—*Population:* 7,531. | | | | | |
| Kearney | Central Nebraska Press | Weekly | News and politics | 1873 | 2 00 |
| | True Citizen (*c*) | do | do | 1877 | 2 00 |
| | Literary and Educational Notes | Semi-monthly during school year. | Educational | 1878 | 1 25 |
| | Kearney Nonpareil | Weekly | News and politics | 1878 | 2 00 |
| Shelton | Clarion | do | do | 1879 | 1 50 |
| **BURT CO.**—*Population:* 6,937. | | | | | |
| Tehamah | Burtonian | Weekly | News and politics | 1872 | 2 00 |
| | Burt County News | do | do | 1880 | 2 00 |
| **BUTLER CO.**—*Population:* 9,194. | | | | | |
| David City | Butler County Press | Weekly | News and politics | 1873 | 1 50 |
| | Republican | do | do | 1877 | 1 50 |
| Ulysses | Dispatch | do | do | 1880 | 1 50 |
| **CASS CO.**—*Population:* 16,683. | | | | | |
| Plattsmouth | Nebraska Herald | Weekly | News and politics | 1865 | 2 00 |
| | Daily Enterprise | Daily (*evening*) | do | 1879 | 7 00 |
| | Cass County Democrat (*d*) | Weekly | do | 1880 | 1 50 |
| | Courant (*e*) | do | do | 1880 | ........ |
| **CEDAR CO.**—*Population:* 2,899. | | | | | |
| Saint Helena | Cedar County Nonpareil | Weekly | News and politics | 1878 | 2 00 |
| **CHEYENNE CO.**—*Population:* 1,558. | | | | | |
| Sidney | Sidney Telegraph | Weekly | News and politics | 1873 | 2 00 |
| | Sidney Plaindealer | do | do | 1878 | 2 00 |
| **CLAY CO.**—*Population:* 11,294. | | | | | |
| Edgar | Review | Weekly | News and politics | 1879 | 1 50 |
| Fairfield | News | do | do | 1877 | 2 00 |
| Harvard | Sentinel | do | do | 1878 | 1 50 |
| | Clay County Journal | do | do | 1879 | 1 50 |
| Sutton | Clay County Globe | do | do | 1875 | 1 50 |
| | Register | do | do | 1880 | 1 50 |
| **COLFAX CO.**—*Population:* 6,588. | | | | | |
| Schuyler | Schuyler Sun | Weekly | News and politics | 1871 | 1 50 |
| | Schuyler News | do | do | 1878 | 1 50 |
| **CUMING CO.**—*Population:* 5,569. | | | | | |
| West Point | Nebraska Volksblatt and Staats-Zeitung | Weekly | News and politics (*German*) | 1867 | 2 00 |
| | West Point Republican | do | News and politics | 1870 | 2 00 |
| | West Point Progress | do | do | 1876 | 2 00 |
| **DAKOTA CO.**—*Population:* 3,213. | | | | | |
| Dakota City | North Nebraska Eagle | Weekly | News and politics | 1876 | 2 00 |
| | North Nebraska Argus | do | do | 1880 | 2 00 |
| Jackson | Jackson Reporter (*f*) | do | do | ........ | ........ |

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*a* Consolidated with "Inter-Mountain Freeman".
*b* Consolidated with "Journal".
*c* Suspended October, 1879.
*d* Suspended March, 1880.
*e* Suspended October, 1880.
*f* Suspended January, 1880.

## NEBRASKA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| DAWSON CO.—*Population:* 2,909. | | | | | |
| Cozad | Hundredth Meridian | Weekly | News and politics | 1875 | $1 00 |
| Plum Creek | Dawson County Pioneer | do | do | 1873 | 2 00 |
| DIXON CO.—*Population:* 4,177. | | | | | |
| Ponca City | Northern Nebraska Journal | Weekly | News and politics | 1873 | 2 00 |
| | Dixon County Courier | do | do | 1877 | 2 00 |
| DODGE CO.—*Population:* 11,263. | | | | | |
| Fremont | Fremont Tribune | Weekly | News and politics | 1867 | 2 00 |
| | Herald | Daily (*evening*) | do | 1870 | 6 00 |
| | Herald | Weekly | do | 1870 | 2 00 |
| | Nebraska Pionier | do | News and politics (*German*) | 1879 | 2 00 |
| North Bend | North Bend Bulletin | do | News and politics | 1879 | 1 50 |
| DOUGLAS CO.—*Population:* 37,645. | | | | | |
| Omaha | Omaha Republican | Daily (*morning*) | News and politics | 1858 | 10 00 |
| | Omaha Republican | Weekly | do | 1858 | 1 50 |
| | Omaha Post | Daily (*evening*) | News and politics (*German*) | 1860 | 8 00 |
| | Omaha Post | Weekly | News and politics (*German*) | 1860 | 2 00 |
| | Omaha Herald | Daily (*morning*) | News and politics | 1865 | 10 00 |
| | Omaha Herald | Weekly | do | 1865 | 1 50 |
| | Rural Nebraska | Monthly | Agricultural | 1868 | 1 00 |
| | Center Union Agriculturist | Weekly | do | 1869 | 1 50 |
| | Nebraska Watchman | do | News and politics | 1870 | 2 00 |
| | Pokrok Zapadu | do | News and politics (*Bohemian*) | 1871 | 2 20 |
| | Omaha Bee | Daily (*morning*) | News and politics | 1871 | 8 00 |
| | Omaha Bee | Daily (*evening*) | do | 1871 | 8 00 |
| | Omaha Bee | Weekly | do | 1871 | 2 00 |
| | Den Danske Pioneer | do | News and politics (*Danish*) | 1872 | 2 25 |
| | Omaha Home Journal | Monthly | Literary | 1872 | 1 00 |
| | Church Guardian | do | Religious (*Protestant Episcopal*) | 1873 | 50 |
| | Evening News (*a*) | Daily (*evening*) | News and politics | 1878 | 7 00 |
| | Westra Posten | Weekly | News and politics (*Swedish*) | 1879 | 2 00 |
| | Portfolio | do | News and politics | 1879 | 1 00 |
| | Western Templar and Home Magazine (*b*) | Monthly | Literary | | |
| | Der Courier | Weekly | News and politics (*German*) | 1879 | 2 00 |
| | Journal of Commerce (*c*) | do | Commercial | 1876 | 2 00 |
| Waterloo | Waterloo Sentinel | do | News and politics | 1879 | 1 50 |
| FILLMORE CO.—*Population:* 10,204. | | | | | |
| Exeter | Exeter Enterprise | Weekly | News and politics | 1877 | 1 50 |
| Fairmont | Fairmont Bulletin | do | do | 1872 | 1 50 |
| Geneva | Fillmore County Review | do | do | 1875 | 1 50 |
| FRANKLIN CO.—*Population:* 5,465. | | | | | |
| Bloomington | Bloomington Guard | Weekly | News and politics | 1872 | 1 50 |
| Naponee | Naponee Banner | do | do | 1879 | 1 50 |
| Riverton | Riverton Eagle | do | do | 1879 | 1 50 |
| FURNAS CO.—*Population:* 6,407. | | | | | |
| Arapahoe | Arapahoe Pioneer | Weekly | News and politics | 1879 | 2 00 |
| Beaver City | Beaver City Times | do | do | 1875 | 1 50 |
| GAGE CO.—*Population:* 13,164. | | | | | |
| Beatrice | Beatrice Express | Weekly | News and politics | 1870 | 2 00 |
| | Beatrice Courier | do | do | 1875 | 2 00 |
| | Beatrice Leader | do | do | 1879 | 2 00 |
| | Gage County Democrat | do | do | 1879 | 2 00 |
| Blue Springs | Blue Springs Motor | do | do | 1878 | 1 50 |
| | Blue Springs Reporter | do | do | 1879 | 1 00 |
| GREELEY CO.—*Population:* 1,461. | | | | | |
| Scotia | Greeley Tribune | Weekly | News and politics | 1878 | 2 00 |
| HALL CO.—*Population:* 8,572. | | | | | |
| Grand Island | Platte Valley Independent | Weekly | News and politics | 1869 | 2 00 |
| | Grand Island Times | do | do | 1873 | 1 50 |
| | Nebraska Staats-Zeitung Tribuene (*d*) | do | News and politics (*German*) | 1879 | 2 00 |
| | Our Commonwealth (*e*) | do | News and politics | 1878 | |
| | Nebraska Democrat | Daily (*evening*) | do | 1880 | 5 00 |
| | Nebraska Democrat | Weekly | do | 1879 | 2 00 |
| HAMILTON CO.—*Population:* 8,267. | | | | | |
| Aurora | Aurora Republican | Weekly | News and politics | 1873 | 1 50 |
| | Hamilton County News | do | do | 1873 | 1 50 |
| HARLAN CO.—*Population:* 6,086. | | | | | |
| Alma | Harlan County Standard (*d*) | Weekly | News and politics | 1879 | 1 50 |
| Orleans | Republican Valley Sentinel | do | do | 1873 | 1 50 |
| Republican City | Republican City News | do | do | 1874 | 1 00 |
| HITCHCOCK CO.—*Population:* 1,012. | | | | | |
| Culbertson | Culbertson Sun | Weekly | News and politics | 1880 | 1 50 |
| HOLT CO.—*Population:* 3,287. | | | | | |
| O'Neill City | Holt County Record | Weekly | News and politics | 1879 | 1 50 |
| HOWARD CO.—*Population:* 4,391. | | | | | |
| Saint Paul | Howard Advocate | Weekly | News and politics | 1873 | 2 00 |
| | Phonograph | do | do | 1878 | 2 00 |
| JEFFERSON CO.—*Population:* 8,096. | | | | | |
| Fairbury | Fairbury Gazette | Weekly | News and politics | 1870 | 2 00 |
| | Fairbury Telegraph (*f*) | do | do | 1879 | 2 00 |
| Steel City | Southern Nebraska Advance | do | do | 1879 | 1 50 |
| JOHNSON CO.—*Population:* 7,595. | | | | | |
| Sterling | Sterling News | Weekly | News and politics | 1877 | 2 00 |
| Tecumseh | Tecumseh Chieftain | do | do | 1869 | 2 00 |
| | Johnson County Journal | do | do | 1879 | 2 00 |

*a* Suspended June, 1880.
*b* Suspended 1879.
*c* Suspended July, 1880.
*d* Suspended since census year.
*e* Suspended July, 1879.
*f* Removed to Hubbell, Thayer county, after census year and published as the "Times".

## NEBRASKA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| KEARNEY CO.—*Population: 4,072.* | | | | | |
| Minden | Kearney County Bee | Weekly | News and politics | 1878 | $1 50 |
| KNOX CO.—*Population: 3,666.* | | | | | |
| Niobrara | Niobrara Pioneer | Weekly | News and politics | 1874 | 2 00 |
| | Knox County News | do | do | 1879 | 1 50 |
| LANCASTER CO.—*Population: 28,090.* | | | | | |
| Firth | Firth Advertiser (*a*) | Weekly | News and politics | 1879 | |
| Lincoln | Nebraska State Journal | Daily (*morning*) | do | 1869 | 10 00 |
| | Nebraska State Journal | Weekly | do | 1869 | 2 00 |
| | Hesperian Student | Monthly | Collegiate | 1872 | 1 00 |
| | Daily Globe | Daily (*evening*) | News and politics | 1876 | 5 00 |
| | Lincoln Globe | Weekly | do | 1876 | 1 00 |
| | Nebraska Farmer | Monthly | Agricultural | 1877 | 1 50 |
| | Western World | Weekly | News and politics | 1878 | 1 50 |
| | State Democrat | Daily (*evening*) | do | 1879 | 7 00 |
| | State Democrat | Weekly | do | 1879 | 1 00 |
| LINCOLN CO.—*Population: 3,632.* | | | | | |
| North Platte | North Platte Republican | Weekly | News and politics | 1868 | 2 00 |
| | Western Nebraskian | do | do | 1874 | 2 00 |
| MADISON CO.—*Population: 5,589.* | | | | | |
| Madison | Madison County Chronicle | Weekly | News and politics | 1878 | 1 50 |
| Norfolk | Norfolk Journal | do | do | 1877 | 2 00 |
| | Norfolk Deutsche Zeitung (*a*) | do | News and politics (*German*) | | |
| MERRICK CO.—*Population: 5,341.* | | | | | |
| Central City | Central City Courier | Weekly | News and politics | 1874 | 2 00 |
| | Merrick County Item | do | do | 1880 | 1 50 |
| Clarksville | Clarksville Messenger | do | do | 1878 | 2 00 |
| NANCE CO.—*Population: 1,212.* | | | | | |
| Fullerton | Nance County Journal | Weekly | News and politics | 1879 | 1 50 |
| Genoa | Genoa Leader | do | do | 1879 | 1 50 |
| NEMAHA CO.—*Population: 10,451.* | | | | | |
| Brownville | Nebraska Advertiser | Weekly | News and politics | 1855 | 2 00 |
| | Nebraska County Granger | do | do | 1874 | 2 00 |
| Nemaha City | Nemaha Times | do | do | 1880 | 1 50 |
| Peru | Peru Herald | do | do | 1877 | 1 50 |
| Sheridan | Sheridan Post | do | do | 1879 | 1 50 |
| NUCKOLLS CO.—*Population: 4,235.* | | | | | |
| Nelson | Nuckolls County Herald | Weekly | News and politics | 1877 | 2 00 |
| Superior | Superior Guide | do | do | 1879 | 1 75 |
| | Southwestern Chronicle | do | do | 1879 | 1 50 |
| OTOE CO.—*Population: 15,727.* | | | | | |
| Nebraska | Daily News | Daily (*evening*) | News and politics | 1879 | 7 00 |
| | News | Weekly | do | 1854 | 2 00 |
| | Nebraska Press | Daily (*morning*) | do | 1858 | 12 00 |
| | Nebraska Press | Weekly | do | 1858 | 2 00 |
| | Nebraska Sun (*b*) | Daily (*evening*) | do | | |
| | Nebraska Staats-Zeitung | Weekly | News and politics (*German*) | 1867 | 1 50 |
| Syracuse | Syracuse Journal | do | News and politics | 1878 | 1 50 |
| PAWNEE CO.—*Population: 6,920.* | | | | | |
| Pawnee City | Pawnee Republican | Weekly | News and politics | 1868 | 2 00 |
| | Pawnee Enterprise | do | do | 1877 | 2 00 |
| PIERCE CO.—*Population: 1,202.* | | | | | |
| Pierce | Pierce County Call | Weekly | News and politics | 1877 | 2 00 |
| PLATTE CO.—*Population: 9,511.* | | | | | |
| Columbus | Columbus Journal | Weekly | News and politics | 1870 | 2 00 |
| | Columbus Era (*c*) | do | do | 1874 | 1 50 |
| | Columbus Volksblatt | do | News and politics (*German*) | 1878 | 2 00 |
| | Columbus Independent (*a*) | do | News and politics | 1879 | 1 00 |
| POLK CO.—*Population: 6,846.* | | | | | |
| Osceola | Osceola Record | Weekly | News and politics | 1873 | 1 50 |
| | Osceola Home News | do | do | 1879 | 1 50 |
| Stromsburg | Stromsburg Republican | do | do | 1880 | 1 50 |
| RED WILLOW CO.—*Population: 3,044.* | | | | | |
| Indianola | Indianola Courier | Weekly | News and politics | 1880 | 2 00 |
| RICHARDSON CO.—*Population: 15,031.* | | | | | |
| Falls City | Globe Journal | Weekly | News and politics | 1868 | 2 00 |
| | Falls City News | do | do | 1879 | 1 50 |
| Humboldt | Humboldt Sentinel | do | do | 1877 | 2 00 |
| SALINE CO.—*Population: 14,491.* | | | | | |
| Crete | Saline County Union | Weekly | News and politics | 1870 | 1 50 |
| | Freie Stimmen aus Reiche Gottes | do | Religious (*German; Congregational*) | 1878 | 1 00 |
| | Das Schatz Kästchen | Monthly | Sunday school periodical (*German*) | 1878 | 20 |
| | Saline County Standard | Weekly | News and politics | 1879 | 1 00 |
| Friendville | Friendville Telegraph | do | do | 1879 | 1 50 |
| Wilber | Wilber Opposition | do | do | 1874 | 1 50 |
| | Free Press (*d*) | do | do | 1877 | 1 50 |
| | Wilber Beseda (*a*) | do | do | 1877 | 2 50 |
| SARPY CO.—*Population: 4,481.* | | | | | |
| Papillion | Papillion Times | Weekly | News and politics | 1874 | 1 50 |
| SAUNDERS CO.—*Population: 15,810.* | | | | | |
| Ashland | Ashland Gazette (*e*) | Weekly | News and politics | 1880 | 1 50 |
| Valparaiso | Valparaiso Avalanche | do | do | 1879 | 1 50 |
| Wahoo City | Wahoo Times | do | do | 1870 | 2 00 |
| | Wahoo Independent | do | do | 1875 | 1 50 |

*a* Suspended 1880. *b* Suspended May, 1880. *c* Suspended October, 1880. *d* Destroyed by fire in February, 1881. *e* Changed from "Reporter" to "Gazette", July, 1880.

## NEBRASKA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| SEWARD CO.—*Population:* 11,147. | | | | | |
| Seward | Nebraska Atlas | Weekly | News and politics | 1870 | $1 50 |
| | Nebraska Reporter | do | do | 1871 | 2 00 |
| | Blue Valley Blade | do | do | 1878 | 2 00 |
| SHERMAN CO.—*Population:* 2,061. | | | | | |
| Long City | Sherman County Times | Weekly | News and politics | 1874 | 2 00 |
| STANTON CO.—*Population:* 1,813. | | | | | |
| Stanton | Weekly Register | Weekly | News and politics | 1879 | 1 50 |
| THAYER CO.—*Population:* 6,113. | | | | | |
| Alexandria | Alexandria News | Weekly | News and politics | 1878 | 2 00 |
| Belvidere | Belvidere Sentinel (*a*) | do | do | 1879 | ........ |
| Hebron | Thayer County Sentinel | do | do | 1866 | 2 00 |
| | Hebron Journal | do | do | 1871 | 2 00 |
| VALLEY CO.—*Population:* 2,324. | | | | | |
| Ord | Valley County Journal | Weekly | News and politics | 1879 | 2 00 |
| WASHINGTON CO.—*Population:* 8,631. | | | | | |
| Blair | Blair Republican | Weekly | News and politics | 1870 | 2 00 |
| | Blair Pilot | do | do | 1872 | 2 00 |
| WAYNE CO.—*Population:* 813. | | | | | |
| La Porte | Wayne Review | Weekly | News and politics | 1875 | 1 50 |
| WEBSTER CO.—*Population:* 7,104. | | | | | |
| Red Cloud | Red Cloud Chief | Weekly | News and politics | 1873 | 1 50 |
| | Webster County Argus | do | do | 1878 | 1 50 |
| YORK CO.—*Population:* 11,170. | | | | | |
| Waco | Waco Star (*b*) | Weekly | News and politics | 1880 | ........ |
| York | York Republican | do | do | 1876 | 1 50 |

## NEVADA.

| | | | | | |
|---|---|---|---|---|---|
| ELKO CO.—*Population:* 5,716. | | | | | |
| Elko | Elko Post | Weekly | News and politics | 1875 | $5 00 |
| | Independent | Daily (*evening*) | do | 1874 | 10 00 |
| | Independent | Weekly | do | 1869 | 5 00 |
| Tuscarora | Times-Review | Daily (*morning*) | do | 1877 | 15 00 |
| ESMERALDA CO.—*Population:* 3,220. | | | | | |
| Aurora | Esmeralda Herald | Weekly | News and politics | 1877 | 5 00 |
| Columbus | Borax Miner (*c*) | do | do | 1879 | 5 00 |
| EUREKA CO.—*Population:* 7,086. | | | | | |
| Eureka | Daily Sentinel | Daily (*morning*) | News and politics | 1870 | 15 00 |
| | Eureka Sentinel | Weekly | do | 1879 | 5 00 |
| | Daily Leader | Daily (*evening*) | do | 1878 | 15 00 |
| Ruby Hill | Mining News | Weekly | Mining | 1880 | 5 00 |
| | Mining Report (*d*) | do | do | 1878 | 5 00 |
| HUMBOLDT CO.—*Population:* 3,480. | | | | | |
| Paradise | Paradise Reporter | Weekly | News and politics | 1879 | 4 00 |
| Winnemucca | Silver State | Daily (*evening*) | do | 1869 | 8 00 |
| LANDER CO.—*Population:* 3,624. | | | | | |
| Austin | Reese River Reveille | Daily (*evening*) | News and politics | 1863 | 14 00 |
| Battle Mountain | Battle Mountain Messenger | Weekly | do | 1877 | 5 00 |
| LINCOLN CO.—*Population:* 2,637. | | | | | |
| Pioche | Pioche Record | Weekly | News and politics | 1870 | 5 00 |
| LYON CO.—*Population:* 2,409. | | | | | |
| Dayton | Lyon County Times | Weekly | News and politics | 1874 | 5 00 |
| Sutro | Sutro Independent (*e*) | do | do | 1874 | 5 00 |
| NYE CO.—*Population:* 1,875. | | | | | |
| Belmont | Belmont Courier | Weekly | News and politics | 1874 | 8 00 |
| Grantsville | Grantsville Sun (*d*) | do | do | 1874 | 5 00 |
| | Grantsville Bonanza | do | do | 1874 | 5 00 |
| ORMSBY CO.—*Population:* 5,412. | | | | | |
| Carson City | Morning Appeal | Daily (*morning*) | News and politics | 1865 | 8 00 |
| | Nevada Tribune | Daily (*evening*) | do | 1872 | 10 00 |
| | Carson City Daily Times | Daily (*evening*) | do | 1880 | 10 00 |
| STOREY CO.—*Population:* 16,115. | | | | | |
| Gold Hill | Daily News | Daily (*evening*) | News and politics | 1863 | 8 00 |
| Virginia City | Territorial Enterprise | Daily (*morning*) | do | 1858 | 10 00 |
| | Territorial Enterprise | Weekly | do | 1858 | 3 00 |
| | Evening Chronicle | Daily (*evening*) | do | 1872 | 8 00 |
| | Virginia City Chronicle | Weekly | do | 1872 | 2 00 |
| | Nevada Monthly | Monthly | do | 1880 | 2 50 |
| WASHOE CO.—*Population:* 5,664. | | | | | |
| Reno | Nevada State Journal | Daily (*morning*) | News and politics | 1870 | 6 00 |
| | Nevada State Journal | Weekly | do | 1870 | 2 50 |
| | Evening Gazette | Daily (*evening*) | do | 1876 | 6 00 |
| | Reno Gazette | Weekly | do | 1876 | 2 50 |
| WHITE PINE CO.—*Population:* 2,682. | | | | | |
| Cherry Creek | Cherry Creek Independent (*f*) | Weekly | News and politics | 1877 | 10 00 |
| Hamilton | White Pine News | do | do | 1869 | 5 00 |
| Ward | Ward Reflex | do | do | 1877 | 7 50 |

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*a* Edition of "Thayer County Sentinel".
*b* Suspended April, 1880.
*c* Removed December 10, 1880, to Monmouth City.
*d* Suspended.
*e* Suspended December 18, 1880.
*f* Suspended March 31, 1880.

## NEW HAMPSHIRE.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| BELKNAP CO.—*Population:* 17,948. | | | | | |
| Laconia | Laconia Democrat | Weekly | News and politics | 1849 | $1 50 |
| Lake Village | Lake Village Times | do | do | 1868 | 1 50 |
| Meredith | Meredith Eagle | do | do | 1880 | 1 00 |
| CARROLL CO.—*Population:* 18,224. | | | | | |
| North Conway | White Mountain Record | Weekly | News and politics | 1879 | 1 50 |
| Wolfeborough | Granite State News | do | do | 1859 | 1 50 |
| CHESHIRE CO.—*Population:* 28,734. | | | | | |
| Fitzwilliam | Fitzwilliam Gazette (*a*) | Weekly | News and politics | 1879 | 1 50 |
| Hinsdale | Star Spangled Banner | Monthly | Literary | 1863 | 50 |
| Keene | Cheshire Republican | Weekly | News and politics | 1793 | 1 50 |
| | New Hampshire Sentinel | do | do | 1799 | 1 50 |
| | Granite State Journal (*b*) | do | do | 1869 | 3 00 |
| | New England Observer (*c*) | do | do | 1874 | 1 25 |
| Troy | Home Companion (*d*) | Monthly | Literary | 1872 | 40 |
| COOS CO.—*Population:* 18,580. | | | | | |
| Colebrook | Northern Sentinel | Weekly | News and politics | 1870 | 1 50 |
| | Colebrook News | do | do | 1876 | 1 50 |
| Gorham | Mountaineer | do | do | 1877 | 1 50 |
| Lancaster | Coos Republican | do | do | 1855 | 1 25 |
| | Lancaster Gazette | do | do | 1872 | 1 25 |
| GRAFTON CO.—*Population:* 38,788. | | | | | |
| Bristol | Bristol Enterprise | Weekly | News and politics | 1878 | 1 25 |
| East Canaan | Canaan Reporter | do | do | 1867 | 1 00 |
| Hanover | Dartmouth | Bi-weekly | Collegiate | 1867 | 2 00 |
| | Granite State Journal (*b*) | Weekly | News and politics | 1869 | 3 00 |
| Haverhill | Haverhill Herald | do | do | 1879 | 1 00 |
| Lebanon | Granite State Free Press | do | do | 1844 | 1 25 |
| | Kendall's Dollar Weekly (*e*) | do | do | 1879 | 1 00 |
| Lisbon | Globe | do | do | 1877 | 1 25 |
| Littleton | White Mountain Republic | do | do | 1867 | 1 25 |
| Muscoma | Muscoma Register (*f*) | do | do | 1876 | 1 50 |
| Plymouth | Grafton County Journal | do | do | 1874 | 1 25 |
| | Grafton County Democrat | do | do | 1878 | 1 00 |
| HILLSBOROUGH CO.—*Population:* 75,634. | | | | | |
| Amherst | Farmers' Cabinet | Weekly | News and politics | 1802 | 1 25 |
| Greenville | Greenville Advertiser | do | do | 1879 | 1 00 |
| Hillsborough | Hillsborough Messenger | do | do | 1867 | 1 25 |
| Manchester | Mirror and American | Daily (*evening*) | do | 1850 | 6 00 |
| | Mirror and Farmer | Weekly | do | 1850 | 1 00 |
| | Daily Union | Daily (*morning*) | do | 1863 | 6 00 |
| | Daily Union | Daily (*evening*) | do | 1863 | 6 00 |
| | Union Democrat | Weekly | do | 1851 | 1 25 |
| | Whitney's New Hampshire Journal of Music (*g*) | Monthly | Musical | 1872 | 1 00 |
| | Manchester Weekly Times | Weekly | News and politics | 1878 | 1 50 |
| | Greenback Press (*g*) | do | do | 1880 | 1 00 |
| Milford | Milford Enterprise | do | do | 1873 | 1 50 |
| Nashua | Daily Gazette | Daily (*evening*) | do | 1872 | 5 00 |
| | Nashua Gazette | Weekly | do | 1826 | 1 50 |
| | Telegraph | Daily (*evening*) | do | 1869 | 5 00 |
| | Telegraph | Weekly | do | 1832 | 1 50 |
| Peterborough | Peterborough Transcript | do | do | 1849 | 1 50 |
| Wilton | Wilton Journal | do | do | 1873 | 1 50 |
| MERRIMACK CO.—*Population:* 46,300. | | | | | |
| Concord | Daily Monitor | Daily (*evening*) | News and politics | 1863 | 6 00 |
| | Independent Statesman | Weekly | do | 1823 | 2 00 |
| | People and New Hampshire Patriot (*h*) | Daily (*evening*) | do | 1868 | 6 00 |
| | People and New Hampshire Patriot (*h*) | Weekly | do | 1809 | 1 25 |
| | Granite Monthly | Monthly | Literary | 1879 | 1 50 |
| Dunbarton | Snow Flake | Semi-monthly | do | 1877 | 30 |
| Fisherville | Rays of Light | Weekly | News and politics | 1874 | 1 00 |
| Franklin Falls | Merrimack Journal | do | Agricultural | 1872 | 2 00 |
| Suncook | Suncook Journal | do | News and politics | 1874 | 1 25 |
| Wilmot | Kearsarge Sentinel | do | do | 1879 | 1 00 |
| ROCKINGHAM CO.—*Population:* 49,064. | | | | | |
| Candia | Candia Banner | Weekly | News and politics | 1877 | 1 00 |
| Exeter | News-Letter | do | do | 1831 | 1 50 |
| | Exeter Gazette | do | do | 1876 | 1 25 |
| New Market | New Market Advertiser | do | do | 1873 | 1 50 |
| Portsmouth | Daily Chronicle | Daily (*morning*) | do | 1852 | 6 00 |
| | New Hampshire Gazette | Weekly | do | 1756 | 1 50 |
| | Portsmouth Journal | do | do | 1793 | 2 00 |
| | Evening Times | Daily (*evening*) | do | 1868 | 5 00 |
| | States and Union | Weekly | do | 1863 | 1 50 |
| | Portsmouth Weekly | do | do | 1877 | 1 50 |
| STRAFFORD CO.—*Population:* 35,558. | | | | | |
| Dover | Morning Star | Weekly | Religious (*Baptist*) | 1826 | 2 00 |
| | Little Star | Semi-monthly | Religious (*Baptist*) | 1826 | 25 |
| | Myrtle | do | Religious (*Baptist*) | 1826 | 25 |
| | Sunday School Lesson Sheet | Monthly | Children's periodical | 1826 | 05 |
| | Weekly Enquirer | Weekly | News and politics | 1828 | 1 50 |
| | Foster's Democrat | Daily (*evening*) | do | 1873 | 5 00 |
| | Foster's Democrat | Weekly | do | 1872 | 1 10 |
| | State Press | do | do | 1874 | 1 00 |
| | Reform Templar | Monthly | Temperance | 1878 | 25 |
| Farmington | Advertiser (*i*) | Weekly | News and politics | 1876 | 1 75 |
| | Farmington News | do | do | 1879 | 1 00 |
| Rochester | Rochester Courier | do | do | 1864 | 1 50 |
| | Anti-Monopolist | do | do | 1878 | 1 00 |
| Somersworth | Great Falls Journal | do | do | 1867 | 1 50 |
| | Great Falls Free Press | do | do | 1876 | 1 50 |

*a* Suspended October, 1880.
*b* Edition of the Windsor (Vt.) "Journal".
*c* Edition of the "Grafton County Journal".
*d* Edition of the "Peterborough Transcript".
*e* Consolidated with "Free Press" December, 1879.
*f* Edition of "East Canaan Reporter".
*g* Suspended June, 1880.
*h* Established as "The Patriot".
*i* Suspended.

## NEW HAMPSHIRE—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **SULLIVAN CO.**—*Population:* 18,161. | | | | | |
| Claremont | National Eagle | Weekly | News and politics | 1835 | $1 25 |
| | Northern Advocate | do | do | 1861 | 1 25 |
| | Granite State Journal (*a*) | do | do | 1869 | 3 00 |
| | Claremont Narrative | Monthly | Literary | 1870 | 50 |
| Newport | Argus and Spectator | Weekly | News and politics | 1823 | 1 25 |

## NEW JERSEY.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **ATLANTIC CO.**—*Population:* 18,704. | | | | | |
| Atlantic City | Atlantic Review (*b*) | Weekly | News and politics | 1872 | $2 00 |
| | Atlantic Times (*b*) | do | do | 1877 | 1 50 |
| Egg Harbor | Der Egg Harbor Pilot | do | News and politics (*German*) | 1858 | 2 50 |
| | Atlantic Democrat | do | News and politics | 1861 | 1 50 |
| | Der Zeitgeist | do | News and politics (*German*) | 1867 | 2 00 |
| | Atlantic Journal | do | News and politics | 1871 | 2 00 |
| Hammonton | South Jersey Republican | do | do | 1862 | 1 25 |
| | Hammonton Hornet | do | do | 1878 | 50 |
| May's Landing | May's Landing Record | do | do | 1877 | 1 50 |
| **BERGEN CO.**—*Population:* 36,786. | | | | | |
| Carlstadt | Freie Presse | Weekly | News and politics (*German*) | 1873 | 2 00 |
| Englewood | Englewood Times | do | News and politics | 1874 | 2 00 |
| | Englewood Standard | do | do | 1879 | 1 50 |
| Hackensack | Bergen County Democrat | do | do | 1861 | 2 00 |
| | Hackensack Republican | do | do | 1870 | 2 00 |
| | Bergen Index | Semi-weekly | do | 1875 | 2 00 |
| Rutherford | Bergen County Herald | Weekly | do | 1872 | 2 00 |
| **BURLINGTON CO.**—*Population:* 55,402. | | | | | |
| Beverly | Beverly Visitor | Weekly | News and politics | 1869 | 1 20 |
| | Beverly Banner | do | do | 1878 | 1 50 |
| | County Practitioner | Monthly | Medicine and surgery | 1879 | 2 00 |
| Bordentown | Bordentown Register | Weekly | News and politics | 1845 | 1 50 |
| Burlington | Burlington Gazette | do | do | 1835 | 1 50 |
| | New Jersey Enterprise | do | do | 1866 | 2 00 |
| Cinnaminson | Christian Herald | Monthly | Religious (*Unsectarian*) | 1878 | 50 |
| Moorestown | Moorestown Chronicle | Weekly | News and politics | 1879 | 1 50 |
| Mount Holly | New Jersey Mirror | do | do | 1818 | 2 00 |
| | Mount Holly Herald | do | do | 1826 | 2 00 |
| | Mount Holly News | Semi-weekly | do | 1879 | 1 00 |
| Smithville | Smithville Mechanic | Weekly | do | 1870 | 1 00 |
| **CAMDEN CO.**—*Population:* 62,942. | | | | | |
| Atco | Argus and Advocate | Weekly | News and politics | 1878 | 1 50 |
| Camden | Science Advocate | Quarterly | Science and mechanics | 1880 | 15 |
| | West Jersey Press | Weekly | News and politics | 1820 | 2 00 |
| | Camden Democrat | do | do | 1832 | 2 00 |
| | Camden County Courier | do | do | 1875 | 2 00 |
| | Daily Post | Daily (*evening*) | do | 1875 | 3 00 |
| | Every Month (*c*) | Monthly | Literary | 1879 | 1 00 |
| | Weekly News | Weekly | News and politics | 1880 | 50 |
| | Saturday Evening Express | do | do | 1879 | ...... |
| | Camden Eagle (*d*) | do | do | ...... | ...... |
| Gloucester | Gloucester Reporter | do | do | 1874 | 1 50 |
| **CAPE MAY CO.**—*Population:* 9,765. | | | | | |
| Cape May | Cape May Wave (*b*) | Weekly | News and politics | 1855 | 1 50 |
| | Star of the Cape (*b*) | do | do | 1868 | 1 50 |
| | Cape May County Gazette | do | do | 1880 | 1 00 |
| **CUMBERLAND CO.**—*Population:* 37,687. | | | | | |
| Bridgeton | Bridgeton Chronicle | Weekly | News and politics | 1815 | 2 00 |
| | West Jersey Pioneer | do | do | 1847 | 1 50 |
| | New Jersey Patriot | do | do | 1865 | 2 00 |
| | Evening News | Daily (*evening*) | do | 1879 | 3 00 |
| | Dollar News | Weekly | do | 1874 | 1 00 |
| | Florists' Advertiser (*e*) | Monthly | Agricultural | ...... | 1 00 |
| Mauricetown | Mauricetown Pilot | Weekly | News and politics | 1878 | 1 00 |
| Millville | Millville Republican | do | do | 1864 | 1 50 |
| | Millville Herald | do | do | 1872 | 1 50 |
| Vineland | Vineland Independent | do | do | 1866 | 1 50 |
| | Evening Journal (*f*) | Daily (*evening*) | do | 1875 | 2 00 |
| | Vineland Advocate | Weekly | do | 1879 | 50 |
| | Vineland Times | Daily (*morning*) | do | 1877 | 3 00 |
| **ESSEX CO.**—*Population:* 189,929. | | | | | |
| Bloomfield | Bloomfield Record | Weekly | News and politics | 1873 | 1 50 |
| East Orange | East Orange Gazette | do | do | 1873 | 2 00 |
| Mont Clair | Mont Clair Times | do | do | 1877 | 2 00 |
| Newark | Daily Advertiser | Daily (*evening*) | do | 1832 | 9 00 |
| | Sentinel of Freedom | Weekly | do | 1796 | 2 00 |
| | American Church Review (*g*) | Bi-monthly | Religious (*Protestant Episcopal*) | 1848 | 2 00 |
| | Daily Journal | Daily (*evening*) | News and politics | 1857 | 8 00 |
| | Weekly Journal | Weekly | do | 1857 | 2 00 |
| | New Jersey Freie Zeitung | Daily (*morning*) | News and politics (*German*) | 1858 | 7 00 |
| | New Jersey Freie Zeitung | Weekly | News and politics (*German*) | 1858 | 2 00 |
| | Der Erzaehker | Sunday | News and politics (*German*) | 1858 | 2 00 |
| | Morning Register | Daily (*morning*) | News and politics | 1869 | 5 00 |
| | Sunday Call | Sunday | do | 1872 | 2 50 |
| | Essex County Press | Weekly | do | 1872 | 2 00 |
| | Beobachter am Passaic | do | News and politics (*German*) | 1874 | 2 00 |
| | Steinmen aus Der Kirche | Monthly | Miscellaneous (*German*) | 1879 | 1 00 |
| | Temperance Herald | Weekly | Temperance | 1879 | 1 00 |
| | New Jersey Deutsche Zeitung | Daily (*morning*) | News and politics (*German*) | 1880 | 7 00 |
| | Tribuene | Sunday | News and politics (*German*) | 1880 | 2 00 |

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*a* Edition of the Windsor (Vt.) "Journal".
*b* Daily during July and August.
*c* Suspended September, 1879.
*d* Suspended April, 1880.
*e* Merged in the "Fruit Recorder", Palmyra, N. Y., December, 1880.
*f* Prints an edition at 10 a. m. for Millville.
*g* Removed to New York city since census-year.

## NEW JERSEY—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **Essex** co.—Continued. | | | | | |
| Newark—Continued | American Saddler | Quarterly | Trade | 1880 | $1 00 |
| | Coach Painter | Monthly | do | 1880 | 1 00 |
| | Morning Bulletin (*a*) | Daily (*morning*) | News and politics | 1880 | 5 00 |
| Orange | Orange Journal | Weekly | do | 1854 | 2 00 |
| | Orange Chronicle | do | do | 1869 | 2 00 |
| | Orange Volksbote | do | News and politics (*German*) | 1872 | 2 50 |
| | Essex County Wochenblatt | do | News and politics (*German*) | 1876 | 2 00 |
| South Orange | South Orange Bulletin | do | News and politics | 1868 | 00 |
| **Gloucester** co.—*Population:* 25,886. | | | | | |
| Clayton | Clayton Enterprise | Weekly | News and politics | 1880 | 1 50 |
| Newfield | Newfield Item | do | do | 1873 | 1 00 |
| Swedesborough | Swedesborough Times | do | do | 1871 | 2 00 |
| Wenonah | Wenonah Advance | do | do | 1872 | 1 50 |
| Woodbury | Constitution and Farmers' and Mechanics' Advertiser. | do | do | 1834 | 2 00 |
| | Liberal Press | do | do | 1877 | 1 50 |
| | Gloucester County Democrat | do | do | 1878 | 1 50 |
| **Hudson** co.—*Population:* 187,944. | | | | | |
| Bayonne | Bayonne Herald | Weekly | News and politics | 1869 | 1 50 |
| | Bayonne Times | do | do | 1870 | 1 50 |
| Harrison | Kearney Record | do | do | 1873 | 2 00 |
| Hoboken | Hudson County Democrat | do | do | 1851 | 1 00 |
| | Hudson County Journal | do | News and politics (*German*) | 1867 | 2 00 |
| | Hudson County Observer | do | News and politics | 1880 | 1 00 |
| Jersey City | Evening Journal | Daily (*evening*) | do | 1867 | 6 00 |
| | Jersey City Herald | Weekly | do | 1870 | 1 50 |
| | Hudson County Dispatch | do | do | 1872 | 1 50 |
| | Jersey City Argus | Daily (*evening*) | do | 1875 | 6 00 |
| West Hoboken | Palisade News and Highland Sentinel | Weekly | do | 1870 | 1 00 |
| **Hunterdon** co.—*Population:* 38,570. | | | | | |
| Clinton | Clinton Democrat | Weekly | News and politics | 1868 | 1 50 |
| Flemington | Hunterdon County Democrat | do | do | 1838 | 2 00 |
| | Hunterdon County Republican | do | do | 1856 | 2 00 |
| Frenchtown | Hunterdon County Independent | do | do | 1871 | 1 50 |
| | Frenchtown Star | do | do | 1880 | 1 00 |
| Glen Gardner | Glen Gardner Philocrat | do | Temperance | 1879 | 75 |
| Lambertville | Lambertville Beacon | do | News and politics | 1845 | 2 00 |
| | Lambertville Record | do | do | 1872 | 2 00 |
| Milford | Milford Leader | do | do | 1880 | 1 00 |
| **Mercer** co.—*Population:* 58,061. | | | | | |
| Chambersburg | Mercer County News | Weekly | News and politics | 1873 | 1 00 |
| Hightstown | Hightstown Gazette | do | do | 1849 | 1 50 |
| | Hightstown Independent | do | do | 1876 | 1 50 |
| Hopewell | Hopewell Herald | do | do | 1874 | 1 25 |
| Princeton | Princeton Press | do | do | 1832 | 1 25 |
| | Nassau Literary Magazine | Monthly | Collegiate | 1835 | 2 25 |
| | Princetonian | Bi-weekly | do | 1876 | 2 00 |
| Trenton | { State Gazette | Daily (*morning*) | News and politics | 1847 | 5 00 |
| | } State Gazette | Weekly | do | 1792 | 2 00 |
| | { True American | Daily (*morning*) | do | 1838 | 5 00 |
| | } True American | Weekly | do | 1801 | 1 50 |
| | Daily Emporium | Daily (*morning*) | do | 1867 | 3 00 |
| | { New Jersey Staats Journal (*b*) | Daily (*evening*) | News and politics (*German*) | 1879 | ...... |
| | } New Jersey Staats Journal (*b*) | Weekly | News and politics (*German*) | 1867 | 2 00 |
| | Trenton Mail (*c*) | Daily (*evening*) | News and politics | 1879 | ...... |
| | Trenton Herald | Weekly | do | 1875 | 1 00 |
| | New Jersey Methodist | Monthly | Religious (*Methodist*) | 1878 | 50 |
| | Flowers' Family Magazine | do | Literary | 1878 | 2 00 |
| | New Jersey Home Magazine (*d*) | do | do | 1878 | 1 00 |
| | Trenton Sentinel | Weekly | News and politics | 1880 | 1 00 |
| **Middlesex** co.—*Population:* 52,286. | | | | | |
| New Brunswick | { Times | Daily (*evening*) | News and politics | 1865 | 7 00 |
| | } Times | Weekly | do | 1792 | 1 50 |
| | { Fredonian | Daily (*evening*) | do | 1855 | 6 00 |
| | } Fredonian | Weekly | do | 1811 | 2 00 |
| | Rutgers Targum | Bi-weekly | Collegiate | 1869 | 2 00 |
| | Home News | Daily (*evening*) | News and politics | 1879 | 4 00 |
| Perth Amboy | Middlesex County Democrat | Weekly | do | 1808 | 2 00 |
| | Perth Amboy Republican | do | do | 1874 | 1 50 |
| South Amboy | South Amboy Argus (*a*) | do | do | ...... | ...... |
| Woodbridge | Independent Hour | do | do | 1876 | 2 00 |
| **Monmouth** co.—*Population:* 55,538. | | | | | |
| Allentown | Allentown Industry (*d*) | Weekly | News and politics | 1880 | ...... |
| Asbury Park | Asbury Park Journal | do | do | 1876 | 1 00 |
| | Shore Press | do | do | 1879 | 2 00 |
| Eatontown | Eatontown Advertiser | do | do | 1877 | 1 50 |
| Freehold | Monmouth County Jerseyman (*e*) | do | do | 1880 | 1 50 |
| | Monmouth Enquirer | do | do | 1820 | 2 00 |
| | Monmouth Democrat | do | do | 1834 | 2 00 |
| Keyport | Keyport Weekly | do | do | 1869 | 1 50 |
| Long Branch | Long Branch News (*f*) | do | do | 1866 | 1 50 |
| Manasquan | Sea Side | do | do | 1877 | 1 00 |
| Matawan | Matawan Journal | do | do | 1869 | 1 25 |
| Ocean Grove | Ocean Grove Record | do | do | 1875 | 1 50 |
| Red Bank | New Jersey Standard | do | do | 1851 | 2 00 |
| | Red Bank Register | do | do | 1878 | 1 50 |
| Shrewsbury | Little Silver Mirror | do | do | 1880 | 1 50 |
| **Morris** co.—*Population:* 50,861. | | | | | |
| Boonton | Boonton Bulletin | Weekly | News and politics | 1871 | 1 50 |
| Dover | Dover Iron Era | do | do | 1870 | 2 00 |
| | Dover Index | do | do | 1875 | 1 00 |

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*a* Suspended May, 1880.
*b* Suspended April, 1880.
*c* Suspended.
*d* Suspended September, 1880.
*e* Merged in the "Advertiser" April, 1880.
*f* Daily during July and August.

## NEW JERSEY—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| MORRIS CO.—Continued. | | | | | |
| Madison | Madison Journal | Weekly | News and politics | 1877 | $2 00 |
| | New Jersey Monitor (*a*) | do | do | 1879 | 2 00 |
| Morristown | Morristown Jerseyman | do | do | 1826 | 2 00 |
| | True Democratic Banner | do | do | 1838 | 2 00 |
| | Morris County Chronicle | do | do | 1877 | 2 00 |
| | Morris Avalon (*a*) | Monthly | Collegiate | 1879 | 1 00 |
| OCEAN CO.—*Population:* 14,455. | | | | | |
| Lakewood | Lakewood Times and Journal | Weekly | News and politics | 1868 | 1 50 |
| Tom's River | New Jersey Courier | do | do | 1850 | 2 00 |
| | New Jersey Temperance Gazette | do | Temperance | 1869 | 1 25 |
| | Ocean County Democrat | do | News and politics | 1877 | 1 50 |
| PASSAIC CO.—*Population:* 68,860. | | | | | |
| Passaic | Passaic Item | Weekly | News and politics | 1870 | 2 00 |
| | Passaic Herald | do | do | 1871 | 2 00 |
| | Passaic News | Daily (*evening*) | do | 1877 | 2 75 |
| Paterson | Guardian | Daily (*evening*) | do | 1841 | 7 00 |
| | Guardian | Weekly | do | 1841 | 1 50 |
| | Press | Daily (*evening*) | do | 1863 | 7 50 |
| | Press | Weekly | do | 1863 | 1 50 |
| | Paterson Volksfreund | Tri-weekly | News and politics (*German*) | 1869 | 4 00 |
| | Passaic County Journal (*b*) | Semi-weekly | News and politics (*German*) | 1877 | 2 50 |
| | Labor Standard | Weekly | News and politics | 1878 | 2 00 |
| SALEM CO.—*Population:* 24,579. | | | | | |
| Penn's Grove | Penn's Grove Record | Weekly | News and politics | 1878 | 1 00 |
| Salem | National Standard | do | do | 1819 | 2 00 |
| | Salem Sunbeam | do | do | 1844 | 2 00 |
| | Salem Qui Vive | Monthly | Temperance | 1879 | 50 |
| Woodstown | Woodstown Register | Weekly | News and politics | 1869 | 2 00 |
| SOMERSET CO.—*Population:* 27,162. | | | | | |
| Bound Brook | Bound Brook Chronicle | Weekly | News and politics | 1868 | 1 50 |
| Somerville | Somerset Messenger | do | do | 1822 | 2 00 |
| | Somerset Gazette | do | do | 1848 | 2 00 |
| | Somerset Unionist | do | do | 1863 | 2 00 |
| | New Jersey Law Journal | Monthly | Law | 1878 | 3 00 |
| Raritan | Somerset Democrat (*b*) | Weekly | News and politics | 1879 | 2 00 |
| SUSSEX CO.—*Population:* 23,539. | | | | | |
| Deckertown | Sussex County Independent | Weekly | News and politics | 1870 | 2 00 |
| Newton | Sussex Register | do | do | 1813 | 2 00 |
| | New Jersey Herald | do | do | 1829 | 2 00 |
| UNION CO.—*Population:* 55,571. | | | | | |
| Elizabeth | Herald | Daily (*evening*) | News and politics | 1862 | 6 00 |
| | Central New Jersey Herald | Weekly | do | 1862 | 2 00 |
| | Elizabeth Monitor | Daily (*evening*) | do | 1868 | 3 00 |
| | Freie Presse | Semi-weekly | News and politics (*German*) | 1871 | 3 00 |
| | Freie Zeitung | do | News and politics (*German*) | 1874 | 2 00 |
| | Daily Journal | Daily (*evening*) | News and politics | 1871 | 6 00 |
| | New Jersey Journal | Weekly | do | 1779 | 2 00 |
| Plainfield | New Jersey Times | do | do | 1868 | 2 50 |
| | Plainfield Constitutionalist | do | do | 1868 | 2 00 |
| | Daily Bulletin | Daily (*evening*) | do | 1880 | 5 00 |
| | Plainfield Bulletin | Weekly | do | 1880 | 1 50 |
| Rahway | Advocate and Times | do | do | 1822 | 2 00 |
| | National Democrat | do | do | 1840 | 2 00 |
| | Rahway Enterprise (*a*) | do | do | 1879 | 1 50 |
| | Rahway Advertiser (*c*) | Semi-weekly | do | 1880 | ........ |
| Westfield | Westfield Herald (*d*) | Weekly | do | 1879 | ... .... |
| WARREN CO.—*Population:* 36,589. | | | | | |
| Belvidere | Belvidere Apollo | Weekly | News and politics | 1824 | 2 00 |
| | Warren's Journal | do | do | 1832 | 2 00 |
| Blairstown | Blairstown Press | do | do | 1877 | 1 50 |
| Hackettstown | Hackettstown Gazette | do | do | 1850 | 1 50 |
| | Hackettstown Herald | do | do | 1872 | 1 50 |
| Phillipsburg | Warren Democrat | do | do | 1866 | 2 00 |
| Washington | Washington Star | do | do | 1868 | 1 50 |
| | Washington Review | do | do | 1877 | 1 00 |

## NEW MEXICO TERRITORY.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| BERNALILLO CO.—*Population:* 17,225. | | | | | |
| Albuquerque | Albuquerque Review | Weekly | News and politics (*Eng. and Spanish*) | 1870 | $2 00 |
| | Albuquerque Miner (*b*) | do | News and politics | 1870 | ........ |
| Bernalillo | Bernalillo Native (*e*) | do | do | 1879 | 3 00 |
| COLFAX CO.—*Population:* 3,398. | | | | | |
| Cimarron | Cimarron News and Press | Weekly | News and politics | 1860 | 3 00 |
| DOÑA AÑA CO.—*Population:* 7,612. | | | | | |
| Las Cruces | Thirty Four | Weekly | News and politics | 1878 | 3 00 |
| Mesilla | Mesilla News | do | News and politics (*English and Spanish*). | 1873 | 4 00 |
| GRANT CO.—*Population:* 4,539. | | | | | |
| Silver City | Grant County Herald | Weekly | News and politics | 1875 | 3 00 |
| SAN MIGUEL CO.—*Population:* 20,638. | | | | | |
| Las Vegas | Gazette | Daily (*morning*) | News and politics | 1879 | 10 00 |
| | Gazette | Weekly | do | 1872 | 3 00 |
| | Revista Catolica | do | Religious (*Catholic; Spanish*) | 1875 | 3 00 |

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*a* Suspended October, 1879.
*b* Suspended.
*c* Suspended August, 1880.
*d* Suspended March, 1880.
*e* Suspended January, 1880.

## NEW MEXICO TERRITORY—Continued

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **San Miguel co.**—Continued. | | | | | |
| Las Vegas—Continued | Optic | Daily (*evening*) | News and politics | 1879 | $10 00 |
| | Optic | Weekly | do | 1879 | 3 00 |
| | Mining World | do | do | 1879 | 50 |
| San Lorenzo | Red River Chronicle | do | do | 1880 | 2 00 |
| **Santa Fé co.**—*Population:* 10,867. | | | | | |
| Santa Fé | New Mexican | Daily (*morning*) | News and politics | 1862 | 10 00 |
| | New Mexican | Weekly | do | 1862 | 4 00 |
| | El Nuevo Mexicana | do | News and politics (*Spanish*) | 1880 | 4 00 |
| | Rocky Mountain Sentinel (*a*) | do | News and politics | 1879 | ........ |

## NEW YORK.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **Albany co.**—*Population:* 154,890. | | | | | |
| Albany—Continued | Argus | Daily (*morning*) | News and politics | 1825 | $8 00 |
| | Argus | Sunday | do | 1813 | 2 00 |
| | Argus | Weekly | do | 1813 | 1 00 |
| | Argus | Semi-weekly | do | 1813 | 2 25 |
| | Evening Journal | Daily (*evening*) | do | 1830 | 9 00 |
| | Albany Journal | Weekly | do | 1830 | 1 50 |
| | Albany Journal | Semi-weekly | do | 1830 | 3 00 |
| | Cultivator and Country Gentleman | Weekly | Agricultural | 1831 | 2 50 |
| | Freie Blaetter | Daily (*evening*) | News and politics (*German*) | 1852 | 8 00 |
| | Evening Times | Daily (*evening*) | News and politics | 1856 | 7 00 |
| | Albany Times | Weekly | do | 1873 | 1 50 |
| | Morning Express | Daily (*morning*) | do | 1858 | 8 00 |
| | Evening Post | Daily (*evening*) | do | 1865 | 5 00 |
| | Everybody's Paper | Monthly | Sunday school (*Unsectarian*) | 1868 | 15 |
| | Herold | Daily (*evening*) | News and politics (*German*) | 1869 | 6 00 |
| | Press and Knickerbocker | Daily (*morning*) | News and politics | 1870 | 6 00 |
| | Press and Knickerbocker | Weekly | do | 1870 | 75 |
| | Sunday Press | Sunday | do | 1870 | 2 00 |
| | Albany Law Journal | Weekly | Law | 1870 | 5 00 |
| | Our Work at Home | Monthly | Religious (*Evangelical*) | 1875 | 1 00 |
| | Every Youth's Paper | do | Sunday school (*Unsectarian*) | 1876 | 08 |
| | Every Child's Paper | do | Sunday school (*Unsectarian*) | 1876 | 04 |
| | Poultry Monthly | do | Agricultural | 1878 | 1 00 |
| | Fanciers' Weekly (*b*) | Weekly | do | 1878 | 1 00 |
| | The Voice | Monthly | Music, art, etc | 1879 | 1 00 |
| | Albany Mirror and Public Spirit | Weekly | News and politics | 1879 | 1 50 |
| | Gospel News | do | Sunday school | 1880 | 50 |
| Coeymans | Coeymans Herald | do | News and politics | 1873 | 1 00 |
| Cohoes | Cohoes Cataract | do | do | 1847 | 2 00 |
| | News | Daily (*morning*) | do | 1873 | 5 00 |
| | News | Weekly | do | 1880 | 1 50 |
| | La Patrie Nouvelle | do | News and politics (*French*) | 1876 | 1 50 |
| | Cohoes Regulator | do | News and politics | 1879 | 2 00 |
| | Cohoes Leader (*c*) | do | do | 1879 | 2 00 |
| | Cohoes Register (*d*) | do | do | 1879 | 1 50 |
| Green Island | Green Island Review | do | do | 1880 | 1 50 |
| Knowersville | Golden Era | do | do | 1877 | 1 00 |
| Rensselaerville | Rensselaerville Press | do | do | 1872 | 1 00 |
| Shaker | Shaker Manifesto | Monthly | Religious (*Shakers*) | 1871 | 60 |
| Watervliet | Watervliet Journal | Weekly | News and politics | 1880 | 2 00 |
| West Troy | Albany County Democrat | do | do | 1860 | 2 00 |
| **Allegany co.**—*Population:* 41,810. | | | | | |
| Alfred Center | Sabbath Recorder | Weekly | Religious (*Baptist*) | 1844 | 2 00 |
| Angelica | Allegany County Republican | do | News and politics | 1820 | 1 50 |
| Belmont | Genesee Valley Free Press and Farmer | do | do | 1855 | 1 50 |
| Canaseraga | Canaseraga Times | do | do | 1873 | 1 00 |
| Cuba | Cuba Patriot | do | do | 1862 | 1 50 |
| Friendship | Friendship Register | do | do | 1870 | 1 25 |
| | Friendship Chronicle | do | do | 1880 | 1 50 |
| Hume | Hume Enterprise | do | do | 1880 | 1 50 |
| Rushford | Rushford Spectator | do | do | 1878 | 1 25 |
| Wellsville | Allegany County Reporter | do | do | 1839 | 1 65 |
| | Allegany Democrat | do | do | 1859 | 1 50 |
| **Broome co.**—*Population:* 49,483. | | | | | |
| Binghamton | Republican | Daily (*morning*) | News and politics | 1822 | 7 50 |
| | Broome Republican | Weekly | do | 1822 | 1 50 |
| | Democrat | Daily (*evening*) | do | 1845 | 7 00 |
| | Democrat | Weekly | do | 1845 | 2 00 |
| | Leader | Daily (*evening*) | do | 1878 | 6 00 |
| | Democratic Leader | Weekly | do | 1869 | 1 50 |
| | Binghamton Sunday Tribune | Sunday | do | 1879 | 2 00 |
| Deposit | Deposit Courier | Weekly | do | 1848 | 1 50 |
| Lisle | Lisle Gleaner | do | do | 1871 | 1 00 |
| Union | Union Argus (*e*) | do | do | ........ | ........ |
| | Union News | do | do | 1851 | 1 50 |
| Whitney's Point | Whitney's Point Reporter | do | do | 1872 | 1 50 |
| Windsor | Windsor Standard | do | do | 1878 | 1 00 |
| **Cattaraugus co.**—*Population:* 55,806. | | | | | |
| Allegany | The Infidel | Semi-monthly | Free thought | 1879 | 1 00 |
| | Allegany Journal (*f*) | Weekly | News and politics | 1875 | 1 00 |
| Cattaraugus | Cattaraugus Chronicle (*g*) | do | do | 1879 | 50 |
| Ellicottville | Cattaraugus Union | do | do | 1856 | 2 50 |
| Franklinville | Franklinville Argus | do | do | 1875 | 1 50 |
| Gowanda | Gowanda Enterprise | do | do | 1877 | 1 50 |
| Limestone | Limestone Reporter | do | do | 1879 | 1 50 |
| Olean | Times | Daily (*evening*) | do | 1879 | 6 00 |
| | Times | Weekly | do | 1858 | 1 50 |
| | Olean Democrat | do | do | 1879 | 1 50 |
| | Olean Record (*c*) | do | do | 1876 | 1 50 |
| Randolph | Randolph Register | do | do | 1865 | 1 00 |

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*a* Merged into "New Mexican", December, 1879.
*b* Consolidated with "Poultry Monthly".
*c* Suspended.
*d* Suspended March, 1880.
*e* Consolidated with "News" May, 1880.
*f* Suspended November, 1879.
*g* Suspended May, 1880.

## NEW YORK—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| CATTARAUGUS CO.—Continued. | | | | | |
| Randolph—Continued | Randolph Courant | Weekly | News and politics | 1879 | $1 00 |
| | Randolph True Friend (*a*) | do | Temperance | 1878 | 50 |
| Salamanca | Cattaraugus Republican | do | News and politics | 1867 | 1 50 |
| | Salamanca Gazette (*b*) | do | do | 1868 | 1 50 |
| | County Record (*c*) | do | do | 1879 | 1 50 |
| CAYUGA CO.—*Population:* 65,081. | | | | | |
| Auburn | Advertiser | Daily (*evening*) | News and politics | 1844 | 8 50 |
| | Auburn Journal | Weekly | do | 1827 | 2 00 |
| | News and Bulletin | Daily (*evening*) | do | 1864 | 6 00 |
| | News and Democrat | Weekly | do | 1868 | 1 50 |
| | Cayuga County Independent | do | do | 1874 | 1 50 |
| | Evening Auburnian | Daily (*evening*) | do | 1877 | 4 50 |
| | Central New Yorker (*d*) | Weekly | do | 1878 | 1 00 |
| Moravia | Moravia Valley Register | do | do | 1863 | 1 50 |
| | Moravia Citizen | do | do | 1876 | 1 50 |
| Port Byron | Port Byron Chronicle | do | do | 1871 | 2 00 |
| Springport | Union Springs Advertiser | do | do | 1866 | 2 00 |
| Weedsport | Weedsport Sentinel | do | do | 1865 | 1 50 |
| | Cayuga Chief | do | do | 1877 | 1 00 |
| | Cayuga County National (*e*) | do | do | | |
| CHAUTAUQUA CO.—*Population:* 65,342. | | | | | |
| Cherry Creek | Cherry Creek Herald (*f*) | Weekly | News and politics | | |
| Dunkirk | Dunkirk Journal | do | do | 1850 | 1 50 |
| | Dunkirk Advertiser and Union | do | do | 1851 | 1 50 |
| | Chautauqua Farmer | do | Agricultural | 1869 | 1 50 |
| Findley's Lake | Findlay's Lake Record (*e*) | do | News and politics | | |
| Fredonia | Fredonia Censor | do | do | 1821 | 1 50 |
| Jamestown | Jamestown Journal | Daily (*evening*) | do | 1870 | 7 00 |
| | Jamestown Journal | Weekly | do | 1826 | 1 50 |
| | Chautauqua Democrat | do | do | 1852 | 1 50 |
| | Folkets Rost | do | News and politics (*Swedish*) | 1874 | 2 00 |
| | People's Press (*d*) | do | News and politics | 1878 | 1 00 |
| | Jamestown Standard | do | do | 1879 | 1 50 |
| | Countryside | Monthly | Agricultural | 1880 | 1 00 |
| Mayville | Mayville Sentinel | Weekly | News and politics | 1834 | 1 50 |
| Panama | Panama Herald | do | do | 1879 | 1 00 |
| Sherman | Chautauqua News | do | do | 1876 | 1 50 |
| Silver Creek | Silver Creek Local | do | do | 1877 | 1 00 |
| | Counterfeit Detective (*g*) | Monthly | Financial | | |
| Sinclairville | Sinclairville Spectator | Weekly | News and politics | 1879 | 1 00 |
| Westfield | Westfield Republican | do | do | 1855 | 1 50 |
| CHEMUNG CO.—*Population:* 43,065. | | | | | |
| Elmira | Elmira Gazette | Daily (*evening*) | News and politics | 1859 | 8 00 |
| | Elmira Gazette | Weekly | do | 1826 | 1 50 |
| | Elmira Advertiser | Daily (*morning*) | do | 1853 | 9 00 |
| | Elmira Advertiser | Weekly | do | 1853 | 1 50 |
| | Bistoury | Quarterly | Medical | 1865 | 50 |
| | Sibyl | do | Collegiate | 1869 | 50 |
| | Elmira Husbandman | Weekly | Agricultural | 1874 | 1 00 |
| | Elmira Bulletin | Daily (*evening*) | News and politics | 1875 | 4 25 |
| | Free Press | do | do | 1879 | 6 00 |
| | Free Press | Weekly | do | 1879 | 1 00 |
| | Sunday Morning Telegram | Sunday | do | 1879 | 2 00 |
| | Chemung County Greenbacker (*h*) | Weekly | do | 1878 | 2 00 |
| | Sunday Morning Times (*i*) | Sunday | do | | |
| | Elmira Journal (*j*) | Tri-weekly | News and politics (*German*) | 1878 | 5 00 |
| Horseheads | Horseheads Journal and Chemung County Greenbacker. | Weekly | News and politics | 1864 | 1 00 |
| | Horseheads Independent | do | do | 1879 | 1 00 |
| CHENANGO CO.—*Population:* 39, 891. | | | | | |
| Afton | Home Sentinel | Weekly | News and politics | 1876 | 1 00 |
| Bainbridge | Bainbridge Republican | do | do | 1871 | 1 00 |
| | Bainbridge Times (*d*) | do | do | 1879 | 1 00 |
| Greene | Chenango American | do | do | 1855 | 1 50 |
| New Berlin | New Berlin Gazette | do | do | 1849 | 1 50 |
| Norwich | Chenango Union | do | do | 1816 | 2 00 |
| | Chenango Telegraph | Semi-weekly | do | 1829 | 2 00 |
| | Norwich Sentinel | Weekly | do | 1878 | 1 25 |
| Oxford | Oxford Times | do | do | 1836 | 1 50 |
| Sherburne | Sherburne News | do | do | 1863 | 1 50 |
| CLINTON CO.—*Population:* 50, 897. | | | | | |
| Champlain | Champlain Journal (*k*) | Weekly | News and politics | 1865 | 2 00 |
| | Clinton County Herald (*l*) | do | do | 1877 | 1 50 |
| Plattsburgh | Plattsburgh Republican | do | do | 1811 | 2 00 |
| | Plattsburgh Sentinel | do | do | 1855 | 1 50 |
| | Plattsburgh News (*m*) | do | do | 1869 | 2 00 |
| | Teachers' Companion | Monthly | Educational | 1879 | 50 |
| COLUMBIA CO.—*Population:* 47, 928. | | | | | |
| Chatham | Chatham Courier | Weekly | News and politics | 1861 | 1 50 |
| | Chatham Echo | do | do | 1879 | 1 00 |
| Claverack | Claverack Courant | Quarterly | Collegiate | 1879 | 40 |
| Hillsdale | Hillsdale Herald | Weekly | News and politics. | 1879 | 1 25 |
| Hudson | Daily Register | Daily (*evening*) | do | 1866 | 8 00 |
| | Hudson Gazette | Weekly | do | 1784 | 1 50 |
| | Republican | Daily (*morning*) | do | 1847 | 7 00 |
| | Columbia Republican and Star | Weekly | do | 1820 | 1 50 |
| Kinderhook | Kinderhook Rough Notes | do | do | 1825 | 1 50 |
| New Lebanon | Journal of Materia Medica | Monthly | Medical | 1862 | 50 |
| Philmont | Philmont Sentinel | Weekly | News and politics | 1880 | 1 25 |
| CORTLAND CO.—*Population:* 25, 825. | | | | | |
| Cincinnatus | Otselic Valley Register | Weekly | News and politics | 1873 | 1 50 |
| Cortland | Cortland Democrat | do | do | 1864 | 2 00 |
| | Cortland Standard | do | do | 1867 | 2 00 |

*a* Consolidated with "Exponent", Rochester, March, 1880.
*b* Suspended March, 1880.
*c* Suspended June, 1880.
*d* Suspended April, 1880.
*e* Suspended November, 1879.
*f* Suspended.
*g* Suspended May, 1880.
*h* Merged in "Horseheads Journal".
*i* Suspended June, 1879.
*j* Suspended in census year.
*k* An edition of the "Rhode Island Democrat", Providence; suspended April, 1880.
*l* Suspended October, 1879.
*m* Edition of "Rhode Island Democrat", Providence.

## NEW YORK—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **CORTLAND CO.—Continued.** | | | | | |
| Cortland—Continued | Normal News | Monthly | Collegiate | 1879 | $1 00 |
| Homer | Homer Republican | Weekly | News and politics | 1812 | 2 00 |
| McGrawville | McGrawville Sentinel | do | do | 1878 | 1 00 |
| Marathon | Marathon Independent | do | do | 1870 | 1 50 |
| **DELAWARE CO.—*Population:* 42, 721.** | | | | | |
| Andes | Andes Record | Weekly | News and politics | 1867 | 1 00 |
| Cannonsville | Cannonsville Press (*a*) | do | do | | |
| Davenport | Charlotte Valley News | do | do | 1877 | 1 00 |
| Delhi | Delaware Gazette | do | do | 1819 | 1 50 |
| | Delaware Express | do | do | 1839 | 1 50 |
| | Delaware Republican | do | do | 1860 | 1 50 |
| Downsville | Downsville News | do | do | 1875 | 75 |
| Franklin | Franklin Register | do | do | 1868 | 1 00 |
| Hancock | Hancock Herald | do | do | 1873 | 1 50 |
| Margaretville | Margaretville Utilitarian | do | do | 1863 | 1 00 |
| Roxbury | Delaware Times | do | do | 1880 | 1 00 |
| Sidney | Rural Press | do | do | 1879 | 1 00 |
| Stamford | Stamford Mirror | do | do | 1851 | 1 00 |
| Walton | Walton Chronicle | do | do | 1869 | 1 50 |
| **DUCHESS CO.—*Population:* 79, 184.** | | | | | |
| Amenia | Amenia Times | Weekly | News and politics | 1852 | 1 50 |
| Dover Plains | Dover Press (*b*) | do | do | 1878 | 1 50 |
| Fishkill | Fishkill Standard | do | do | 1842 | 2 00 |
| | Fishkill Journal | do | do | 1856 | 2 00 |
| North East | Millerton Telegram | do | do | 1876 | 1 50 |
| Pine Plains | Pine Plains Herald | do | do | 1859 | 1 50 |
| Poughkeepsie | Eagle | Daily (*morning*) | do | 1860 | 7 00 |
| | Eagle | Weekly | do | 1785 | 2 00 |
| | Press | Daily (*evening*) | do | 1850 | 6 00 |
| | Telegraph | Weekly | do | 1820 | 2 00 |
| | Duchess Farmer | do | Agricultural | 1869 | 1 50 |
| | News | Daily (*morning*) | News and politics | 1871 | 5 00 |
| | News | Weekly | do | 1871 | 1 50 |
| | Vassar Miscellany | Monthly | Collegiate | 1872 | 2 00 |
| | Poughkeepsie Sunday Courier | Sunday | News and politics | 1872 | 2 50 |
| | Wochentliche Post | Weekly | News and politics (*German*) | 1879 | 2 50 |
| Rawling | Rawling Pioneer | do | News and politics | 1870 | 1 50 |
| Red Hook | Red Hook Journal | do | do | 1859 | 1 50 |
| Rhinebeck | Rhinebeck Gazette | do | do | 1848 | 2 00 |
| Wappinger's Falls | Wappinger's Falls Chronicle | do | do | 1870 | 2 00 |
| | Wappinger's Falls Era | do | do | 1876 | 1 50 |
| **ERIE CO.—*Population:* 219, 884.** | | | | | |
| Akron | Akron Breeze | Weekly | News and politics | 1878 | 1 25 |
| Alden | Alden Trumpet (*a*) | do | do | | |
| Angola | Angola Record | do | do | 1879 | 75 |
| Buffalo | Commercial Advertiser | Daily (*evening*) | do | 1835 | 10 00 |
| | Commercial Patriot and Journal | Weekly | do | 1810 | 1 00 |
| | Commercial Advertiser | Tri-weekly | do | 1810 | 5 00 |
| | Courier | Daily (*morning*) | do | 1835 | 10 00 |
| | Courier | Weekly | do | 1845 | 1 00 |
| | Courier | Sunday | do | 1875 | 2 50 |
| | Evening Republic | Daily (*evening*) | do | 1859 | 5 00 |
| | Daily Demokrat | Daily (*evening*) | News and politics (*German*) | 1837 | 6 50 |
| | Weltbuerger | Weekly | News and politics (*German*) | 1837 | 1 50 |
| | Buffalo Medical and Surgical Journal | Monthly | Medicine and surgery | 1844 | 2 00 |
| | Express | Daily (*morning*) | News and politics | 1846 | 9 00 |
| | Express | Weekly | do | 1846 | 1 25 |
| | Buffalo Christian Advocate | do | Religious (*Methodist*) | 1850 | 2 00 |
| | Die Aurora | do | Religious (*Catholic; German*) | 1851 | 2 50 |
| | Freie Presse | Daily (*evening*) | News and politics (*German*) | 1852 | 6 50 |
| | Freie Presse | Weekly | News and politics (*German*) | 1852 | 2 00 |
| | Tribuene | Sunday | News and politics (*German*) | 1852 | 2 00 |
| | Volksfreund | Daily (*evening*) | News and politics (*German*) | 1868 | 6 50 |
| | Volksfreund | Weekly | News and politics (*German*) | 1868 | 2 00 |
| | Our Record | do | Charitable | 1869 | 50 |
| | Catholic Union | do | Religious (*Catholic*) | 1872 | 2 00 |
| | Buffalo Sunday Morning News | Sunday | News and politics | 1873 | 2 50 |
| | Die Christliche Woche | Weekly | Religious (*Catholic; German*) | 1875 | 1 50 |
| | Royal Templar | do | Temperance | 1876 | 1 50 |
| | School Journal (*c*) | Monthly | Educational | 1877 | 50 |
| | Fraternal Censor | Semi-monthly | Secret society (*United Workmen*) | 1878 | 1 00 |
| | Deutsche Volksblatt | Weekly | News and politics (*German*) | 1878 | 2 00 |
| | Queen City | do | News and politics | 1878 | 2 00 |
| | Buffalo Sunday Morning Times | Sunday | do | 1879 | 2 00 |
| | Milling World | Monthly | Trade journal | 1879 | 1 00 |
| | Buffalo Saturday Bulletin | Weekly | News and politics | 1879 | 1 00 |
| | Kalendar | do | Religious (*Episcopal*) | 1880 | 1 00 |
| | Every Saturday (*d*) | do | News and politics | 1877 | 2 50 |
| | Sunday Herald (*e*) | Sunday | do | 1878 | 1 50 |
| East Aurora | Aurora Advertiser | Weekly | do | 1872 | 1 25 |
| | Aurora Times | do | do | 1880 | 1 00 |
| Evans | Evans Record | do | do | 1879 | 75 |
| Hamburgh | Erie County Independent | do | do | 1875 | 1 25 |
| | Hamburgh Sentinel (*f*) | do | do | | |
| Lancaster | Lancaster Times | do | do | 1880 | 1 00 |
| Springville | Journal and Herald | do | do | 1867 | 1 00 |
| | Local News | do | do | 1879 | 1 00 |
| Tonawanda | Tonawanda Enterprise | do | do | 1871 | 1 50 |
| Williamsville | Amherst Bee | do | do | 1879 | 1 00 |
| **ESSEX CO.—*Population:* 34,515.** | | | | | |
| Ausable | Mountain Echo | Weekly | News and politics | 1879 | 1 00 |
| Crown Point | Crown Point Budget | do | do | 1878 | 1 00 |
| Elizabethtown | Post and Gazette | do | do | 1852 | 1 50 |
| Keeseville | Essex County Republican | do | do | 1839 | 1 50 |
| Port Henry | Port Henry Record (*g*) | do | do | 1871 | 2 00 |
| | Port Henry Herald | do | do | 1872 | 1 50 |
| Ticonderoga | Ticonderoga Sentinel | do | do | 1873 | 1 50 |
| | Adirondack Eagle | do | do | 1879 | 1 00 |

*a* Suspended.
*b* Suspended November, 1880.
*c* Merged in the "New England Journal of Education", Boston, September, 1880.
*d* Suspended December, 1879.
*e* Suspended July, 1879.
*f* Suspended October, 1879.
*g* Suspended; edition of "Rhode Island Democrat", Providence.

## NEW YORK—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **Franklin co.**—*Population:* 32,390. | | | | | |
| Brushton | Brushton North Star | Weekly | News and politics | 1877 | $1 00 |
| Chateaugay | Chateaugay Star (*a*) | do | do | 1873 | 2 00 |
| | Chateaugay Record | do | do | 1878 | 1 50 |
| Malone | Malone Palladium | do | do | 1835 | 1 50 |
| | Franklin Gazette | do | do | 1837 | 1 50 |
| Moira | Moira Journal (*a*) | do | do | 1867 | 2 00 |
| **Fulton co.**—*Population:* 30,985. | | | | | |
| Gloversville | Gloversville Standard | Weekly | News and politics | 1856 | 2 00 |
| | Gloversville Intelligencer | do | do | 1869 | 2 00 |
| Johnstown | Fulton County Democrat | do | do | 1842 | 1 50 |
| | Fulton County Republican | do | do | 1869 | 2 00 |
| | Fulton County Independent | do | do | 1879 | 1 50 |
| **Genesee co.**—*Population:* 32,806. | | | | | |
| Athens | Athens Sentinel (*b*) | Weekly | News and politics | 1879 | 1 50 |
| Batavia | Republican Advocate | do | do | 1811 | 1 00 |
| | Spirit of the Times | do | do | 1818 | 2 00 |
| | Progressive Batavian | do | do | 1868 | 1 50 |
| | Batavia News | Daily (*evening*) | do | 1878 | 5 20 |
| Le Roy | Le Roy Gazette | Weekly | do | 1826 | 2 00 |
| | Genesee Courier | do | do | 1870 | 1 50 |
| **Greene co.**—*Population:* 32,695. | | | | | |
| Catskill | Catskill Recorder | Weekly | News and politics | 1792 | 2 00 |
| | Catskill Examiner | do | do | 1830 | 2 00 |
| | Catskill Independent (*c*) | do | do | 1879 | ........ |
| | Catskill Morning Mail | Daily (*morning*) | do | 1879 | 5 00 |
| Coxsackie | Coxsackie News | Weekly | do | 1867 | 1 50 |
| Greenville | Greenville Local | do | do | 1877 | 1 00 |
| Prattsville | Prattsville News | do | do | 1858 | 1 00 |
| Windham | Windham Journal | do | do | 1857 | 1 50 |
| **Hamilton co.**—*Population:* 3,923. | | | | | |
| Hope Falls | Hamilton County Democrat (*d*) | Weekly | News and politics | 1860 | 1 00 |
| Hope | Hamilton County Press | do | do | 1873 | 1 00 |
| | Valley Times (*e*) | do | do | ........ | ........ |
| Wells | Journal and Republican (*f*) | do | do | 1870 | 2 00 |
| **Herkimer co.**—*Population:* 42,669. | | | | | |
| Herkimer | Herkimer Democrat | Weekly | News and politics | 1842 | 1 50 |
| Ilion | Ilion Citizen | do | do | 1864 | 1 50 |
| | Forest, Forge, and Farm | Monthly | Agricultural | 1880 | 50 |
| Little Falls | Journal and Courier | Weekly | News and politics | 1835 | 1 50 |
| | Herkimer County News | do | do | 1868 | 1 50 |
| | Catholic Telegraph | do | Religious (*Catholic*) | 1878 | 2 00 |
| Mohawk | Mohawk Independent | do | News and politics | 1873 | 1 25 |
| West Winfield | Winfield Standard (*g*) | do | do | 1872 | 2 00 |
| **Jefferson co.**—*Population:* 66,103. | | | | | |
| Adams | Jefferson County Journal | Weekly | News and politics | 1844 | 1 50 |
| | Enterprise (*c*) | do | do | ........ | ........ |
| Antwerp | Antwerp Gazette | do | do | 1873 | 1 50 |
| Cape Vincent | Democratic Eagle | do | do | 1872 | 1 50 |
| Carthage | Carthage Republican and Northern N. Yorker | do | do | 1860 | 1 50 |
| Clayton | Clayton Independent | do | do | 1872 | 1 50 |
| Watertown | Morning Dispatch | Daily (*morning*) | do | 1872 | 6 00 |
| | Watertown Re-Union | Weekly | do | 1824 | 1 50 |
| | Times | Daily (*evening*) | do | 1860 | 6 00 |
| | Times and Reformer | Weekly | do | 1850 | 2 00 |
| | Watertown Post | do | do | 1870 | 1 50 |
| | Poultry Chronicle (*h*) | Monthly | Agricultural | 1879 | 50 |
| **Kings co.**—*Population:* 599,495. | | | | | |
| Brooklyn | Eagle | Daily (*evening*) | News and politics | 1839 | 8 00 |
| | Eagle | Sunday | do | 1839 | 2 00 |
| | Times | Daily (*evening*) | do | 1848 | 7 00 |
| | Der Triangel (*i*) | Semi-monthly | Secret society (*German*) | 1855 | 2 50 |
| | Union-Argus | Daily (*evening*) | News and politics | 1863 | 6 00 |
| | Brooklyner Freie Presse | Daily (*evening*) | News and politics (*German*) | 1865 | 7 50 |
| | Long Islaender | Sunday | News and politics (*German*) | 1873 | 2 00 |
| | Brooklyn News | Weekly | News and politics | 1868 | 1 00 |
| | Carpet Trade | Monthly | Commerce and trade | 1870 | 3 00 |
| | National Monitor | Bi-weekly | Religious (*Baptist*) | 1870 | 1 00 |
| | Brooklyner Reform | Weekly | Secret society (*German*) | 1871 | 2 50 |
| | Brooklyn Review | do | News and politics | 1873 | 2 50 |
| | Brooklyner Anzeiger | do | News and politics (*German*) | 1874 | 1 60 |
| | Brooklyn Advance | Monthly | Literary | 1877 | 1 00 |
| | Brooklyn Globe | Weekly | News and politics | 1877 | 1 50 |
| | Brooklyner Courier | do | News and politics (*German*) | 1879 | 1 60 |
| | Brooklyn Stats Svenska Argus | do | News and politics (*Swedish*) | 1879 | 1 00 |
| | Green Point Sentinel | do | News and politics | 1880 | 1 00 |
| | Brooklyn Leader (*j*) | do | do | 1880 | 2 50 |
| East New York | East New York Sentinel | do | do | 1866 | 1 50 |
| | Long Island Record | do | do | 1874 | 1 50 |
| | East New York Laterne | do | News and politics (*German*) | 1878 | 1 50 |
| Flatbush | Kings County Rural and Brighton Gazette | do | News and politics | 1872 | 2 00 |
| **Lewis co.**—*Population:* 31,416. | | | | | |
| Copenhagen | Copenhagen Independent | Weekly | News and politics | 1880 | 1 50 |
| Lowville | Journal and Republican | do | do | 1830 | 1 50 |
| | Lewis County Democrat | do | do | 1856 | 2 00 |
| | Lowville Times | do | do | 1876 | 1 50 |
| **Livingston co.**—*Population:* 39,562. | | | | | |
| Avon | Avonian | Weekly | News and politics | 1875 | 1 50 |
| | Livingston County Herald | do | do | 1876 | 1 50 |
| Caledonia | Caledonia Advertiser | do | do | 1878 | 1 25 |
| Dansville | Dansville Express | do | do | 1850 | 1 50 |
| | Journal of Health | Monthly | Medical | 1858 | 1 50 |
| | Dansville Advertiser | Weekly | News and politics | 1860 | 1 50 |

*a* An edition of "Rhode Island Democrat", Providence.
*b* Suspended.
*c* Suspended November, 1879.
*d* An edition of the "Democrat", Johnstown.
*e* Suspended January, 1880.
*f* Edition of "Fulton County Republican", Johnstown.
*g* Changed to "Reporter", April, 1881.
*h* Suspended July, 1879.
*i* Suspended December, 1879.
*j* Suspended November, 1880.

## NEW YORK—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| LIVINGSTON CO.—Continued. | | | | | |
| Geneseo | Livingston Republican | Weekly | News and politics | 1837 | $1 50 |
| | Union Citizen | do | do | 1876 | 1 00 |
| Lima | Lima Recorder | do | do | 1869 | 1 50 |
| Livonia | Livonia Gazette | do | do | 1875 | 1 50 |
| Mount Morris | Union and Constitution | do | do | 1834 | 1 00 |
| | Mount Morris Enterprise | do | do | 1875 | 1 50 |
| Nunda | Nunda News | do | do | 1859 | 1 50 |
| Springwater | Springwater Enterprise | do | do | 1879 | 1 25 |
| MADISON CO.—*Population:* 44,112. | | | | | |
| Brookfield | Brookfield Courier | Weekly | News and politics | 1876 | 1 50 |
| Canastota | Canastota Herald | do | do | 1865 | 1 50 |
| Cazenovia | Cazenovia Republican | do | do | 1854 | 2 00 |
| Chittenango | Madison County Times | do | do | 1870 | 1 50 |
| De Ruyter | De Ruyter Gleaner | do | do | 1878 | 1 00 |
| | De Ruyter New Era | do | do | 1880 | 1 50 |
| Earlville | Earlville News (*a*) | do | do | 1878 | 75 |
| Hamilton | Democratic Republican | do | do | 1839 | 1 50 |
| | Democratic Volunteer | do | do | 1864 | 1 50 |
| | Madisonensis | Bi-weekly | Collegiate | 1869 | 1 50 |
| | Hamilton Recorder | Monthly | Miscellaneous | 1879 | 25 |
| Morrisville | Madison Observer | Weekly | News and politics | 1821 | 2 00 |
| Oneida | Oneida Dispatch | do | do | 1854 | 2 00 |
| | Democratic Union | do | do | 1856 | 2 00 |
| | Oneida Free Press | do | do | 1880 | 1 00 |
| | American Socialist (*b*) | Monthly | Communistic | 1876 | 2 00 |
| MONROE CO.—*Population:* 144,903. | | | | | |
| Brockport | Brockport Republic | Weekly | News and politics | 1856 | 1 50 |
| | Brockport Democrat | do | do | 1870 | 1 50 |
| Fairport | Fairport Herald | do | do | 1873 | 1 50 |
| Honeoye Falls | Honeoye Falls Free Press | Monthly | do | 1864 | 50 |
| | Honeoye Falls Gazette | Weekly | do | 1876 | 1 00 |
| Rochester | Union and Advertiser | Daily (*evening*) | do | 1826 | 8 00 |
| | Rochester Republican | Weekly | do | 1816 | 1 50 |
| | Union and Advertiser | Semi-weekly | do | 1826 | 3 00 |
| | Democrat and Chronicle | Daily (*morning*) | do | 1836 | 9 00 |
| | Democrat and Chronicle | Sunday | do | 1836 | 1 25 |
| | Democrat and Chronicle | Semi-weekly | do | 1836 | 3 00 |
| | Beobachter | Daily (*evening*) | News and politics (*German*) | 1851 | 7 80 |
| | Wochenblatt | Weekly | News and politics (*German*) | 1851 | 2 00 |
| | Volksblatt | Daily (*morning*) | News and politics (*German*) | 1863 | 6 00 |
| | Volksblatt | Weekly | News and politics (*German*) | 1854 | 2 00 |
| | Sonntags Journal | Sunday | News and politics (*German*) | 1878 | 1 20 |
| | Express | Daily (*evening*) | News and politics | 1859 | 8 00 |
| | Express | Weekly | do | 1859 | 1 25 |
| | Express | Tri-weekly | do | 1859 | 4 00 |
| | Earnest Christian and Golden Rule | Monthly | Religious (*Free Methodist*) | 1860 | 1 25 |
| | Hospital Review | do | Benevolent | 1864 | 50 |
| | Industrial School Advocate | do | do | 1865 | 62 |
| | Fruit Recorder and Cottage Garden | do | Agricultural | 1869 | 1 00 |
| | Sunday Morning Tribune | Sunday | News and politics | 1870 | 2 00 |
| | American Rural Home | Weekly | Agricultural | 1871 | 1 50 |
| | Herald of the Morning | Monthly | Religious (*Adventist*) | 1873 | 50 |
| | Campus (*c*) | do | Collegiate | 1873 | 2 00 |
| | Rochester Y. M. C. A. Bulletin | do | Religious | 1876 | 25 |
| | Casket | do | Trade | 1876 | 1 00 |
| | Sunday Morning Herald | Sunday | News and politics | 1876 | 2 00 |
| | Catholic Times | Weekly | Religious (*Catholic*) | 1877 | 2 00 |
| | Vick's Illustrated Magazine | Monthly | Horticultural | 1878 | 1 25 |
| | Exponent | Weekly | Religious (*Evangelical*) | 1878 | 1 50 |
| | Rochester Sonntags-Blatt | Sunday | News and politics (*German*) | 1878 | 2 00 |
| | Katholische Volkszeitung | Weekly | Religious (*Catholic; German*) | 1878 | 2 00 |
| | Rochester Courier (*d*) | do | Agricultural (*German*) | 1878 | 2 00 |
| | Rochester Telephone (*e*) | do | Juvenile | 1879 | 60 |
| | Morning Herald | Daily (*morning*) | News and politics | 1879 | 5 00 |
| | Rochester Sun (*e*) | Daily (*morning*) | do | | |
| | Rochester Miscellany | Monthly | Literary | 1880 | 1 50 |
| | Rochester Journal | Semi-monthly | Agricultural | 1880 | 1 00 |
| Spencerport | Spencerport Journal | Weekly | News and politics | 1878 | 1 50 |
| MONTGOMERY CO.—*Population:* 38,315. | | | | | |
| Amsterdam | Amsterdam Recorder | Weekly | News and politics | 1854 | 2 00 |
| | Amsterdam Sentinel | do | do | 1879 | 1 50 |
| | Democrat | Daily (*evening*) | do | 1879 | 5 00 |
| | Democrat | Weekly | do | 1870 | 2 00 |
| | Friday Democrat | do | do | 1879 | 2 00 |
| Canajoharie | Canajoharie Radii | do | do | 1836 | 2 00 |
| | Bee-Keepers' Exchange | Monthly | Agricultural | 1879 | 75 |
| | Canajoharie Courier | Weekly | News and politics | 1879 | 1 50 |
| Fonda | Mohawk Valley Democrat | do | do | 1842 | 2 00 |
| Fort Plain | Mohawk Valley Register | do | do | 1840 | 1 50 |
| | Fort Plain Standard | do | do | 1877 | 1 00 |
| Fultonville | Montgomery County Republican | do | do | 1857 | 2 00 |
| Saint Johnsville | St. Johnsville Portrait | do | do | 1875 | 1 50 |
| NEW YORK CO.—*Population:* 1,206,299. | | | | | |
| New York | American Agriculturist | Monthly | Agricultural | 1842 | 1 50 |
| | Amerikanischer Agrikulturist (*f*) | do | Agricultural (*German*) | 1842 | 1 50 |
| | National Agriculturist and Working Farmer | do | Agricultural | 1848 | 1 10 |
| | Rural New Yorker | Weekly | do | 1850 | 2 00 |
| | Pet Stock, Pigeon and Poultry Bulletin | Monthly | do | 1869 | 1 25 |
| | The South | do | do | 1871 | 2 00 |
| | Bee-Keepers' Magazine | do | do | 1872 | 1 00 |
| | American Garden | Quarterly | do | 1874 | 25 |
| | Wallace's Monthly | Monthly | do | 1875 | 3 00 |
| | American Dairyman and Butter, Cheese, and Egg Reporter. | Weekly | do | 1877 | 1 50 |
| | House and Garden | Monthly | do | 1878 | 60 |
| | Revista Agricola é Industriale | do | Agricultural (*Spanish*) | 1878 | 2 00 |
| | Homing Pigeon and Exchange and Mart | Bi-weekly | Agricultural | 1880 | 1 00 |

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*a* Succeeded by "Standard" August, 1880.
*b* Suspended December, 1879.
*c* Suspended September, 1880.
*d* Merged in "Katholische Volkszeitung".
*e* Suspended August, 1880.
*f* German edition of the "American Agriculturist"

## NEW YORK—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **New York co.**—Continued. | | | | | |
| New York—Continued | American Art Journal | Weekly | Art | 1863 | $3 00 |
| | Taxigrafer | Monthly | do | 1874 | 1 00 |
| | Painters' Magazine | do | do | 1874 | 1 50 |
| | Art Journal | do | do | 1875 | 9 00 |
| | Art Interchange | Bi-weekly | do | 1878 | 2 00 |
| | Art Amateur | Monthly | do | 1879 | 4 00 |
| | Chromatic Art Magazine | Quarterly | Trade | 1879 | 1 00 |
| | Figaro | Weekly | Art (*German*) | 1879 | 2 50 |
| | Acta Columbia | Bi-weekly | Collegiate | 1868 | 2 00 |
| | Columbia Spectator | Semi-monthly | do | 1877 | 2 00 |
| | University Quarterly | Quarterly | do | 1878 | 1 00 |
| | Shipping and Commercial List and New York Price Current. | Semi-weekly | Commerce and trade | 1795 | 10 00 |
| | United States Economist and Dry Goods Reporter. | Weekly | do | 1846 | 5 00 |
| | Journal of Commerce | Daily (*morning*) | do | 1827 | 15 00 |
| | Journal of Commerce | Weekly | do | 1827 | 2 00 |
| | Journal of Commerce | Semi-weekly | do | 1827 | 5 00 |
| | New Yorker Handels-Zeitung | Weekly | Commerce and trade (*German*) | 1851 | 10 00 |
| | New York Produce Exchange Reporter and Corn Trade List. | do | Commerce and trade | 1854 | 3 00 |
| | New York Shipping Gazette and Travelers' Guide. | Semi-monthly | do | 1862 | 1 00 |
| | Mackey's Office Directory | Weekly | do | 1862 | 4 00 |
| | New York Mercantile Journal | do | do | 1863 | 4 00 |
| | Wine and Fruit Reporter (*a*) | do | do | 1863 | |
| | Commercial Bulletin | Daily (*morning*) | do | 1865 | 11 00 |
| | Commercial Bulletin | Semi-weekly | do | 1865 | 5 00 |
| | American Trade Reporter | Weekly | do | 1867 | 5 00 |
| | Sheldon's Price List | do | do | 1868 | 5 00 |
| | Sheldon's Price List (*b*) | Monthly | do | 1868 | 1 00 |
| | Ballinger's Guide | Weekly | do | 1869 | 6 00 |
| | New York Trade Reporter | do | do | 1869 | 5 00 |
| | New York Maritime Register | do | do | 1869 | 20 00 |
| | American Grocer | do | do | 1869 | 3 00 |
| | Agents' Journal (*c*) | Monthly | do | 1869 | |
| | New York Dock Directory | Semi-weekly | do | | 5 00 |
| | Oil, Paint, and Drug Reporter | Weekly | do | 1871 | 4 00 |
| | Mackey's A B C Guide | do | do | 1873 | 6 00 |
| | American Stationer | do | do | 1873 | 2 00 |
| | New York Mercantile Review | do | do | 1873 | 4 00 |
| | El Espejo | Monthly | Commerce and trade (*Spanish*) | 1873 | 3 50 |
| | United States Grocer (*d*) | Weekly | Commerce and trade | 1875 | 3 00 |
| | El Comercio | Monthly | Commerce and trade (*Spanish*) | 1875 | 3 50 |
| | Grocer | Weekly | Commerce and trade | 1875 | 3 00 |
| | Commercial Magazine | Monthly | do | 1876 | 5 00 |
| | Commercial Gazette | Weekly | do | 1877 | 2 00 |
| | El Avisador Commercial de Neuva York | do | Commerce and trade (*Spanish*) | 1877 | 2 50 |
| | American Mail and Export Journal | Monthly | Commerce and trade | 1877 | 3 00 |
| | American Exporter | do | Commerce and trade (*Span. and Eng.*) | 1877 | 2 00 |
| | Board of Trade Gazette | Weekly | Commerce and trade | 1878 | 3 00 |
| | Correspondence Americaine | do | Commerce and trade (*Fr. and Eng.*) | 1878 | 1 00 |
| | Correspondencia dos Estados Unidos | Monthly | Commerce and trade (*Portuguese*) | 1878 | 100 00 |
| | El Anunciador Hispano-Americano (*c*) | Weekly | Commerce and trade (*Spanish*) | 1879 | 2 50 |
| | New York Market Index and Journal | do | Commerce and trade | 1879 | 1 00 |
| | Mackey's Dry Goods Price List | do | do | 1879 | 4 00 |
| | Spice Mill | do | do | | 3 00 |
| | Merchant's Review | do | do | 1880 | 2 00 |
| | Industrial Monthly and Commercial and Statistical Review. | Monthly | do | 1880 | 1 50 |
| | National Buyers' Economist | Weekly | do | | 3 00 |
| | New York School Journal | do | Educational | 1870 | 2 00 |
| | Deaf Mutes' Journal | do | do | 1871 | 1 50 |
| | Little Gem and Kindergarten | Monthly | Juvenile | 1871 | 1 00 |
| | Students' Journal | do | Educational | 1872 | 2 00 |
| | Barnes' Educational Journal | do | do | 1874 | 1 50 |
| | Brown's Phonographic Monthly and Reporters' Journal. | do | do | 1875 | 2 00 |
| | Fortschritt | Weekly | Educational (*German and English*) | 1875 | 2 00 |
| | Munson's Phonographic News | Monthly | Educational | 1876 | 2 00 |
| | Elocutionist's Journal | Quarterly | do | 1877 | 40 |
| | Scholar's Companion | Monthly | do | 1877 | 50 |
| | American Kindergarten | do | do | 1878 | 1 00 |
| | Teachers' Institute | do | do | 1878 | 1 00 |
| | School Index | do | do | | 2 00 |
| | The Spelling Reform | Weekly | do | | 75 |
| | Atlas | do | General literature | 1833 | 75 |
| | New York Weekly | do | do | 1845 | 3 00 |
| | New York Ledger | do | do | 1848 | 3 00 |
| | Frank Leslie's Illustrated Newspaper | do | do | 1855 | 4 00 |
| | Frank Leslie's Illustrirte Zeitung | do | General literature (*German*) | 1857 | 4 00 |
| | Novellen-Schatz | Semi-monthly | General literature (*German*) | 1859 | 3 90 |
| | Frank Leslie's Lady's Magazine | Monthly | General literature | 1863 | 3 50 |
| | Fuer Alle | Weekly | General literature (*German*) | 1865 | 3 50 |
| | Frank Leslie's Chimney Corner | do | General literature | 1865 | 4 00 |
| | Frank Leslie's Pleasant Hours | Monthly | do | 1866 | 1 50 |
| | Frank Leslie's Boys' and Girls' Weekly | Weekly | do | 1866 | 2 50 |
| | New York Fireside Companion | do | do | 1867 | 3 00 |
| | Wood's Household Advocate | Monthly | do | 1867 | 75 |
| | New York Saturday Journal | Weekly | do | 1870 | 3 00 |
| | Star Journal | do | do | 1870 | 3 00 |
| | Frank Leslie's Lady's Journal | do | do | 1871 | 4 00 |
| | Deutsch-Amerikanische Familien Blaetter | Semi-monthly | General literature (*German*) | 1872 | 3 00 |
| | Deutsch-Amerikanische Volks-Bibliothek | Weekly | General literature (*German*) | 1873 | 5 00 |
| | Family Journal | Monthly | General literature | 1873 | 1 00 |
| | New York Family Story Paper | Weekly | do | 1873 | 3 00 |
| | Boys of New York | do | do | 1875 | 2 50 |
| | New York Illustrated Times | do | do | 1876 | 4 00 |
| | Leisure Hours | Monthly | do | 1877 | 1 00 |
| | Sunday Magazine | Monthly (*Sunday*) | do | 1877 | 3 00 |
| | Frank Leslie's Popular Monthly | Monthly | do | 1876 | 3 00 |

*a* Consolidated with "Wine and Spirit Review", Chicago.
*b* Suspended after the census year.
*c* Consolidated with "Agents' Herald", Philadelphia.
*d* Suspended March, 1880.

## NEW YORK—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| NEW YORK CO.—Continued. | | | | | |
| New York—Continued | Young Men of America | Weekly | General literature | 1877 | $2 50 |
| | People's Illustrated Magazine | Monthly | do | 1878 | 1 00 |
| | Frank Leslie's Budget | do | do | 1878 | 1 50 |
| | Arm Chair | Weekly | do | 1879 | 3 00 |
| | Fireside Monthly | Monthly | do | 1879 | 2 00 |
| | Home Weekly | Weekly | do | 1879 | 2 50 |
| | Our Home | Monthly | do | 1880 | 1 00 |
| | Idle Hours Magazine | do | do | | 2 00 |
| | Best Reading for Old and Young | do | do | | 3 00 |
| | Mirror of Fashion | Semi-annually | Fashion | 1840 | 3 50 |
| | Demorest's Illustrated Monthly | Monthly | do | 1864 | 3 00 |
| | Harper's Bazar | Weekly | do | 1867 | 4 00 |
| | Delineator | Monthly | do | 1869 | 1 00 |
| | Smith's Illustrated Pattern Bazar | Quarterly | do | 1870 | 1 10 |
| | Domestic Monthly | Monthly | do | 1873 | 1 50 |
| | Andrews' Bazar | do | do | 1875 | 1 00 |
| | American Fashion Review and Tailors' Journal. | Quarterly | Fashion (*German*) | 1875 | 5 00 |
| | Ehrich's Fashion Quarterly | do | Fashion | 1876 | 50 |
| | Elite Fashions | Monthly | do | 1876 | 1 50 |
| | New York Fashion Bazar | Weekly | do | 1879 | 2 50 |
| | World of Fashion | do | do | 1879 | 3 00 |
| | Leslie and Company's Lady's Bazar | Monthly | do | 1879 | 2 00 |
| | { Thompson's Bank Note and Commercial Reporter. | do | Financial | 1836 | 5 00 |
| | { Thompson's Bank Note and Commercial Reporter. | Semi-monthly | do | 1836 | 3 00 |
| | Bankers' Magazine and Statistical Register. | Monthly | do | 1846 | 5 00 |
| | Wall Street Journal | Weekly | do | 1852 | 5 00 |
| | Stockholder | do | do | 1862 | 5 00 |
| | Rhodes' Journal of Banking | Monthly | do | 1873 | 5 00 |
| | Indicator | Daily (*morning*) | do | 1877 | 10 00 |
| | American Exchange | Daily (*morning*) | do | 1878 | 10 00 |
| | Wall Street Daily News | Daily (*morning*) | do | 1879 | 5 00 |
| | Bullion | Bi-weekly | do | 1879 | 50 |
| | Bradstreets' | Semi-weekly | do | 1879 | 12 00 |
| | Hotel Reporter | Daily (*morning*) | Hotel arrivals, etc | 1877 | 12 00 |
| | Magazine of American History | Monthly | Historical | 1877 | 5 00 |
| | Der Freischütz | Weekly | Humorous (*German*) | 1866 | 2 50 |
| | Wild Oats | do | Humorous | 1870 | 4 00 |
| | { Puck | do | do | 1877 | 5 00 |
| | { Puck | do | Humorous (*German*) | 1876 | 5 00 |
| | Diblik | Sunday | Humorous (*Bohemian*) | 1877 | 2 50 |
| | Insurance Monitor | Monthly | Insurance | 1853 | 3 25 |
| | United States Insurance Gazette and Magazine | do | do | 1854 | 5 00 |
| | Weekly Underwriter | Weekly | do | 1859 | 5 00 |
| | American Life Assurance Magazine and Journal of Actuaries. | Quarterly | do | 1860 | 2 00 |
| | Insurance and Real Estate Journal | Semi-monthly | do | 1862 | 3 00 |
| | Chronicle | Weekly | do | 1866 | 3 00 |
| | Insurance Times | Monthly | do | 1868 | 3 20 |
| | Spectator | do | do | 1868 | 3 00 |
| | Insurance Law Journal | do | do | 1871 | 5 00 |
| | Insurance Critic | do | do | 1874 | 3 25 |
| | L'Eco de Italia | Semi-weekly | News and politics (*Italian*) | 1848 | 6 00 |
| | Scottish American Journal | Weekly | News and politics | 1857 | 3 00 |
| | Amerikanische Schweizer Zeitung | do | News and politics (*German*) | 1867 | 2 00 |
| | La Independencia | do | News and politics (*Spanish*) | 1873 | 5 00 |
| | Scotman and Caledonia Advertiser | do | News and politics | 1874 | 3 00 |
| | Nachrichten aus Amerika | Monthly | News and politics (*German*) | 1876 | 50 |
| | Las Novedades | Semi-weekly | News and politics (*Spanish*) | 1876 | 15 00 |
| | New Yorker Schwæbisches Wochenblatt | Weekly | News and politics (*German*) | 1877 | 2 50 |
| | St. Nicholas | Monthly | Juvenile | 1873 | 3 00 |
| | Harper's Young People | Weekly | do | 1879 | 1 50 |
| | Internal Revenue Record | do | Legal | 1865 | 5 00 |
| | Register | Daily (*morning*) | do | 1870 | 10 00 |
| | City Record | Daily (*evening*) | Legal official city organ | 1873 | 9 30 |
| | New York Weekly Digest | Weekly | Legal | 1875 | 5 00 |
| | Notaries' Journal | Quarterly | do | 1877 | 2 00 |
| | North American Review | Monthly | Literary | 1815 | 5 00 |
| | Princeton Review | Bi-monthly | do | 1825 | 2 00 |
| | London Quarterly Review | Quarterly | do | 1834 | 4 00 |
| | Westminster Review | do | do | 1834 | 4 00 |
| | Edinburgh Review | do | do | 1834 | 4 00 |
| | Blackwood's Edinburgh Review | Monthly | do | 1835 | 4 00 |
| | Messenger | Weekly | do | 1841 | 3 00 |
| | Eclectic Magazine | Monthly | do | 1844 | 5 00 |
| | Home Journal | Weekly | do | 1846 | 2 00 |
| | Harper's New Monthly Magazine | Monthly | do | 1850 | 4 00 |
| | New Yorker Belletristisches Journal | Weekly | Literary (*German*) | 1851 | 5 00 |
| | National Quarterly Review | Quarterly | Literary | 1860 | 4 00 |
| | The Nation | Weekly | do | 1865 | 5 20 |
| | The Aldine | Monthly | do | 1868 | 5 00 |
| | Appleton's Journal | do | do | 1869 | 3 00 |
| | Literary News | do | do | 1869 | 50 |
| | Scribner's Monthly and Illustrated Magazine | do | do | 1870 | 4 00 |
| | British Quarterly Review | Quarterly | do | 1871 | 4 00 |
| | Nordstjernan | Weekly | Literary (*Swedish*) | 1872 | 2 00 |
| | International Review | Monthly | Literary | 1874 | 5 00 |
| | Library Table (*a*) | Weekly | do | 1875 | |
| | Present Century (*b*) | do | do | 1879 | 4 00 |
| | Landsberg's Illustrirtes Wochenblatt (*c*) | do | Literary (*German*) | 1880 | 5 00 |
| | Cricket on the Hearth | Monthly | Literary | 1875 | 1 00 |
| | Andrew's American Queen | Weekly | Fashion | 1879 | 4 00 |
| | Library Magazine | Monthly | Literary | 1879 | 1 00 |
| | Celtic Monthly | do | do | 1879 | 3 00 |
| | Nineteenth Century | do | do | 1879 | 2 25 |
| | Contemporary Review | do | do | 1879 | 2 25 |
| | Fortnightly Review | do | do | 1879 | 2 25 |
| | Fireside at Home | do | do | 1880 | 1 00 |
| | Morford's New Monthly Magazine | do | do | 1880 | 2 50 |

*a* Suspended December, 1879. *b* Suspended *c* Suspended September, 1880.

## NEW YORK—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| NEW YORK CO.—Continued. | | | | | |
| New York—Continued | Standard Series | Weekly | Literary | 1880 | $10 00 |
| | Index | Monthly | do | 1880 | 2 00 |
| | Braithwait's Retrospect | Semi-annually | Medical and surgical | 1840 | 2 50 |
| | North American Journal of Homeopathy | Quarterly | do | 1851 | 4 00 |
| | Druggists' Circular and Chemical Gazette | Monthly | do | 1857 | 1 60 |
| | New York Medical and Surgical Journal | do | do | 1864 | 2 00 |
| | New York Medical Journal | do | do | 1865 | 4 00 |
| | Gaillard's Medical Journal | do | do | 1866 | 5 00 |
| | Medical Record | Weekly | do | 1866 | 5 00 |
| | American Journal of Obstetrics | Quarterly | do | 1868 | 5 00 |
| | The Physician | Monthly | do | 1868 | 2 00 |
| | Archives of Opthalmology | Quarterly | do | 1869 | 4 00 |
| | New Remedies | Monthly | do | 1872 | 2 00 |
| | Homeopathic Times | do | do | 1873 | 3 00 |
| | The Sanitarian | do | do | 1873 | 3 00 |
| | Medical Eclectic | do | do | 1874 | 2 00 |
| | American Medical Bi-Weekly (*a*) | Bi-weekly | do | 1874 | 1 00 |
| | Archives of Dormatology | Quarterly | do | 1874 | 4 00 |
| | Journal of Nervous and Mental Diseases | do | do | 1874 | 5 00 |
| | Medical Gazette | Weekly | do | 1876 | 5 00 |
| | American Homeopath | Monthly | do | 1876 | 2 00 |
| | Dr. Foote's Health Monthly | do | do | 1876 | 50 |
| | Druggists' Advertiser and Trade Journal (*b*) | do | do | 1876 | 1 00 |
| | New York Quarterly Cancer Journal | Quarterly | do | 1877 | 1 00 |
| | Medical Tribune | Monthly | do | 1878 | 1 00 |
| | Index Medicus | do | do | 1879 | 6 00 |
| | American Journal of Otology | Quarterly | do | 1879 | 3 00 |
| | Archives of Medicine | Bi-monthly | do | 1879 | 3 00 |
| | Archives of Otology | Quarterly | do | 1879 | 3 00 |
| | Homeopathic Journal of Obstetrics and Diseases of Women and Children. | do | do | 1879 | 4 00 |
| | Physiologist and Family Physician | Semi-monthly | do | 1879 | 4 00 |
| | Deutsch-Amerikanische Apotheker Zeitung | do | Medical and surgical (*German*) | 1880 | 2 50 |
| | Engineering and Mining Journal | Weekly | Mining | 1866 | 4 00 |
| | Mining Record | do | do | 1877 | 3 00 |
| | Mining News | Daily (*evening*) | do | 1880 | 6 00 |
| | New York Philharmonic Journal and Advertiser | Semi-monthly | Musical | 1865 | 1 50 |
| | Orpheus (*c*) | Monthly | do | 1865 | 1 00 |
| | Hitchcock's Illustrated Musical Monthly (*d*) | do | do | | |
| | Musical Review | Weekly | do | 1879 | 3 00 |
| | Sunday Mercury | Sunday | News and family reading | 1838 | 2 00 |
| | New York Mercury (*e*) | Weekly | do | 1838 | |
| | New York Dispatch | Sunday | do | 1845 | 2 50 |
| | Harper's Weekly | Weekly | Literary | 1857 | 4 00 |
| | Commercial Advertiser | Daily (*evening*) | News and politics | 1794 | 9 00 |
| | Evening Post | Daily (*evening*) | do | 1801 | 9 00 |
| | Evening Post | Weekly | do | 1801 | 1 50 |
| | Evening Post | Semi-weekly | do | 1801 | 3 00 |
| | Courrier des Etats-Unis | Daily (*morning*) | News and politics (*French*) | 1828 | 12 00 |
| | Courrier des Etats-Unis | Weekly | News and politics (*French*) | 1828 | 5 00 |
| | Courrier des Etats-Unis | do | News and politics (*French*) | 1828 | 6 00 |
| | Sun | Daily (*morning*) | News and politics | 1833 | 6 50 |
| | Sun | Weekly | do | 1835 | 1 00 |
| | Sun | Sunday | do | 1876 | 1 20 |
| | New Yorker Staats-Zeitung | Daily (*morning*) | News and politics (*German*) | 1835 | 9 00 |
| | New Yorker Staats-Zeitung | Weekly | News and politics (*German*) | 1835 | 2 00 |
| | New Yorker Sonntagsblatt | Sunday | News and politics (*German*) | 1835 | 2 00 |
| | Herald | Daily (*morning*) | News and politics | 1835 | 10 00 |
| | Herald | Weekly | do | 1835 | 1 00 |
| | Herald | Sunday | do | 1835 | 1 00 |
| | Evening Express | Daily (*evening*) | do | 1836 | 9 00 |
| | Express | Weekly | do | 1836 | 1 00 |
| | Tribune | Daily (*morning*) | do | 1841 | 12 00 |
| | Tribune | Weekly | do | 1841 | 2 00 |
| | Tribune | Semi-weekly | do | 1841 | 3 00 |
| | Tribune | Sunday | do | 1880 | 2 00 |
| | New Yorker Zeitung | Daily (*morning*) | News and politics (*German*) | 1845 | 7 00 |
| | New Yorker Zeitung | Weekly | News and politics (*German*) | 1845 | 2 00 |
| | Revue und Beobachter am Hudson | Sunday | News and politics (*German*) | 1845 | 2 00 |
| | Times | Daily (*morning*) | News and politics | 1851 | 12 00 |
| | Times | Weekly | do | 1851 | 1 00 |
| | Times | Sunday | do | 1851 | 2 00 |
| | Times | Semi-weekly | do | 1851 | 2 50 |
| | Daily News | Daily (*evening*) | News and politics (*Eng. and Germ.*) | 1857 | 3 00 |
| | News | Weekly | News and politics (*Eng. and Germ.*) | 1857 | 1 00 |
| | News | Sunday | News and politics (*Eng. and Germ.*) | 1867 | 1 50 |
| | World | Daily (*morning*) | News and politics | 1860 | 12 00 |
| | World | Weekly | do | 1860 | 1 00 |
| | World | Sunday | do | 1860 | 2 00 |
| | World | Semi-weekly | do | 1860 | 2 00 |
| | Le Messager Franco-Américain | Daily (*morning*) | News and politics (*French*) | 1860 | 10 00 |
| | Le Messager Franco-Américain | Weekly | News and politics (*French*) | 1860 | 3 00 |
| | Le Messager Franco-Américain | Semi-weekly | News and politics (*French*) | 1860 | 5 00 |
| | Le Messager Franco-Américain | Sunday | News and politics (*French*) | 1860 | 3 00 |
| | Westchester Times | Weekly | News and politics | 1864 | 1 50 |
| | Star | Daily (*morning*) | do | 1867 | 6 00 |
| | Star | Sunday | do | 1867 | 1 50 |
| | Evening Mail | Daily (*evening*) | do | 1867 | 6 00 |
| | Mail | Weekly | do | 1871 | 2 00 |
| | Evening Telegram | Daily (*evening*) | do | 1867 | 5 00 |
| | New Yorker Tagsblatt | Weekly | News and politics (*German*) | 1868 | 2 00 |
| | Union | do | News and politics | 1869 | 2 50 |
| | Irish World and American Industrial Liberator. | do | do | 1870 | 2 50 |
| | New Yorker Deutsches Volksblatt | do | News and politics (*German*) | 1870 | 2 00 |
| | Progressive American | do | News and politics | 1871 | 2 00 |
| | Irish Democrat | do | do | 1871 | 2 50 |
| | Local Reporter | Semi-weekly | do | 1873 | 1 50 |
| | Graphic | Daily (*evening*) | Illustrated news and politics | 1873 | 12 00 |
| | Der Republikaner | Weekly | News and politics (*Germ. and Eng.*) | 1875 | 1 00 |
| | American Sentry | do | News and politics | 1875 | 1 00 |

*a* Suspended after census year. *b* Suspended January, 1881. *c* Suspended October, 1880. *d* Suspended May, 1880. *e* An edition of the "Sunday Mercury".

## NEW YORK—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **New York co.—Continued.** | | | | | |
| **New York—Continued** | National Journal | Weekly | News and politics | 1876 | $1 00 |
| | McGee's Illustrated Weekly | do | Literary | 1876 | 3 00 |
| | Harlem Record | Semi-weekly | News and politics | 1878 | 1 00 |
| | New York People | Weekly | do | 1879 | 1 00 |
| | America | do | do | 1879 | 2 00 |
| | { Truth | Daily (*morning*) | do | 1879 | 4 00 |
| | { Truth | Sunday | do | 1879 | 1 00 |
| | Suffragist | Weekly | do | 1880 | 2 00 |
| | Leader | do | do | 1880 | 50 |
| | Annex (*a*) | do | do | 1880 | 1 00 |
| | Illustrirte Nachrichten aus Deutschland und der Schweiz. | do | News and politics (*German*) | 1880 | 5 00 |
| | Penman's Art Journal | Monthly | Penmanship | 1877 | 1 00 |
| | Penman's Gazette | do | do | 1880 | 75 |
| | American Railroad Journal | Weekly | Railroads | 1831 | 5 00 |
| | Railroad Gazette | do | do | 1857 | 4 20 |
| | Traveller's Official Railway Guide | Monthly | do | 1867 | 4 00 |
| | Waring's Railroad and Steamboat Guide | do | do | 1879 | 2 00 |
| | Appleton's Railway and Steam Navigation Guide. | do | do | ........ | 2 00 |
| | Examiner and Chronicle | Weekly | Religious (*Baptist*) | 1823 | 2 50 |
| | Baptist Weekly | do | Religious (*Baptist*) | 1833 | 2 50 |
| | Baptist Home Mission | Monthly | Religious (*Baptist*) | 1878 | 50 |
| | New York Watch Tower | Weekly | Religious (*Baptist*) | 1878 | 1 50 |
| | New York Freeman's Journal and Catholic Register. | do | Religious (*Catholic*) | 1840 | 3 00 |
| | Christian World | Monthly | Religious (*Catholic*) | 1850 | 1 10 |
| | New York Tablet | Weekly | Religious (*Catholic*) | 1857 | 3 00 |
| | Catholic World | Monthly | Religious (*Catholic*) | 1865 | 4 00 |
| | Sunday Democrat | Sunday | Religious (*Catholic*) | 1869 | 2 50 |
| | Catholic Review | Weekly | Religious (*Catholic*) | 1872 | 3 20 |
| | Weekly and Sunday Union | Sunday | Religious (*Catholic*) | 1873 | 2 00 |
| | Cæcilia | Monthly | Religious (*Catholic; Eng. and Germ.*) | 1874 | 1 10 |
| | Katholisches Volksblatt | Weekly | Religious (*Catholic; German*) | 1878 | 2 50 |
| | Catholic Herald | do | Religious (*Catholic*) | 1878 | 2 50 |
| | Illustrated Catholic American | do | Religious (*Catholic*) | 1880 | 3 00 |
| | Catholic Fireside | Monthly | Religious (*Catholic*) | 1880 | 1 00 |
| | Home Missionary | do | Religious (*Congregational*) | 1828 | 60 |
| | Parish Visitor | do | Religious (*Episcopal*) | 1854 | 50 |
| | Register of the American Church Missionary Society. | Quarterly | Religious (*Protestant Episcopal*) | 1863 | 40 |
| | People's Pulpit (*b*) | Weekly | Religious (*Episcopal*) | 1874 | ........ |
| | Standard | do | Religious (*Protestant Episcopal*) | 1879 | 1 00 |
| | Church Weekly | do | Religious (*Protestant Episcopal*) | 1879 | 1 50 |
| | Guardian | do | Religious (*Protestant Episcopal*) | 1879 | 3 00 |
| | Truth Seeker | do | Miscellaneous (*Free Thought*) | 1873 | 3 00 |
| | Hebrew Leader | do | General literature | 1850 | 3 00 |
| | Jewish Messenger | do | Religious (*Judaism*) | 1857 | 5 00 |
| | New Jerusalem Messenger | do | Religious (*Judaism*) | 1859 | 3 20 |
| | Jewish Gazette | do | Religious (*Judaism; Heb. and Germ.*) | 1874 | 2 50 |
| | Jewish Advocate | Monthly | Religious (*Judaism*) | 1878 | 1 00 |
| | Judische Volks-Zeitung | Weekly | Religious (*Judaism; German*) | 1878 | 2 00 |
| | American Hebrew | do | Religious (*Judaism*) | 1879 | 3 00 |
| | Evangelische Lutherischer Missione Blatt | Monthly | Religious (*Lutheran; German*) | 1875 | 25 |
| | Christian Advocate | Weekly | Religious (*Methodist*) | 1826 | 2 50 |
| | Quarterly Review | Quarterly | Religious (*Methodist*) | 1830 | 2 50 |
| | Methodist | Weekly | Religious (*Methodist*) | 1860 | 2 20 |
| | New York Evangelist | do | Religious (*Presbyterian*) | 1830 | 3 00 |
| | Presbyterian Review | Quarterly | Religious (*Presbyterian*) | 1880 | 3 00 |
| | Christian Intelligencer | Weekly | Religious (*Reformed*) | 1823 | 2 65 |
| | Sunday School Advocate | Semi-monthly | Sunday school (*Methodist*) | 1840 | 25 |
| | Child's Paper | Monthly | Sunday school (*Methodist*) | 1852 | 12 |
| | Berean Leaf | Quarterly | Sunday school (*Methodist*) | 1868 | 06 |
| | Sunday School Journal | Monthly | Sunday school (*Methodist*) | 1868 | 50 |
| | Good Words | do | Sunday school (*Methodist*) | 1869 | 12 |
| | Good Cheer | do | Sunday school (*Methodist*) | 1870 | 08 |
| | Old and Young | do | Sunday school (*Methodist*) | 1870 | 30 |
| | Young Catholic | do | Sunday school (*Catholic*) | 1870 | 40 |
| | Morning Light | do | Sunday school (*Evangelical*) | 1871 | 12 |
| | My Paper | do | Sunday school | 1871 | 12 |
| | Apples of Gold | Weekly | do | 1872 | 50 |
| | Sunday School Lesson Leaflet | Monthly | do | 1876 | 10 |
| | Sunday School Classmate | Semi-monthly | do | 1877 | 25 |
| | Study | Quarterly | do | 1878 | 50 |
| | Young Christian Soldier and Carrier Dove | Weekly | do | 1878 | 54 |
| | Teachers' Assistant | Monthly | do | 1879 | 25 |
| | Picture Lesson Paper | do | do | 1879 | 25 |
| | Lesson Helper | Quarterly | do | ........ | 30 |
| | Lesson Teacher's Quarterly | do | do | ........ | 10 |
| | Light on the Lesson | do | do | ........ | 20 |
| | My Picture Lesson | Weekly | do | ........ | 25 |
| | Christian Tidings | Monthly | do | ........ | 25 |
| | Sunday Companion | do | do | ........ | 25 |
| | Sunshine | do | do | ........ | 25 |
| | Young Folks' Paper | do | do | ........ | 25 |
| | New York Observer | Weekly | Religious (*Undenominational*) | 1823 | 3 15 |
| | Mother's Magazine and Family Circle | Monthly | Religious (*Undenominational*) | 1832 | 1 50 |
| | Spirit of Missions | do | Religious (*Episcopal*) | 1835 | 1 50 |
| | American Messenger | do | Religious (*Undenominational*) | 1843 | 30 |
| | Bible Society Record | do | Religious (*Undenominational*) | 1843 | 30 |
| | Churchman | Weekly | Religious (*Episcopal*) | 1844 | 3 50 |
| | Guide to Holiness | Monthly | Religious (*Undenominational*) | 1845 | 1 00 |
| | Amerikanischer Botschafter | do | Religious (*Undenom.; German*) | 1846 | 30 |
| | American Missionary | do | Religious (*Undenominational*) | 1846 | 50 |
| | Independent | Weekly | General literature | 1848 | 3 00 |
| | Sower and Mission Monthly | Monthly | Religious (*Undenominational*) | 1853 | 25 |
| | Missionary Link | Bi-monthly | Religious (*Undenominational*) | 1861 | 50 |
| | Voice from the Old Brewery | Monthly | Religious (*Undenominational*) | 1861 | 25 |
| | Kind Words (*c*) | do | Sunday school paper | 1865 | 09 |
| | Your Paper (*c*) | do | do | 1865 | 09 |
| | Band of Hope (*c*) | do | do | 1865 | 09 |

*a* Succeeded by New York "Republican", August, 1880. *b* Suspended May, 1879. *c* Removed to La Porte, Ind., since census year.

## NEW YORK—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| NEW YORK CO.—Continued. | | | | | |
| New York—Continued | Good Things (*a*) | Monthly | Sunday school paper | 1865 | $0 09 |
| | Complete Preacher (*b*) | do | Religious | | |
| | Christian at Work | Weekly | Religious (*Undenominational*) | 1866 | 3 00 |
| | Christian Union | do | Religious (*Undenominational*) | 1869 | 3 00 |
| | Illustrated Christian Weekly | do | Religious (*Undenominational*) | 1871 | 2 50 |
| | Deutscher Volksfreund | do | Religious (*Undenom.; German*) | 1871 | 2 25 |
| | New York Weekly Witness | do | Religious (*Undenominational*) | 1872 | 1 50 |
| | Church Union | do | Religious (*Undenominational*) | 1873 | 2 50 |
| | Morning and Day of Reform (*a*) | Monthly | Religious (*Undenominational*) | 1874 | 60 |
| | Lay Evangelist | do | Religious (*Undenominational*) | 1875 | 25 |
| | Preacher and Homiletic Monthly | do | Religious (*Undenominational*) | 1876 | 2 50 |
| | Zeage der Wahrheit | Bi-weekly | Religious (*Lutheran; German*) | 1877 | 1 00 |
| | Christian Herald and Signs of our Times | Weekly | Religious (*Undenominational*) | 1878 | 1 50 |
| | Church and People | Monthly | Religious (*Undenominational*) | 1878 | 1 00 |
| | Sabbath Reading | Weekly | Religious (*Undenominational*) | 1878 | 50 |
| | Oriental Magazine | Quarterly | Religious (*Undenominational*) | 1879 | 2 00 |
| | Gospel in all Lands | Monthly | Religious (*Undenominational*) | 1880 | 2 50 |
| | Foreign Missionary of the Presbyterian Church. | do | Religious (*Presbyterian*) | 1841 | 1 00 |
| | Denni Delnicke Listy | Daily (*morning*) | News and politics (*Bohemian*) | 1877 | 8 00 |
| | Delnicke Listy | Weekly | News and politics (*Bohemian*) | 1877 | 3 00 |
| | New Yorker Volkszeitung | Daily (*morning*) | News and politics (*German*) | 1878 | 6 00 |
| | New Yorker Volkszeitung | Weekly | News and politics (*German*) | 1878 | 1 50 |
| | New Yorker Sonntagsblatt | Sunday | News and politics (*German*) | 1878 | 1 50 |
| | Scientific American | Weekly | Scientific | 1846 | 3 00 |
| | Monthly Record of Scientific Literature | Monthly | do | 1872 | 25 |
| | Popular Science Monthly | do | do | 1872 | 5 00 |
| | Growing World | do | do | 1874 | 1 00 |
| | American Journal of Microscopy | do | do | 1875 | 1 00 |
| | Scientific American Supplement | Weekly | do | 1876 | 5 00 |
| | Water, Gas, and Steam (*c*) | Monthly | do | 1877 | 2 00 |
| | Scientific Man | Weekly | do | 1878 | 1 00 |
| | Young Scientist | Monthly | do | 1878 | 50 |
| | Illustrated Scientific News | do | do | 1878 | 1 50 |
| | American Microscopical Journal | do | do | 1880 | 1 00 |
| | Magnet | Semi-monthly | do | 1880 | 1 00 |
| | Practical American | Monthly | do | 1880 | 1 50 |
| | Science News (*d*) | Weekly | do | | |
| | Corner Stone | do | Secret society | 1870 | 2 00 |
| | Echo | Semi-monthly | Pro-secret society | 1872 | 2 00 |
| | Grand Army Gazette and National Guardsman. | Monthly | Secret society | 1873 | 1 00 |
| | Der Fuehrer | Weekly | Secret society (*German*) | 1873 | 2 30 |
| | Bulletin of the Torrey Botanical Club | Monthly | Scientific | 1873 | 1 00 |
| | Germania | Bi-weekly | Secret society (*German*) | 1877 | 1 20 |
| | Die New Yorker Bundes-Presse | Weekly | Secret society (*German*) | 1878 | 2 50 |
| | Foresters' Journal | Monthly | Secret society | 1878 | 50 |
| | Masonic Newspaper (*e*) | Weekly | do | 1878 | 1 25 |
| | Spirit of the Times | do | Sporting | 1831 | 5 00 |
| | National Police Gazette | do | do | 1846 | 4 00 |
| | New York Clipper | do | do | 1853 | 4 00 |
| | Turf, Field, and Farm | do | do | 1865 | 5 00 |
| | Fur, Fin, and Feather | Bi-monthly | do | 1868 | 2 50 |
| | Forest, Stream, Rod, and Gun | Weekly | do | 1871 | 4 00 |
| | Sportsman | do | do | 1875 | 3 00 |
| | Scheutzen and Jago-zeitung | Semi-monthly | Sporting (*German*) | 1877 | 2 00 |
| | New York Mirror | Weekly | Sporting | 1879 | 2 50 |
| | American Yacht Register and Quarterly Reporter. | Quarterly | do | 1879 | 1 00 |
| | Phelan Checker Player | Monthly | do | | 2 00 |
| | Sunday Times and Messenger | Sunday | News and politics | 1841 | 2 50 |
| | Sunday Courier | do | do | 1842 | 1 25 |
| | Courrier Suisse | do | News and politics (*Swedish*) | | 2 00 |
| | Review | do | News and politics | 1873 | 75 |
| | Journal of the Telegraph | Semi-monthly | Telegraphic | 1867 | 2 00 |
| | Operator | do | do | 1874 | 1 00 |
| | Youths' Temperance Banner | Monthly | Temperance | 1866 | 12 |
| | National Temperance Advocate | do | do | 1866 | 1 00 |
| | Our Union | do | do | 1874 | 60 |
| | Harness and Carriage Journal | do | Commerce and trade | 1855 | 3 00 |
| | Iron Age | Weekly | do | 1855 | 4 50 |
| | Shoe and Leather Reporter | do | do | 1857 | 3 50 |
| | Hub | Monthly | do | 1858 | 3 00 |
| | Photographic Times and American Photographer. | do | do | 1860 | 2 00 |
| | Tobacco Leaf | Weekly | do | 1864 | 4 00 |
| | Typographic Messenger | Semi-annually | do | 1865 | 1 00 |
| | Woodcock's Printers' and Lithographers' Weekly Gazette and Newspaper Reporter. | Weekly | do | 1866 | 2 00 |
| | Der Amerikanische Bier-Brauer | Monthly | Commerce and trade (*German*) | 1868 | 6 00 |
| | Manufacturers' Review and Industrial Record | do | Commerce and trade | 1868 | 1 50 |
| | Millers' Journal | Weekly | do | 1868 | 2 00 |
| | Paper Trade Reporter | Monthly | do | 1868 | 1 00 |
| | Builder and Wood Worker | do | do | 1868 | 1 50 |
| | Coal Trade Journal | Weekly | do | 1869 | 3 00 |
| | Van Nostrund's Engineering Magazine | Monthly | Scientific | 1869 | 5 00 |
| | Manufacturer and Builder | do | Trade | 1869 | 2 00 |
| | Jewelers' Circular and Horological Review | do | do | 1869 | 2 00 |
| | Dry Goods Bulletin | Weekly | do | 1870 | 5 00 |
| | Anthony's Photographic Bulletin | Monthly | do | 1870 | 2 00 |
| | National Car Builder | do | do | 1870 | 1 00 |
| | American Brewers' Gazette and Hop Trade Review. | do | do | 1871 | 5 00 |
| | Bonfort's Wine and Liquor Circular | Semi-monthly | do | 1871 | 5 00 |
| | Publishers' Weekly | Weekly | do | 1872 | 3 00 |
| | Milliner | Monthly | do | 1872 | 2 00 |
| | Paper Trade Journal | Weekly | do | 1872 | 4 00 |
| | Clothier and Hatter | Monthly | do | 1872 | 1 00 |
| | Sewing Machine Journal | do | do | 1873 | 1 25 |
| | Buchdrucker Zeitung | Semi-monthly | Commerce and trade (*German*) | 1873 | 1 50 |
| | Hat, Cap, and Fur Trade Review | Monthly | Commerce and trade | 1873 | 3 00 |

*a* Removed to La Porte, Ind., since census year.
*b* Merged in the "Preacher and Homiletic Monthly".
*c* Suspended June, 1880.
*d* Suspended October, 1879.
*e* Suspended April, 1880.

## NEW YORK—Continued.

| Place of publication. | Name of periodical. | How often published | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **NEW YORK co.—Continued.** | | | | | |
| New York—Continued | Carpet Trade Review | Monthly | Commerce and trade | 1873 | $3 00 |
| | Metal Worker | Weekly | do | 1874 | 1 20 |
| | Engineering News | do | Science and mechanics | 1874 | 3 00 |
| | Weekly Proof-Sheet | do | Commerce and trade | 1874 | 1 00 |
| | Trade Bureau | do | do | 1874 | 3 00 |
| | Notions and Fancy Goods Record and Silk Reporter. | Semi-monthly | do | 1875 | 3 00 |
| | United States Tobacco Journal | Weekly | do | 1875 | 3 00 |
| | American Bookseller | Semi-monthly | do | 1876 | 1 00 |
| | Millinery Trade Review | Monthly | do | 1876 | 3 00 |
| | German and American Brewers' Journal and Malt and Hop Trade Reporter. | do | Commerce and trade (*English and German*). | 1876 | 5 00 |
| | Geyers' Stationer | Semi-monthly | Commerce and trade | 1877 | 2 00 |
| | American Machinist | Weekly | Science and mechanics | 1877 | 3 00 |
| | Furnishing Goods Trade Review | Monthly | Commerce and trade | 1878 | 2 00 |
| | Der Techniker | Semi-monthly | Science and mechanics (*German*) | 1878 | 1 40 |
| | Tobacconist | Monthly | Commerce and trade | 1878 | 1 00 |
| | Carpentry and Building | do | do | 1879 | 1 00 |
| | American Hair-dresser and Perfumer | do | do | 1879 | 2 00 |
| | Sewing Machine News | do | do | 1879 | 1 00 |
| | American Model Printer | do | do | 1879 | 3 00 |
| | Industrial News and Inventors' Guide (*a*) | do | Scientific | 1879 | |
| | Blacksmith and Wheelwright | do | Commerce and trade | 1880 | 1 00 |
| | Carriage Builder | do | do | 1880 | 1 00 |
| | Deutsch-Amerikanischer Grocer | Weekly | Commerce and trade (*German*) | 1880 | 3 00 |
| | Sailors' Magazine and Seaman's Friend | Monthly | Miscellaneous | 1828 | 1 00 |
| | Advocate and Family Guardian | Semi-monthly | Benevolent | 1834 | 1 00 |
| | Phrenological Journal | Monthly | Scientific | 1838 | 2 00 |
| | Irish-American | Sunday | News and politics (*English and Irish*) | 1849 | 2 50 |
| | New York Era | Weekly | News and politics | 1850 | 2 00 |
| | Hall's Journal of Health | Monthly | Medical | 1854 | 1 50 |
| | Monthly Record of Five Points House of Industry. | do | Miscellaneous | 1857 | 1 00 |
| | American Gas Light Journal | Semi-monthly | do | 1859 | 3 00 |
| | Comic Monthly (*b*) | Monthly | do | 1859 | 1 00 |
| | Army and Navy Journal | Weekly | do | 1863 | 6 00 |
| | Herald of Health | Monthly | Medical | 1863 | 1 00 |
| | Public | Weekly | Miscellaneous | 1867 | 5 00 |
| | Real Estate Record and Builders' Guide | do | do | 1868 | 10 00 |
| | Sheltering Arms | Monthly | do | 1868 | 1 00 |
| | Transactions of the American Society of Civil Engineers. | do | Science and mechanics | 1868 | 15 00 |
| | Ladies' Floral Cabinet | do | Miscellaneous | 1870 | 1 25 |
| | Nautical Gazette | Weekly | do | 1871 | 4 00 |
| | Liberator and Industrial Tribuene | do | Miscellaneous (*German*) | 1871 | 50 |
| | Fire Record | Monthly | Miscellaneous | 1871 | 50 |
| | Cook's Excursionist and Home and Foreign Tourist Advertiser. | do | do | 1873 | 1 00 |
| | La Llumanera | do | Miscellaneous (*Catalan*) | 1874 | 2 50 |
| | Heiraths Anzeiger | do | Miscellaneous (*German*) | 1874 | 50 |
| | Johnston's Dental Miscellany | do | Dentistry | 1874 | 2 50 |
| | Deutscher Familien Schatz | Bi-weekly | Miscellaneous (*German*) | 1875 | 3 75 |
| | Our Animal Friends | Monthly | Miscellaneous | 1875 | 1 00 |
| | True Citizen | do | do | 1875 | 1 00 |
| | Coin Collector's Journal | do | do | 1875 | 1 00 |
| | Amerikanische Schweizer Zeitung | Weekly | Miscellaneous (*German*) | 1876 | 2 50 |
| | Florida New Yorker (*c*) | Monthly | Miscellaneous | 1876 | 1 00 |
| | Library Journal | do | Literary | 1876 | 5 00 |
| | Evolution (*d*) | do | Scientific | 1877 | |
| | Putnam's Library Companion | Quarterly | Miscellaneous | 1877 | 50 |
| | Fireman's Journal | Weekly | do | 1877 | 2 00 |
| | Hotel Gazette | do | do | 1877 | 2 00 |
| | Taxpayer | Monthly | do | 1877 | 1 00 |
| | Plumber and Sanitary Engineer | Semi-monthly | do | 1877 | 2 00 |
| | Hotel Mail | Weekly | do | 1877 | 2 00 |
| | American Ship | do | do | 1878 | 3 00 |
| | Household Journal | Monthly | Literary | 1878 | 1 00 |
| | Household Guest Magazine | do | do | 1878 | 1 50 |
| | Land and Home (*e*) | Weekly | Miscellaneous | 1879 | 2 00 |
| | Field Glass (*f*) | Monthly | do | 1879 | 1 00 |
| | Thoughts and Events (*d*) | Weekly | do | 1879 | 4 00 |
| | L'Artiste | Monthly | Art | 1879 | 1 00 |
| | Brentano's Monthly | do | Miscellaneous | 1879 | 4 00 |
| | American Wine and Grape Grower | do | Commerce and trade | 1879 | 1 50 |
| | Sunday Library | Sunday | Miscellaneous | 1879 | 2 50 |
| | Sentinel | Weekly | do | 1879 | 2 50 |
| | La Raza Latina | Semi-weekly | Miscellaneous (*English and Spanish*) | 1879 | 10 00 |
| | Kladderadatsch (*g*) | Weekly | Miscellaneous (*German*) | 1879 | |
| | Hour | do | Miscellaneous | 1880 | 5 00 |
| | Fret Sawyer's Monthly | Monthly | do | 1880 | 25 |
| | Musical and Dramatic Courier | Weekly | Musical | 1880 | 4 00 |
| | Journal of the Military Service Institution of the United States. | Quarterly | Miscellaneous | 1880 | 2 00 |
| | American Entomologist | Monthly | Scientific | 1880 | 2 00 |
| | Constellation | Semi-monthly | Miscellaneous | 1880 | 1 00 |
| | Philanthropist (*c*) | Monthly | do | 1880 | 1 00 |
| | Our Little Folks | do | Juvenile | | 1 00 |
| | Postal Gazette | do | Miscellaneous | | 3 00 |
| | Quarterly Elocutionist | Quarterly | Educational | | 1 00 |
| | Man (*b*) | Weekly | Scientific | | |
| | Champion (*h*) | do | Miscellaneous | | |
| | Sunday Leader (*e*) | Sunday | News and politics. | | |
| **NIAGARA CO.**—*Population*: 54,173. | | | | | |
| Lockport | Union | Daily (*evening*) | News and politics | 1860 | 8 00 |
| | Niagara Democrat | Weekly | do | 1821 | 1 50 |
| | Journal | Daily (*evening*) | do | 1852 | 8 00 |
| | Niagara Journal | Weekly | do | 1852 | 1 50 |
| | Catholic Visitor | do | Religious (*Catholic*) | 1875 | 50 |
| | Weekly Advertiser | do | Advertising | 1876 | 50 |
| | Lock City News | do | News and politics | 1877 | 50 |

*a* Suspended October, 1879.
*b* Suspended December, 1879
*c* Suspended May, 1880.
*d* Suspended April, 1880.
*e* Suspended September, 1879.
*f* Suspended January, 1881.
*g* Suspended November, 1879.
*h* Suspended June, 1880.

## NEW YORK—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| NIAGARA CO.—Continued. | | | | | |
| Lockport—Continued | Lockport Free Press (*a*) | Weekly | News and politics | | |
| Middleport | Middleport Mail | do | do | 1873 | $1 25 |
| Niagara Falls | Niagara Falls Gazette | do | do | 1854 | 1 50 |
| Suspension Bridge | Suspension Bridge Journal | do | do | 1860 | 1 50 |
| | Niagara Index | Semi-monthly | Collegiate | 1870 | 1 75 |
| Tonawanda | Tonawanda Herald | Weekly | News and politics | 1874 | 1 50 |
| | Tonawanda Index (*b*) | do | do | 1876 | 1 50 |
| Wilson | Wilson Star | do | do | 1878 | 50 |
| ONEIDA CO.—*Population:* 115,475. | | | | | |
| Boonville | Boonville Herald | Weekly | News and politics | 1852 | 1 50 |
| Camden | Camden Journal | do | do | 1864 | 1 50 |
| | Camden Advance | do | do | 1873 | 1 50 |
| Clinton | Clinton Courier | do | do | 1846 | 1 50 |
| | Hamilton Literary Monthly | Monthly | Collegiate | 1866 | 3 00 |
| North Bay | Lake Side Gazette (*c*) | Weekly | News and politics | | |
| Oriskany Falls | Oriskany News | do | do | 1869 | 1 00 |
| Remsen | Y Cenhadwr Americanaidd | Monthly | Religious (*Congregational; Welsh*) | 1840 | 1 60 |
| Rome | Rome Sentinel | Weekly | News and politics | 1833 | 2 00 |
| | Roman Citizen | do | do | 1840 | 2 00 |
| | Watchword (*d*) | do | do | 1870 | 1 00 |
| | Once a Month | Monthly | Religious (Y. M. C. A) | 1872 | 50 |
| Sauquoit | Sauquoit Valley Register | Weekly | News and politics | 1879 | 1 50 |
| Utica | Morning Herald and Gazette | Daily (*morning*) | do | 1842 | 8 00 |
| | Herald and Gazette and Courier | Weekly | do | 1793 | 1 50 |
| | Daily Observer | Daily (*evening*) | do | 1848 | 8 00 |
| | Utica Observer | Weekly | do | 1816 | 1 50 |
| | Y Cyfaill O'r Hen Wlad | Monthly | Religious (*Presbyterian; Welsh*) | 1837 | 1 60 |
| | American Journal of Insanity | Quarterly | Insanity and medicine | 1844 | 5 00 |
| | Y Drych | Weekly | News and politics (*Welsh*) | 1851 | 2 50 |
| | Utica Deutsche Zeitung | Tri-weekly | News and politics (*German*) | 1854 | 3 50 |
| | Y Wawr | Monthly | Religious (*Baptist; Welsh*) | 1865 | 1 60 |
| | Church Eclectic | do | Religious (*Episcopal*) | 1873 | 3 00 |
| | Olive Branch | do | Spiritualistic | 1875 | 1 00 |
| | Church Worker | do | Charitable | 1876 | 1 00 |
| | Sunday Tribune | Sunday | News and politics | 1877 | 2 00 |
| | Western Echo | Semi-monthly | Miscellaneous | 1877 | 1 00 |
| | Nationalist (*e*) | Weekly | News and politics | 1878 | 1 50 |
| Vienna | Vienna News | do | do | 1877 | 1 00 |
| Waterville | Waterville Times | do | do | 1855 | 1 50 |
| ONONDAGA CO.—*Population:* 117,893. | | | | | |
| Baldwinsville | Baldwinsville Gazette | Weekly | News and politics | 1846 | 1 75 |
| Camillus | Independent | do | do | 1878 | 1 50 |
| Fayetteville | Weekly Recorder | do | do | 1865 | 1 50 |
| Jordan | Jordan Intelligencer | do | do | 1874 | 1 00 |
| | Transcript (*f*) | do | do | 1853 | 1 25 |
| Manlius | Monitor (*g*) | do | do | 1879 | 1 00 |
| Marcellus | Marcellus Weekly Observer | do | do | 1879 | 1 25 |
| | Marcellus Christian Gazette | Monthly | Religious | 1880 | 1 00 |
| Skaneateles | Skaneateles Weekly Democrat | Weekly | News and politics | 1840 | 1 50 |
| | Skaneateles Free Press | do | do | 1874 | 1 25 |
| Syracuse | Morning Standard | Daily (*morning*) | do | 1848 | 6 50 |
| | Syracuse Standard | Weekly | do | 1825 | 1 50 |
| | Journal | Daily (*evening*) | do | 1844 | 8 00 |
| | Journal | Weekly | do | 1839 | 2 00 |
| | Northern Christian Advocate | do | Religious (*Methodist Episcopal*) | 1840 | 2 00 |
| | American Wesleyan | do | Religious (*Wesleyan Methodist*) | 1843 | 1 70 |
| | Syracuse Union | do | News and politics (*German*) | 1855 | 2 50 |
| | Courier | Daily (*morning*) | News and politics | 1857 | 8 00 |
| | Onondaga Courier | Weekly | do | 1857 | 2 00 |
| | Sunday Courier | Sunday | do | 1874 | 2 00 |
| | Syracuse Central Demokrat | Weekly | News and politics (*German*) | 1858 | 2 50 |
| | Children's Banner | Semi-monthly | Sunday school | 1860 | 25 |
| | Typo | Bi-monthly | Typographical | 1871 | 1 00 |
| | University Herald | Monthly | Collegiate | 1872 | 1 00 |
| | School Bulletin and Normal School State Educational Journal. | do | Educational | 1874 | 1 00 |
| | Commercial Traveler | do | Commercial | 1875 | 1.00 |
| | Gospel Messenger | do | Religious (*Episcopal*) | 1876 | 50 |
| | National Citizen and Ballot-Box | do | Political | 1876 | 1 00 |
| | Sunday Times | Sunday | News and politics | 1876 | 2 00 |
| | Syracusan | Once every 3 weeks | Collegiate | 1878 | 1 50 |
| | Bible Standard | Monthly | Religious (*Wesleyan Methodist*) | 1878 | 1 00 |
| | Evening Herald | Daily (*evening*) | News and politics | 1877 | 5 00 |
| | Sunday Herald | Sunday | do | 1880 | 2 00 |
| | Poultry Record | Monthly | Poultry breeding | 1880 | 50 |
| | Syracuse Advertiser (*h*) | Weekly | News and politics | | |
| | Onondaga County Reporter (*i*) | Monthly | do | | |
| ONTARIO CO.—*Population:* 49,541. | | | | | |
| Canandaigua | Ontario Repository and Messenger | Weekly | News and politics | 1803 | 2 00 |
| | Ontario County Times | do | do | 1852 | 2 00 |
| | Ontario County Journal | do | do | 1874 | 2 00 |
| Clifton Springs | Clifton Springs Press | do | do | 1877 | 1 00 |
| East Bloomfield | East Bloomfield News (*h*) | do | do | 1879 | 1 25 |
| Geneva | Geneva Gazette | do | do | 1809 | 1 50 |
| | Geneva Courier | do | do | 1832 | 2 00 |
| | Geneva Asteroid | do | do | 1878 | 1 00 |
| | Hobart Herald | Monthly | Collegiate | 1879 | 2 00 |
| Naples | Naples Record | Weekly | News and politics | 1870 | 1 50 |
| | The Neapolitan | do | do | 1880 | 1 00 |
| Phelps | Phelps Citizen | do | do | 1832 | 1 50 |
| | Neighbors' Home Mail | Monthly | do | 1874 | 60 |
| ORANGE CO.—*Population:* 88,220. | | | | | |
| Cornwall | Cornwall Times and Newburgh Temperance Herald. | Weekly | News and politics | 1875 | 1 50 |
| | Cornwall Mirror | do | do | 1876 | 50 |
| | Cornwall Reflector | do | do | 1877 | 1 50 |

*a* Suspended March, 1880.
*b* Suspended July, 1880.
*c* Established and suspended in 1880.
*d* Suspended after census year.
*e* Suspended in fall of 1879.
*f* Suspended November, 1879.
*g* Suspended during the year.
*h* Suspended December, 1879.
*i* Suspended October, 1879.

## NEW YORK—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **Orange co.—Continued.** | | | | | |
| Goshen | Goshen Democrat | Weekly | News and politics | 1800 | $2 00 |
| | Independent Republican | ....do | ......do | 1812 | 2 00 |
| Highland | Highland Journal | ....do | ......do | 1875 | 1 00 |
| Middletown | Signs of the Times | Semi-monthly | Religious (*Baptist*) | 1832 | 2 00 |
| | Press | Daily (*evening*) | News and politics | 1867 | 6 00 |
| | Orange County Press | Weekly | ......do | 1851 | 2 00 |
| | Argus | Daily (*evening*) | ......do | 1876 | 6 00 |
| | Mercury | Weekly | ......do | 1858 | 2 00 |
| Monroe | Monroe Times | ....do | ......do | 1880 | 1 00 |
| Montgomery | Republican and Standard | ....do | ......do | 1858 | 2 00 |
| Newburgh | Journal | Daily (*evening*) | ......do | 1862 | 7 00 |
| | Journal | Weekly | ......do | 1833 | 1 50 |
| | Register | Daily (*evening*) | ......do | 1876 | 3 00 |
| | Register | Weekly | ......do | 1876 | 1 50 |
| Port Jervis | Union | Daily (*evening*) | ......do | 1874 | 5 00 |
| | Tri-State Union | Semi-weekly | ......do | 1850 | 2 00 |
| | Gazette | Tri-weekly | ......do | 1869 | 4 80 |
| | Port Jervis Gazette | Weekly | ......do | 1869 | 2 00 |
| Walden | Walden Herald and Recorder | ....do | ......do | 1870 | 1 50 |
| Warwick | Warwick Advertiser | ....do | ......do | 1866 | 2 00 |
| **Orleans co.**—*Population:* 30,128. | | | | | |
| Albion | Orleans American | Weekly | News and politics | 1824 | 2 00 |
| | Orleans Republican | ....do | ......do | 1828 | 1 50 |
| | Saturday Chronicle | ....do | ......do | 1876 | 1 00 |
| Holley | Holley Standard | ....do | ......do | 1870 | 1 50 |
| Medina | Medina Tribune | ....do | ......do | 1852 | 1 50 |
| | Saturday Register | ....do | ......do | 1877 | 1 50 |
| **Oswego co.**—*Population:* 77,911. | | | | | |
| Central Square | Central Square News | Weekly | News and politics | 1877 | 1 00 |
| Cleveland | Lakeside Press | ....do | ......do | 1873 | 1 25 |
| Fulton | Patriot and Gazette | ....do | ......do | 1837 | 2 00 |
| | Fulton Times | ....do | ......do | 1868 | 1 00 |
| Hannibal | Hannibal News (*a*) | ....do | ......do | 1876 | 1 00 |
| | Hannibal Reveille | ....do | ......do | 1877 | 1 00 |
| Mexico | Mexico Independent | ....do | ......do | 1861 | 1 50 |
| Oswego | Palladium | Daily (*evening*) | ......do | 1863 | 6 00 |
| | Palladium | Weekly | ......do | 1819 | 1 00 |
| | Times | Daily (*evening*) | ......do | 1873 | 6 00 |
| | Times | Weekly | ......do | 1844 | 1 50 |
| Parish | Parish Sun and Mirror | ....do | ......do | 1875 | 1 00 |
| Phœnix | Phœnix Register | ....do | ......do | 1858 | 1 00 |
| Pulaski | Pulaski Democrat | ....do | ......do | 1849 | 1 50 |
| Sand Bank | Sand Bank Herald (*b*) | ....do | ......do | 1879 | 1 00 |
| Sandy Creek | Sandy Creek News | ....do | ......do | 1871 | 1 25 |
| **Otsego co.**—*Population:* 51,397. | | | | | |
| Cherry Valley | Cherry Valley Gazette | Weekly | News and politics | 1820 | 1 50 |
| | Cherry Valley Investigator | ....do | ......do | 1874 | 1 00 |
| Cooperstown | Freeman's Journal | ....do | ......do | 1808 | 2 00 |
| | Otsego Republican | ....do | ......do | 1828 | 2 00 |
| | Living Issue | ....do | Temperance | 1874 | 1 50 |
| Gilbertsville | Otsego Journal | ....do | News and politics | 1876 | 1 00 |
| Milford | Milford News | ....do | ......do | 1877 | 1 00 |
| Morris | Morris Chronicle | ....do | ......do | 1852 | 1 00 |
| Oneonta | Oneonta Herald and Democrat | ....do | ......do | 1852 | 1 50 |
| | Oneonta Press | ....do | ......do | 1867 | 1 25 |
| Richfield Springs | Richfield Springs Mercury | ....do | ......do | 1867 | 1 50 |
| Schenevus | Schenevus Monitor | ....do | ......do | 1864 | 1 25 |
| Unadilla | Unadilla Times | ....do | ......do | 1854 | 1 00 |
| Worcester | Worcester Times | ....do | ......do | 1874 | 1 25 |
| **Putnam co.**—*Population:* 15,181. | | | | | |
| Brewsters | Putnam County Standard | Weekly | News and politics | 1869 | 2 00 |
| Carmel | Putnam County Courier | ....do | ......do | 1842 | 2 00 |
| | Carmel Republican | ....do | ......do | 1858 | 1 50 |
| Cold Spring | Cold Spring Recorder | ....do | ......do | 1866 | 2 00 |
| **Queens co.**—*Population:* 90,574. | | | | | |
| College Point | Long Island Central Zeitung | Weekly | News and politics (*German*) | 1872 | 2 00 |
| | College Point Mirror | ....do | News and politics | 1879 | 2 00 |
| | Long Island Reporter | ....do | ......do | 1879 | 1 50 |
| Flushing | Evening Journal | Daily (*evening*) | ......do | 1879 | 5 00 |
| | Journal | Weekly | ......do | 1842 | 2 00 |
| | Times | Daily (*evening*) | ......do | 1865 | 5 00 |
| | Long Island Times | Weekly | ......do | 1855 | 2 00 |
| Glen Cove | Glen Cove Gazette | ....do | ......do | 1857 | 1 50 |
| | Glen Cove Echo | ....do | ......do | 1875 | 1 50 |
| Hempstead | Hempstead Inquirer | ....do | ......do | 1830 | 2 00 |
| | Queens County Sentinel | ....do | ......do | 1858 | 1 50 |
| Jamaica | Long Island Farmer | ....do | ......do | 1819 | 2 00 |
| | Long Island Democrat | ....do | ......do | 1835 | 2 00 |
| | Katholische Kirchen Zeitung | ....do | Religious (*Catholic; German*) | 1846 | 2 70 |
| | Jamaica Standard | ....do | News and politics | 1868 | 2 00 |
| Long Island City | Evening Star | Daily (*evening*) | ......do | 1876 | 5 00 |
| | Long Island Star | Weekly | ......do | 1865 | 2 00 |
| | Evening Courier | Daily (*evening*) | ......do | 1879 | 3 00 |
| | Long Island Courier | Weekly | ......do | 1875 | 2 00 |
| | Long Island Beobachter | ....do | News and politics (*German*) | 1877 | 2 00 |
| | Astoria Chronicle | ....do | News and politics | 1880 | 1 50 |
| Newtown | Newtown Register | ....do | ......do | 1873 | 2 00 |
| | Long Island Journal und Volksblatt | ....do | News and politics (*German*) | 1874 | 1 50 |
| | Queens County Safeguard | ....do | News and politics | 1875 | 2 00 |
| Rockville Centre | South Side Observer | ....do | ......do | 1865 | 2 00 |
| Roslyn | Roslyn News | ....do | ......do | 1877 | 1 50 |
| Whitestone | Whitestone Herald | ....do | ......do | 1870 | 2 00 |
| **Rensselaer co.**—*Population:* 115,328. | | | | | |
| Greenbush | Rensselaer County Gazette | Weekly | News and politics | 1870 | 1 50 |
| | Evening Star | ....do | ......do | 1873 | 1 00 |
| | Greenbush Democrat | ....do | ......do | 1876 | 1 00 |

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*a* Consolidated with "Reveille" July 24, 1879.

*b* Suspended June, 1879.

## NEW YORK—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| RENSSELAER CO.—Continued. | | | | | |
| Hoosick Falls | Rensselaer County Standard | Weekly | News and politics | 1873 | $1 50 |
| | Wood's Family Guest | Monthly | Literary | 1877 | 50 |
| Lansingburgh | Lansingburgh Gazette | Weekly | News and politics | 1798 | 1 50 |
| | Lansingburgh Courier | do | do | 1875 | 1 00 |
| Nassau | News and Farmer Advocate (*a*) | do | do | 1874 | 1 00 |
| Troy | Troy Northern Budget | Sunday | do | 1798 | 2 00 |
| | Telegram and Whig | Daily (*morning*) | do | 1834 | 10 00 |
| | Telegram and Whig | Weekly | do | 1834 | 1 00 |
| | Times | Daily (*evening*) | do | 1851 | 10 00 |
| | Times | Weekly | do | 1856 | 1 00 |
| | Press | Daily (*evening*) | do | 1867 | 8 00 |
| | Press | Weekly | do | 1867 | 1 00 |
| | Freie Deutsche Presse | do | News and politics (*German*) | 1872 | 2 00 |
| | Troy Observer | Sunday | News and politics | 1875 | 2 00 |
| | Evening Standard | Daily (*evening*) | do | 1877 | 6 00 |
| | Saturday Journal (*b*) | Weekly | do | 1879 | 1 00 |
| | Missionary Tidings | Monthly | Religious (*Methodist*) | 1879 | 50 |
| RICHMOND CO.—*Population*: 38,991. | | | | | |
| New Brighton | Richmond County Sentinel | Weekly | News and politics | 1876 | 2 00 |
| Stapleton | Richmond County Gazette | do | do | 1859 | 2 00 |
| | Der Deutsche Staten Islander | do | News and politics (*German*) | 1866 | 2 00 |
| | Staten Island Leader | do | News and politics | 1866 | 2 00 |
| | Richmond County Herald | do | do | 1880 | 2 00 |
| West New Brighton | Staten Island Advertiser | do | do | 1877 | 1 75 |
| | Staten Island Star | do | do | 1877 | 1 50 |
| ROCKLAND CO.—*Population*: 27,690. | | | | | |
| Haverstraw | Rockland County Messenger | Weekly | News and politics | 1846 | 2 50 |
| Nyack | Rockland County Journal | do | do | 1850 | 2 50 |
| | City and Country | do | do | 1859 | 2 00 |
| | Rockland Advertiser and Chronicle | do | do | 1879 | 1 00 |
| SAINT LAWRENCE CO.—*Population*: 85,997. | | | | | |
| Canton | St. Lawrence Plain Dealer | Weekly | News and politics | 1856 | 1 50 |
| | Commercial Advertiser | do | do | 1873 | 1 50 |
| Gouverneur | Gouverneur Herald | do | do | 1873 | 1 00 |
| | Gouverneur Times (*c*) | do | do | 1864 | 1 50 |
| Nicholville | Gouverneur Herald (*d*) | do | do | 1872 | 2 00 |
| Norwood | Norwood News | do | do | 1878 | 1 50 |
| Ogdensburg | Journal | Daily (*morning*) | do | 1855 | 5 00 |
| | St. Lawrence Republican | Weekly | do | 1830 | 1 50 |
| | Ogdensburg Advance and St. Lawrence Weekly Democrat. | do | do | 1861 | 1 50 |
| Potsdam | Potsdam Courier and Freeman | do | do | 1852 | 1 50 |
| | St. Lawrence Herald | do | do | 1878 | 1 50 |
| Waddington | Waddington Reporter (*e*) | do | do | ... | ... |
| SARATOGA CO.—*Population*: 55,156. | | | | | |
| Ballston Spa | Ballston Journal | Weekly | News and politics | 1798 | 2 00 |
| | Ballston Democrat | do | do | 1865 | 1 50 |
| Saratoga | Saratoga Sentinel | do | do | 1819 | 1 50 |
| | Daily Saratogian | Daily (*evening*) | do | 1868 | 6 00 |
| | Saratogian | Weekly | do | 1857 | 1 50 |
| | Saratoga Sun | do | do | 1870 | 1 00 |
| | Saratoga Banner (*f*) | do | do | 1876 | 75 |
| | Saratoga Eagle | do | do | 1879 | 1 00 |
| Schuylerville | Schuylerville Standard | do | do | 1871 | 1 50 |
| Stillwater | Stillwater Enterprise (*g*) | do | do | 1880 | 1 50 |
| Waterford | Waterford Advertiser | do | do | 1872 | 1 50 |
| SCHENECTADY CO.—*Population*: 23,538. | | | | | |
| Schenectady | Evening Star | Daily (*evening*) | News and politics | 1855 | 6 50 |
| | Reflector | Weekly | do | 1834 | 1 00 |
| | Union | Daily (*evening*) | do | 1864 | 6 00 |
| | Union | Weekly | do | 1864 | 1 00 |
| | Morning Gazette | Daily (*morning*) | do | 1879 | 5 00 |
| | Gazette | Weekly | do | 1869 | 1 00 |
| | Deutscher Anzeiger | do | News and politics (*German*) | 1874 | 2 00 |
| | Concordiensis | Monthly | Collegiate | 1877 | 1 00 |
| SCHOHARIE CO.—*Population*: 32,910. | | | | | |
| Charlotteville | Charlotteville Phoenix | Weekly | News and politics | 1879 | 1 15 |
| Cobleskill | Cobleskill Index | do | do | 1864 | 1 00 |
| | Cobleskill Herald | do | do | 1877 | 1 50 |
| Gilboa | Gilboa Monitor | do | do | 1879 | 1 00 |
| Jefferson | Jeffersonian (*h*) | do | do | 1872 | 1 00 |
| Middleburgh | Middleburgh Gazette | do | do | 1871 | 1 00 |
| Richmondville | Richmondville Democrat | do | do | 1870 | 1 25 |
| Schoharie | Schoharie Republican | do | do | 1819 | 2 00 |
| | Schoharie Union | do | do | 1838 | 1 50 |
| Sharon Springs | Sharon Springs Gazette | do | do | 1873 | 1 50 |
| SCHUYLER CO.—*Population*: 18,842. | | | | | |
| Havana | Havana Journal | Weekly | News and politics | 1849 | 1 50 |
| | Havana Democrat | do | do | 1877 | 1 00 |
| Watkins | Watkins Express | do | do | 1854 | 1 50 |
| | Watkins Democrat | do | do | 1865 | 1 50 |
| SENECA CO.—*Population*: 29,278. | | | | | |
| Ovid | Ovid Independent | Weekly | News and politics | 1873 | 1 50 |
| Seneca Falls | Seneca Falls Courier | Semi-weekly | do | 1835 | 2 00 |
| | Seneca Falls Reveille | Weekly | do | 1855 | 2 00 |
| Waterloo | Waterloo Observer | do | do | 1826 | 2 00 |
| | Seneca County News | do | do | 1878 | 2 00 |
| STEUBEN CO.—*Population*: 77,586. | | | | | |
| Addison | Addison Advertiser | Weekly | News and politics | 1858 | 1 50 |
| Avoca | Avoca Advance | do | do | 1879 | 1 00 |
| Bath | Steuben Farmer's Advocate | do | do | 1815 | 1 00 |
| | Steuben Courier | do | do | 1843 | 1 00 |
| Canisteo | Canisteo Valley Times | do | do | 1877 | 1 00 |

*a* Suspended September, 1879.
*b* Suspended June, 1880.
*c* Merged with "Herald" March, 1880, and called "Herald and Times".
*d* An edition of the "Democrat", Providence, R. I.
*e* Suspended March, 1880.
*f* Suspended since census year.
*g* Suspended July, 1880.
*h* Changed to "Courier" December, 1880.

## NEW YORK—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| Steuben co.—Continued. | | | | | |
| Cohocton | Cohocton Valley Times | Weekly | News and politics | 1872 | $1 00 |
| Corning | Corning Journal | do | do | 1847 | 1 00 |
| | Corning Democrat | do | do | 1857 | 1 00 |
| | Corning Phonograph (*a*) | do | do | | |
| Hammondsport | Hammondsport Herald | do | do | 1874 | 1 50 |
| Hornellsville | Evening Tribune | Daily (*evening*) | do | 1878 | 5 00 |
| | Tribune | Weekly | do | 1851 | 1 00 |
| | Hornell Times | Daily (*evening*) | do | 1878 | 5 00 |
| | Hornell Times | Weekly | do | 1867 | 1 00 |
| | Hornellsville Herald | do | do | 1872 | 1 50 |
| | Hornellsville Invincible | do | do | 1878 | 1 00 |
| Prattsburgh | Prattsburgh News | do | do | 1872 | 1 50 |
| Troupsburgh | Steuben Sentinel | do | do | 1880 | 1 00 |
| Wayland | Union Advertiser | do | do | 1863 | 1 50 |
| Suffolk co.—*Population:* 53,888. | | | | | |
| Babylon | South Side Signal | Weekly | News and politics | 1869 | 2 00 |
| | Babylon Budget | do | do | 1876 | 1 50 |
| Greenport | Republican Watchman | do | do | 1826 | 1 50 |
| | Suffolk Times | do | do | 1857 | 1 50 |
| Huntington | Long Islander | do | do | 1836 | 1 50 |
| | Suffolk Bulletin | do | do | 1847 | 2 00 |
| North Port | Suffolk County Journal | do | do | 1874 | 1 00 |
| Patchogue | Patchogue Advance | do | do | 1871 | 1 50 |
| Port Jefferson | Long Island Leader | do | do | 1871 | 1 50 |
| | Port Jefferson Times | do | do | 1878 | 1 50 |
| Riverhead | Riverhead Weekly News | do | do | 1868 | 1 50 |
| Sag Harbor | Sag Harbor Corrector | do | do | 1822 | 2 00 |
| | Sag Harbor Express | do | do | 1859 | 2 00 |
| Southold | Long Island Traveler | do | do | 1871 | 1 00 |
| Sullivan co.—*Population:* 32,491. | | | | | |
| Jeffersonville | Sullivan County Record | Weekly | News and politics | 1868 | 1 50 |
| Liberty | Liberty Register | do | do | 1870 | 1 50 |
| Monticello | Republican Watchman | do | do | 1826 | 1 50 |
| | Sullivan County Republican | do | do | 1843 | 2 00 |
| Tioga co.—*Population:* 32,673. | | | | | |
| Candor | Candor Independent (*b*) | Weekly | News and politics | 1876 | 1 50 |
| Newark Valley | Tioga County Herald | do | do | 1876 | 1 50 |
| Owego | Owegoan (*c*) | Daily (*morning*) | do | | |
| | Owego Gazette | Weekly | do | 1814 | 2 00 |
| | Owego Times | do | do | 1836 | 2 00 |
| | Tioga County Record | do | do | 1871 | 1 50 |
| | Owego Blade | do | do | 1880 | 1 00 |
| | Owego Resolute (*d*) | do | do | | |
| Spencer | Spencer Herald | do | do | 1878 | 1 50 |
| Waverly | Waverly Advocate | do | do | 1852 | 1 00 |
| | Waverly Free Press | do | do | 1866 | 40 |
| | Waverly Review | Semi-weekly | do | 1876 | 2 00 |
| | Waverly Review | Weekly | do | 1876 | 1 50 |
| Tompkins co.—*Population:* 34,445. | | | | | |
| Dryden | Dryden Valley Herald | Weekly | News and politics | 1871 | 1 50 |
| Groton | Groton and Lansing Journal | do | do | 1866 | 1 50 |
| Ithaca | Journal | Daily (*evening*) | do | 1872 | 7 00 |
| | Journal | Weekly | do | 1815 | 2 00 |
| | Ithaca Democrat | do | do | 1820 | 2 00 |
| | Cornell Era | do | Collegiate | 1869 | 2 50 |
| | Weekly Ithacan | do | News and politics | 1871 | 2 00 |
| | Cornell Review | Monthly | Collegiate | 1873 | 2 25 |
| McLean | Baptist Visitor (*e*) | do | Religious (*Baptist*) | | |
| Trumansburg | Trumansburg Sentinel | Weekly | News and politics | 1865 | 1 50 |
| Ulster co.—*Population:* 85,838. | | | | | |
| Ellenville | Ellenville Journal | Weekly | News and politics | 1848 | 1 50 |
| | Banner of Liberty | do | do | 1852 | 1 25 |
| | Ellenville Press | do | do | 1870 | 1 50 |
| Kingston | Kingston Argus | do | do | 1832 | 2 00 |
| | Kingston Journal (*f*) | do | do | 1840 | 2 00 |
| | Morning Courier | Daily (*morning*) | do | 1877 | 4 00 |
| | Kingston Courier | Weekly | do | 1846 | 1 50 |
| | Freeman | Daily (*evening*) | do | 1871 | 8 00 |
| | Freeman | Weekly | do | 1859 | 1 50 |
| New Paltz | New Paltz Times | do | do | 1860 | 1 00 |
| | New Paltz Independent | do | do | 1868 | 1 25 |
| Saugerties | Saugerties Telegraph | do | do | 1846 | 2 00 |
| | Evening Post | Daily (*evening*) | do | 1877 | 5 00 |
| Warren co.—*Population:* 25,179. | | | | | |
| Glen Falls | Glen Falls Republican | Weekly | News and politics | 1842 | 1 50 |
| | Glen Falls Messenger | do | do | 1855 | 1 50 |
| | Glen Falls Times | Daily (*morning*) | do | 1879 | 5 00 |
| | Le Drapeau National | Semi-weekly | News and politics (*Fr. and Eng.*) | 1880 | 2 00 |
| Warrensburgh | Warrensburgh News | Weekly | News and politics | 1878 | 1 25 |
| Washington co.—*Population:* 47,871. | | | | | |
| Cambridge | Washington County Post | Weekly | News and politics | 1798 | 1 50 |
| Fort Edward | Fort Edward Gazette | do | do | 1854 | 1 50 |
| Greenwich | People's Journal | do | do | 1842 | 1 50 |
| Granville | Sentinel | Daily (*evening*) | do | 1879 | 5 00 |
| | Sentinel | Weekly | do | 1875 | 1 50 |
| Salem | Salem Press | do | do | 1850 | 1 50 |
| | Salem Review | do | do | 1877 | 1 00 |
| Sandy Hill | Sandy Hill Herald | do | do | 1823 | 1 50 |
| | Sandy Hill Commercial Advertiser | do | do | 1879 | 75 |
| Whitehall | Whitehall Chronicle | do | do | 1840 | 1 00 |
| | Whitehall Times | do | do | 1860 | 1 50 |

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*a* Suspended February, 1880.
*b* Merged in the "Owego Blade" June, 1880.
*c* Suspended October, 1879.
*d* Suspended August, 1879.
*e* Suspended May, 1880.
*f* Merged in "Weekly Freeman" January, 1881.

## NEW YORK—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| WAYNE CO.—*Population:* 51,700. | | | | | |
| Clyde | Clyde Times | Weekly | News and politics | 1850 | $2 00 |
| | Clyde Commercial Advertiser | do | do | 1880 | 1 50 |
| Lyons | Lyons Republican | do | do | 1821 | 2 00 |
| | Wayne Democratic Press | do | do | 1822 | 2 00 |
| Newark | Newark Courier | do | do | 1838 | 2 00 |
| | Newark Union | do | do | 1872 | 1 50 |
| Ontario | Ontario Press | do | do | 1878 | 1 00 |
| Palmyra | Palmyra Courier | do | do | 1838 | 1 50 |
| | Wayne County Journal | do | do | 1871 | 1 50 |
| Savannah | Savannah News (*a*) | do | do | 1879 | 1 50 |
| Sodus | Wayne County Alliance | do | do | 1872 | 1 50 |
| Williamson | Williamson Banner (*b*) | do | do | 1879 | 1 00 |
| Wolcott | Lake Shore News | do | do | 1874 | 1 50 |
| | Wolcott Independent | do | do | 1878 | 1 50 |
| WESTCHESTER CO.—*Population:* 108,988. | | | | | |
| Croton Falls | Croton Falls News | Weekly | News and politics | 1878 | 1 50 |
| Irvington | Sunny Side Courier | do | do | 1874 | 2 50 |
| Katonah | Katonah Recorder | do | do | 1874 | 1 50 |
| Mamaroneck | Mamaroneck Investigator (*c*) | do | do | | |
| Mount Kisco | Mount Kisco Weekly | do | do | 1873 | 1 50 |
| Mount Vernon | Mount Vernon Chronicle | do | do | 1869 | 2 00 |
| | Westchester County Deutsches Volksblatt (*d*) | do | News and politics (*German*) | 1870 | 2 00 |
| | Westchester County Anzeiger | do | News and politics (*German*) | 1873 | 2 00 |
| | Eastchester Independent (*c*) | do | News and politics | 1873 | 1 50 |
| | Mount Vernon Argus | do | do | 1879 | 1 50 |
| | Mount Vernon Constellation | Semi-monthly | do | 1880 | 1 00 |
| New Rochelle | New Rochelle Pioneer | Weekly | do | 1859 | 2 00 |
| | New Rochelle Press | do | do | 1875 | 2 50 |
| Peekskill | Highland Democrat | do | do | 1845 | 2 00 |
| | Peekskill Messenger | do | do | 1860 | 2 00 |
| | Peekskill Blade | do | do | 1878 | 1 00 |
| Port Chester | Port Chester Journal | do | do | 1868 | 2 50 |
| | Port Chester Leader | do | do | 1878 | 2 00 |
| Sing Sing | Sing Sing Republican | do | do | 1832 | 2 00 |
| | Hudson River Chronicle | do | do | 1836 | 2 00 |
| | Democratic Register | do | do | 1867 | 2 00 |
| | Democratic Standard (*e*) | do | do | 1878 | 1 00 |
| Tarrytown | Tarrytown Argus | do | do | 1868 | 3 00 |
| | Sunnyside Press | do | do | 1880 | 2 50 |
| White Plains | Eastern State Journal | do | do | 1845 | 2 50 |
| | Westchester News | do | do | 1871 | 2 00 |
| Yonkers | Yonkers Gazette | do | do | 1852 | 2 50 |
| | Yonkers Statesman | do | do | 1856 | 2 50 |
| WYOMING CO.—*Population:* 30,907. | | | | | |
| Arcade | Arcade Leader | Weekly | News and politics | 1876 | 1 50 |
| Attica | Attica News | do | do | 1872 | 1 50 |
| | Attica Argus | do | do | 1877 | 1 50 |
| | Sunday Advocate (*e*) | Sunday | do | 1880 | |
| Castile | Castilian | Weekly | do | 1874 | 1 25 |
| Perry | Wyoming County Herald | do | do | 1877 | 1 50 |
| Pike | Pike Gazette | do | do | 1876 | 1 25 |
| Warsaw | Western New Yorker | do | do | 1841 | 1 50 |
| | Wyoming County Democrat | do | do | 1848 | 1 50 |
| | Wyoming County Times | do | do | 1870 | 1 50 |
| YATES CO.—*Population:* 21,087. | | | | | |
| Dundee | Dundee Record | Weekly | News and politics | 1844 | 1 50 |
| | Dundee Observer | do | do | 1878 | 1 50 |
| Penn Yan | Penn Yan Democrat | do | do | 1817 | 1 50 |
| | Yates County Chronicle | do | do | 1823 | 1 50 |
| | Penn Yan Express | do | do | 1866 | 1 50 |

## NORTH CAROLINA.

| | | | | | |
|---|---|---|---|---|---|
| ALAMANCE CO.—*Population:* 14,613. | | | | | |
| Graham | Alamance Gleaner | Weekly | News and politics | 1875 | $1 50 |
| ANSON CO.—*Population:* 17,994. | | | | | |
| Wadesboro' | Pee Dee Herald | Weekly | News and politics | 1870 | 2 00 |
| BEAUFORT CO.—*Population:* 17,474. | | | | | |
| Washington | North State Press | Weekly | News and politics | 1877 | 2 00 |
| BUNCOMBE CO.—*Population:* 21,909. | | | | | |
| Asheville | North Carolina Citizen | Weekly | News and politics | 1870 | 2 00 |
| | Asheville Journal (*f*) | Semi-weekly | do | 1878 | 2 00 |
| BURKE CO.—*Population:* 12,809. | | | | | |
| Excelsior | College Pen | Weekly | Educational | 1880 | 75 |
| Morganton | Blue Ridge Blade | do | News and politics | 1876 | 1 50 |
| CABARRUS CO.—*Population:* 14,964. | | | | | |
| Concord | Concord Sun | Weekly | News and politics | 1873 | 1 25 |
| | Concord Register | do | do | 1875 | 1 50 |
| CALDWELL CO.—*Population:* 10,291. | | | | | |
| Lenoir | Lenoir Topic | Weekly | News and politics | 1875 | 1 00 |
| CASWELL CO.—*Population:* 17,825. | | | | | |
| Milton | Milton Chronicle | Weekly | News and politics | 1841 | 2 00 |
| CATAWBA CO.—*Population:* 14,946. | | | | | |
| Hickory | Piedmont Press | Weekly | News and politics | 1870 | 1 50 |
| | Western Carolinian | do | do | 1878 | 1 00 |
| | Hickory Echo (*g*) | do | do | | |
| Newton | Newton Enterprise | do | do | 1879 | 2 00 |

*a* Suspended August, 1879.
*b* Merged in "Ontario Press" December, 1879.
*c* Suspended October, 1879.
*d* An edition of the "Deutsche Volksblatt", New York.
*e* Suspended May, 1880.
*f* Suspended August, 1880.
*g* Consolidated with "Western Carolinian".

## NORTH CAROLINA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| CHATHAM CO.—*Population:* 23,453. | | | | | |
| Pittsboro' | Chatham Record | Weekly | News and politics | 1878 | $2 00 |
| CHEROKEE CO.—*Population:* 8,182. | | | | | |
| Murphy | Cherokee Herald (*a*) | Weekly | News and politics | 1874 | 2 00 |
| CHOWAN CO.—*Population:* 7,900. | | | | | |
| Edenton | Edenton Clarion | Weekly | News and politics | 1879 | 1 50 |
| CLEAVELAND CO.—*Population:* 16,571. | | | | | |
| Shelby | Shelby Aurora | Weekly | News and politics | 1875 | 1 00 |
| CRAVEN CO.—*Population:* 19,729. | | | | | |
| New Berne | New Berne Watch Tower | Monthly | Religious (*Primitive Christian*) | 1873 | 1 00 |
| | Newbernian | Weekly | News and politics | 1874 | 2 00 |
| | New Berne Nut-Shell | Daily (*morning*) | do | 1875 | 4 00 |
| | New Berne Democrat (*b*) | Daily (*morning*) | do | 1879 | 3 00 |
| | New Berne Good Samaritan | Weekly | Aid society | 1880 | 1 50 |
| CUMBERLAND CO.—*Population:* 23,836. | | | | | |
| Fayetteville | Fayetteville Examiner | Weekly | News and politics | 1880 | 2 00 |
| | Fayetteville Gazette (*b*) | do | do | 1873 | 2 00 |
| DUPLIN CO.—*Population:* 18,773. | | | | | |
| Rose Hill | North Carolina Amateur | Monthly | News and politics | 1877 | 25 |
| Warsaw | Warsaw Brief Mention | Weekly | do | 1879 | 1 00 |
| EDGECOMBE CO.—*Population:* 26,181. | | | | | |
| Rocky Mount | Rocky Mount Progress | Weekly | News and politics | 1879 | 1 25 |
| Tarboro' | The Southerner | do | do | 1822 | 2 00 |
| FORSYTH CO.—*Population:* 18,070. | | | | | |
| Salem | People's Press | Weekly | News and politics | 1851 | 1 50 |
| Winston | Western Sentinel | do | do | 1852 | 1 50 |
| | Union Republican | do | do | 1872 | 1 50 |
| | Winston Leader | do | do | 1879 | 1 50 |
| | Church Messenger | Semi-monthly | Religious (*Protestant Episcopal*) | 1879 | 1 50 |
| FRANKLIN CO.—*Population:* 20,829. | | | | | |
| Louisburg | Franklin Times | Weekly | News and politics | 1870 | 2 00 |
| GRANVILLE CO.—*Population:* 31,286. | | | | | |
| Henderson | Tobacconist and Review | Weekly | News and politics | 1877 | 1 50 |
| | Border Review (*c*) | do | do | | |
| Oxford | Oxford Torch Light | do | do | 1873 | 1 50 |
| | Granville Free Lance | do | do | 1877 | 1 50 |
| GUILFORD CO.—*Population:* 23,585. | | | | | |
| Greensboro' | North State | Weekly | News and politics | 1871 | 2 00 |
| | Central Protestant | do | Religious (*Protestant Methodist*) | 1874 | 2 00 |
| | Greensboro' Beacon | do | News and politics | 1879 | 1 25 |
| | Greensboro' Patriot | Daily (*evening*) | do | 1880 | 4 00 |
| | Greensboro' Patriot | Weekly | do | 1821 | 2 00 |
| High Point | High Point Mercury (*d*) | do | do | 1879 | 1 00 |
| HALIFAX CO.—*Population:* 30,300. | | | | | |
| Enfield | Enfield Sentinel | Weekly | News and politics | 1880 | 1 50 |
| Weldon | Roanoke News | do | do | 1866 | 2 00 |
| | Roanoke Farmer | Monthly | Agricultural | 1879 | 1 00 |
| | Daily Railroad Ticket | Daily (*evening*) | Railroads | 1879 | 2 50 |
| | Railroad Ticket | Weekly | do | 1879 | 25 |
| HENDERSON CO.—*Population:* 10,281. | | | | | |
| Hendersonville | Western Courier | Weekly | News and politics | 1877 | 1 50 |
| | Hendersonville New Era (*e*) | do | do | 1877 | |
| HERTFORD CO.—*Population:* 11,843. | | | | | |
| Murfreesboro' | Albemarle Enquirer | Weekly | News and politics | 1875 | 2 00 |
| Winton | Winton Sentry (*e*) | do | do | | |
| IREDELL CO.—*Population:* 22,675. | | | | | |
| Mooresville | Iredell Gazette | Weekly | News and politics | 1877 | 1 50 |
| Statesville | Statesville American | do | do | 1857 | 1 50 |
| | Statesville Landmark | do | do | 1876 | 2 00 |
| LENOIR CO.—*Population:* 15,344. | | | | | |
| Kinston | Kinston Journal | Weekly | News and politics | 1878 | 2 00 |
| La Grange | Baptist Review | do | Religious (*Baptist*) | 1873 | 2 00 |
| LINCOLN CO.—*Population:* 11,061. | | | | | |
| Lincolnton | Lincolnton Progress | Weekly | News and politics | 1873 | 2 00 |
| | Lincolnton Constitution | do | do | 1880 | 1 50 |
| MACON CO.—*Population:* 8,064. | | | | | |
| Franklin | Western Reporter | Weekly | News and politics | 1878 | 1 00 |
| MADISON CO.—*Population:* 12,810. | | | | | |
| Marshall | Madison County News (*e*) | Weekly | News and politics | | |
| MECKLENBURG CO.—*Population:* 34,175. | | | | | |
| Charlotte | Charlotte Democrat | Weekly | News and politics | 1852 | 2 00 |
| | Charlotte Bulletin | Tri-weekly | do | 1858 | 3 00 |
| | Charlotte Courier | Weekly | do | 1868 | 1 50 |
| | Charlotte Observer | Daily (*morning*) | do | 1869 | 8 00 |
| | Charlotte Observer | Weekly | do | 1869 | 2 00 |
| | Charlotte News (*f*) | Daily (*morning*) | do | | 5 00 |
| | Southern Home | Weekly | do | 1870 | 2 00 |
| | Star of Zion | Semi-monthly | Religious (*Episcopal Methodist*) | 1877 | 1 00 |
| | South Land (*e*) | Monthly | Literary | 1878 | 50 |
| | Evening Press | Daily (*evening*) | News and politics | 1879 | 4 00 |

[a] Suspended June 1, 1879.
[b] Suspended February, 1880.
[c] Consolidated with "Tobacconist".
[d] Removed to Mockville after census year.
[e] Suspended.
[f] Consolidated with "Observer".

## NORTH CAROLINA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **Moore co.**—*Population:* 16,821. | | | | | |
| Carthage | Moore Index | Weekly | News and politics | 1879 | $1 50 |
| | Carthaginian | do | do | 1879 | 1 50 |
| **Nash co.**—*Population:* 17,731. | | | | | |
| Rocky Mount | Rocky Mount Progress | Weekly | News and politics | 1879 | 1 25 |
| **New Hanover co.**—*Population:* 21,376. | | | | | |
| Wilmington | Wilmington Review | Daily (*evening*) | News and politics | 1875 | 5 00 |
| | Wilmington Journal | Weekly | do | 1844 | 2 00 |
| | North Carolina Presbyterian | do | Religious (*Presbyterian*) | 1858 | 2 65 |
| | Morning Star | Daily (*morning*) | News and politics | 1867 | 7 00 |
| | Wilmington Star | Weekly | do | 1869 | 1 50 |
| | Wilmington Post | do | do | 1868 | 1 00 |
| | South Atlantic (*a*) | Monthly | Literary | 1877 | 3 00 |
| | North Carolina Medical Journal | do | Medical and surgical | 1878 | 3 00 |
| | Africo-American Presbyterian | Semi-monthly | Religious (*Presbyterian*) | 1879 | 1 00 |
| **Northampton co.**—*Population:* 20,032. | | | | | |
| Jackson | Northampton Reporter | Weekly | News and politics | 1879 | 2 00 |
| **Orange co.**—*Population:* 23,698. | | | | | |
| Chapel Hill | Chapel Hill Ledger (*b*) | Weekly | News and politics | 1878 | 1 50 |
| Durham | Durham Recorder | do | do | 1820 | 1 50 |
| | Tobacco Plant | do | Agricultural | 1872 | 1 50 |
| | Methodist Advance | do | Religious (*Methodist*) | 1880 | 1 50 |
| Hillsboro' | Southern Mail | do | News and politics | 1879 | 1 50 |
| **Pasquotank co.**—*Population:* 10,369. | | | | | |
| Elizabeth City | North Carolinian | Weekly | News and politics | 1869 | 2 00 |
| | Elizabeth City Economist | do | do | 1875 | 2 00 |
| | Elizabeth City Falcon | do | do | 1879 | 2 00 |
| | Evening Telegram (*c*) | Daily (*evening*) | do | 1879 | 3 00 |
| **Pitt co.**—*Population:* 21,794. | | | | | |
| Greenville | Greenville Express | Weekly | News and politics | 1877 | 1 50 |
| **Randolph co.**—*Population:* 20,836. | | | | | |
| Ashboro' | Ashboro' Courier | Weekly | News and politics | 1876 | 1 00 |
| | Randolph Regulator (*d*) | do | do | 1876 | 1 00 |
| **Richmond co.**—*Population:* 18,245. | | | | | |
| Laurinburg | Laurinburg Enterprise | Weekly | News and politics | 1880 | 2 00 |
| Rockingham | Spirit of the South | do | do | 1873 | 2 00 |
| | Pee Dee Bee | do | do | 1879 | 2 00 |
| **Robeson co.**—*Population:* 23,880. | | | | | |
| Lumberton | Robesonian | Weekly | News and politics | 1870 | 2 00 |
| **Rockingham co.**—*Population:* 21,744. | | | | | |
| Leaksville | Leaksville Gazette | Weekly | News and politics | 1880 | 1 50 |
| Reidsville | Reidsville News | do | do | 1875 | 2 00 |
| | Reidsville Times | do | do | 1879 | 2 50 |
| | Reidsville Democrat | do | do | 1880 | 1 00 |
| **Rowan co.**—*Population:* 19,965. | | | | | |
| Salisbury | Carolina Watchman | Weekly | News and politics | 1832 | 2 00 |
| | Salisbury Democrat (*e*) | do | do | | |
| | Salisbury News (*f*) | Semi-weekly | do | 1878 | 1 50 |
| | Salisbury Examiner (*a*) | Weekly | do | | |
| **Stanley co.**—*Population:* 10,505. | | | | | |
| Albemarle | The Second Century | Weekly | News and politics | 1880 | 1 50 |
| **Stokes co.**—*Population:* 15,353. | | | | | |
| Danbury | Danbury Reporter | Weekly | News and politics | 1872 | 1 50 |
| **Surry co.**—*Population:* 15,302. | | | | | |
| Mount Airy | Surry Visitor | Weekly | News and politics | 1872 | 1 00 |
| | Mount Airy Times | do | do | 1880 | 1 50 |
| | Experimental Farmer (*a*) | do | Agricultural | | |
| **Union co.**—*Population:* 18,056. | | | | | |
| Monroe | Monroe Enquirer | Weekly | News and politics | 1873 | 2 00 |
| | Union Express | do | do | 1876 | 1 50 |
| **Wake co.**—*Population:* 47,939. | | | | | |
| Raleigh | Biblical Recorder | Weekly | Religious (*Baptist*) | 1835 | 2 00 |
| | Raleigh Christian Advocate | do | Religious (*Methodist Episcopal*) | 1855 | 2 00 |
| | Weekly State Journal (*g*) | do | News and politics | 1860 | 1 50 |
| | Friend and Templar | do | Temperance | 1867 | 2 00 |
| | Raleigh News | Daily (*morning*) | News and politics | 1867 | 5 00 |
| | Raleigh News (*h*) | Weekly | do | 1872 | 1 00 |
| | Raleigh Observer | Daily (*morning*) | do | 1876 | 6 00 |
| | Raleigh Observer | Weekly | do | 1876 | 2 00 |
| | North Carolina Farmer | Monthly | Agricultural | 1876 | 1 00 |
| | Farmer and Mechanic | Weekly | News and politics | 1877 | 2 00 |
| | Evening Visitor | Daily (*evening*) | do | 1878 | 3 00 |
| | North Carolina Republican (*i*) | Weekly | do | 1880 | |
| | Raleigh Advertiser (*a*) | Tri-weekly | do | 1879 | 3 00 |
| | People's Voice (*i*) | Weekly | do | 1880 | |
| | Raleigh Sentinel (*a*) | do | do | | |
| | Hale's Weekly (*a*) | do | do | | |
| **Warren co.**—*Population:* 22,619. | | | | | |
| Warrenton | Warrenton Gazette | Weekly | News and politics | 1872 | 2 00 |
| **Wayne co.**—*Population:* 24,951. | | | | | |
| Fremont | Free Will Baptist (*j*) | Weekly | Religious (*Baptist*) | 1880 | 1 50 |
| Goldsboro' | Goldsboro' Messenger | Semi-weekly | News and politics | 1867 | 3 00 |
| | Transcript-Messenger | Weekly | do | 1867 | 2 00 |
| | Goldsboro' Mail (*k*) | do | do | 1872 | 2 00 |

*a* Suspended.
*b* Removed to Hillsboro'.
*c* Suspended February, 1880.
*d* Merged in "Ashboro' Courier".
*e* Suspended in 1880.
*f* Suspended in 1879.
*g* Suspended June, 1880.
*h* Consolidated with "Observer".
*i* Suspended May, 1880.
*j* Removed from Pine Level, Johnson county.
*k* Suspended April, 1880.

## NORTH CAROLINA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| WILKES CO.—*Population:* 19,181. | | | | | |
| Wilkesboro' | Wilkesboro' Index | Weekly | News and politics | 1879 | $1 00 |
| WILSON CO.—*Population:* 16,064. | | | | | |
| Wilson | Zion's Landmark | Semi-monthly | Religious (*Baptist*) | 1867 | 2 00 |
| | Wilson Advance | Weekly | News and politics | 1870 | 2 00 |

## OHIO.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| ADAMS CO.—*Population:* 24,005. | | | | | |
| Manchester | Ohio River Boatman | Weekly | News and politics | 1880 | $1 00 |
| West Union | West Union Scion | do | do | 1853 | 1 00 |
| | People's Defender | do | do | 1866 | 1 00 |
| | Adams County New Era | do | do | 1877 | 1 50 |
| ALLEN CO.—*Population:* 31,314. | | | | | |
| Bluffton | Bluffton News | Weekly | News and politics | 1875 | 1 25 |
| Lima | Allen County Democrat | do | do | 1848 | 2 00 |
| | Lima Gazette | do | do | 1854 | 1 50 |
| | Allen County Republican | do | do | 1875 | 1 50 |
| | Der Courier | do | News and politics (*German*) | 1877 | 2 00 |
| | Democratic Times | do | News and politics | 1879 | 1 50 |
| Spencerville | Spencerville Journal | do | do | 1879 | 1 50 |
| ASHLAND CO.—*Population:* 23,883. | | | | | |
| Ashland | Ashland Press | Weekly | News and politics | 1846 | 2 00 |
| | Ashland Times | do | do | 1853 | 1 75 |
| | Young Disciple | do | Religious (*Baptist*) | 1875 | 50 |
| Hayesville | Hayesville Journal | do | News and politics | 1874 | 1 50 |
| Loudonville | Loudonville Advocate | do | do | 1872 | 1 50 |
| | Loudonville Democrat | do | do | 1879 | 1 50 |
| ASHTABULA CO.—*Population:* 37,139. | | | | | |
| Andover | Andover Review (*a*) | Weekly | News and politics | 1878 | 1 50 |
| Ashtabula | Ashtabula Telegraph | do | do | 1850 | 2 00 |
| | Ashtabula News | do | do | 1873 | 2 00 |
| | Democratic Standard | do | do | 1877 | 1 50 |
| Conneaut | Conneaut Reporter | do | do | 1843 | 2 00 |
| Geneva | Geneva Times | do | do | 1866 | 2 00 |
| | Geneva Express | do | do | 1878 | 1 00 |
| | Foster's Musical Journal | Monthly | Musical | 1879 | 60 |
| Jefferson | Ashtabula Sentinel | Semi-weekly | News and politics | 1832 | 2 00 |
| | Jefferson Gazette | Weekly | do | 1876 | 1 50 |
| Rock Creek | Rock Creek Banner | do | do | 1879 | 1 25 |
| ATHENS CO.—*Population:* 28,411. | | | | | |
| Albany | Albany Echo | Weekly | News and politics | 1877 | 1 00 |
| Athens | Athens Messenger | do | do | 1825 | 2 00 |
| | Athens Journal | do | do | 1868 | 2 00 |
| Nelsonville | Nelsonville News | do | do | 1879 | 1 50 |
| AUGLAIZE CO.—*Population:* 25,444. | | | | | |
| New Bremen | Stern des Westlichen Ohio | Weekly | News and politics (*German*) | 1875 | 2 00 |
| Saint Mary's | St. Mary's Argus | do | News and politics | 1878 | 1 50 |
| Wapakoneta | Auglaize County Democrat | do | do | 1848 | 2 00 |
| | Wapakoneta Bee | do | do | 1876 | 2 00 |
| BELMONT CO.—*Population:* 49,638. | | | | | |
| Barnesville | Barnesville Enterprise | Weekly | News and politics | 1866 | 2 00 |
| Bellaire | Bellaire Independent | Daily (*evening*) | do | 1880 | 5 00 |
| | Bellaire Independent | Weekly | do | 1871 | 1 50 |
| | Bellaire Tribune | do | do | 1879 | 1 75 |
| | Bellaire Democrat | do | do | 1880 | 2 00 |
| Bridgeport | Bridgeport River Side Press (*b*) | do | do | 1879 | 1 25 |
| Martin's Ferry | Ohio Valley News | do | do | 1872 | 2 00 |
| Saint Clairsville | St. Clairsville Gazette | do | do | 1812 | 2 00 |
| | Belmont Chronicle | do | do | 1813 | 2 00 |
| BROWN CO.—*Population:* 32,911. | | | | | |
| Georgetown | Brown County News | Weekly | News and politics | 1838 | 1 50 |
| | Georgetown Sentinel | do | do | 1874 | 1 50 |
| Ripley | Ripley Bee and Times | do | do | 1843 | 1 50 |
| | Ohio Valley Times (*c*) | do | do | 1876 | 1 00 |
| BUTLER CO.—*Population:* 42,579. | | | | | |
| Hamilton | Butler County Democrat | Weekly | News and politics | 1814 | 1 50 |
| | National Zeitung | do | News and politics (*German*) | 1864 | 2 00 |
| | Hamilton Observer | do | News and politics | 1875 | 50 |
| | Hamilton Daily News | Daily (*evening*) | do | 1879 | 3 30 |
| | Hamilton News | Weekly | do | 1814 | 1 50 |
| Middletown | Middletown Journal | do | do | 1859 | 1 50 |
| | Middletown Signal | do | do | 1874 | 1 00 |
| Oxford | Oxford Citizen | do | do | 1854 | 1 50 |
| CARROLL CO.—*Population:* 16,416. | | | | | |
| Carrollton | Carroll Free Press | Weekly | News and politics | 1831 | 2 00 |
| | Carroll County Chronicle | do | do | 1871 | 2 00 |
| Leesburgh | Connotton Valley Times | do | do | 1878 | 2 00 |
| CHAMPAIGN CO.—*Population:* 27,817. | | | | | |
| Mechanicsburg | Central Ohio News | Weekly | News and politics | 1873 | 1 50 |
| | Mechanicsburg Herald (*d*) | do | do | 1879 | 1 50 |
| Saint Paris | St. Paris New Era | do | do | 1872 | 1 50 |
| Urbana | Urbana Citizen and Gazette | do | do | 1838 | 1 50 |
| | Urbana Union | Daily (*evening*) | do | 1869 | 6 00 |
| | Urbana Union | Weekly | do | 1861 | 1 50 |
| | Urbana News (*e*) | Daily (*morning*) | do | 1875 | 6 00 |
| | University Courant (*f*) | Monthly | Collegiate | 1877 | 50 |

*a* Suspended.
*b* Removed to Freeport since census year.
*c* Consolidated with "Ripley Bee" May, 1880.
*d* Removed to New Washington, Crawford county, February, 1881.
*e* Suspended June, 1880, and re-established September, 1880.
*f* Suspended July, 1879.

## OHIO—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| CLARKE CO.—*Population:* 41,948. | | | | | |
| New Carlisle | New Carlisle Chronicle (*a*) | Weekly | News and politics | 1878 | $1 25 |
| South Charleston | Clarke County Republican | do | do | 1879 | 2 00 |
| Springfield | Springfield Republic | Daily (*evening*) | do | 1854 | 9 00 |
| | Springfield Republic | Weekly | do | 1814 | 1 50 |
| | Springfield Republic | Tri-weekly | do | 1850 | 4 50 |
| | Springfield Transcript | Weekly | do | 1867 | 1 50 |
| | Leffel's Illustrated Milling and Mechanical News. | Monthly | Science and mechanics | 1870 | 50 |
| | Springfield Gazette | Daily (*evening*) | News and politics | 1879 | 5 20 |
| | Springfield Gazette | Weekly | do | 1873 | 1 00 |
| | Wittenberger | Monthly | Collegiate | 1873 | 1 00 |
| | Springfield Journal | Weekly | News and politics (*German*) | 1874 | 2 00 |
| | Farm and Fireside | Semi-monthly | Agricultural | 1877 | 50 |
| | Live Patron | Weekly | do | 1877 | 1 00 |
| | Springfield Times | Daily (*morning*) | News and politics | 1878 | 7 80 |
| | Springfield Times (*b*) | Weekly | do | 1878 | 1 00 |
| | Springfield Sunday News | Sunday | do | 1878 | 2 00 |
| | Springfield Democrat (*c*) | Daily (*morning*) | do | | 6 00 |
| | Springfield Mail (*d*) | Weekly | do | | |
| CLERMONT CO.—*Population:* 36,713. | | | | | |
| Batavia | Clermont Sun | Weekly | News and politics | 1828 | 1 50 |
| | Clermont Courier | do | do | 1838 | 1 50 |
| | Batavia Advance | do | do | 1874 | 1 50 |
| Moscow | Moscow Reporter (*e*) | do | do | | |
| New Richmond | Clermont Independent | do | do | 1869 | 1 50 |
| CLINTON CO.—*Population:* 24,756. | | | | | |
| Blanchester | Blanchester Press | Weekly | News and politics | 1872 | 1 25 |
| New Vienna | Messenger of Peace (*f*) | Monthly | Religious (*Friends*) | 1870 | 50 |
| | Christian Worker | Weekly | Religious (*Friends*) | 1871 | 2 00 |
| | Olive Leaf | Monthly | Sunday school paper | 1873 | 25 |
| | New Vienna Record | Weekly | News and politics. | 1880 | 1 50 |
| Sabina | Sabina News | do | do | 1877 | 1 25 |
| Wilmington | Clinton Republican | do | do | 1838 | 1 50 |
| | Wilmington Journal | do | do | 1867 | 1 50 |
| | Sewing Machine Gazette | Monthly | Commerce and trade | 1876 | 50 |
| | Clinton County Democrat | Weekly | News and politics. | 1880 | 1 50 |
| COLUMBIANA CO.—*Population:* 48,602. | | | | | |
| Columbiana | Independent Register | Weekly | News and politics | 1870 | 1 50 |
| | Columbiana True Press | do | do | 1875 | 1 00 |
| East Liverpool | Potters' Gazette | do | do | 1871 | 2 00 |
| | East Liverpool Tribune | do | do | 1876 | 1 25 |
| | Saturday Review | do | do | 1879 | 1 25 |
| East Palestine | Valley Echo | do | do | 1878 | 1 50 |
| Leetonia | Leetonia Reporter | do | do | 1871 | 1 50 |
| New Lisbon | Ohio Patriot | do | do | 1808 | 1 50 |
| | Buckeye State | do | do | 1852 | 2 00 |
| | New Lisbon Journal | do | do | 1867 | 1 00 |
| Salem | Salem Republican | do | do | 1824 | 2 00 |
| | Ohio Educational Monthly | Monthly | Educational | 1852 | 1 50 |
| | Salem Era | Weekly | News and politics | 1873 | 1 50 |
| | Educational Notes and Queries | Monthly | Educational | 1875 | 1 00 |
| | Mutual Underwriter | do | Insurance | 1876 | 1 00 |
| | National Greenback (*g*) | Weekly | News and politics | 1878 | 1 00 |
| | Columbiana Herald (*h*) | do | do | | |
| Wellsville | Wellsville Union | do | do | 1863 | 2 00 |
| COSHOCTON CO.—*Population:* 26,642. | | | | | |
| Coshocton | Coshocton Age | Weekly | News and politics | 1824 | 1 50 |
| | Coshocton Democrat | do | do | 1840 | 2 00 |
| | Coshocton Commonwealth | do | do | 1880 | 2 00 |
| CRAWFORD CO.—*Population:* 30,583. | | | | | |
| Bucyrus | Crawford County Forum | Weekly | News and politics | 1844 | 2 00 |
| | Bucyrus Journal | do | do | 1858 | 2 00 |
| | Deutsches Courier | do | News and politics (*German*) | 1874 | 2 00 |
| Crestline | Crestline Advocate | do | News and politics | 1879 | 2 00 |
| Galion | Galion Review | do | do | 1850 | 2 00 |
| | Galion Sun | do | do | 1872 | 2 00 |
| | Galion Inquirer | do | do | 1877 | 2 00 |
| CUYAHOGA CO.—*Population:* 196,943. | | | | | |
| Berea | Berea Advertiser | Weekly | News and politics | 1868 | 1 00 |
| Chagrin Falls | Chagrin Falls Exponent | do | do | 1874 | 1 50 |
| Cleveland | Cleveland Herald | Daily (*morning*) | do | 1835 | 10 00 |
| | Cleveland Herald | Daily (*evening*) | do | 1835 | 10 00 |
| | Cleveland Herald | Weekly | do | 1819 | 1 25 |
| | Cleveland Herald | Tri-weekly | do | | 4 00 |
| | Standard of the Cross | Weekly | Religious (*Protestant Episcopal*) | 1830 | 2 50 |
| | Der Christliche Botschafter | do | Religious (*Evangelical; German*) | 1836 | 2 00 |
| | Cleveland Plaindealer | Daily (*evening*) | News and politics | 1845 | 10 00 |
| | Cleveland Plaindealer | Weekly | do | 1842 | 1 15 |
| | Cleveland Plaindealer | Tri-weekly | do | 1849 | 4 00 |
| | Cleveland Leader | Daily (*morning*) | do | 1848 | 10 00 |
| | Evening News | Daily (*evening*) | do | 1869 | 6 00 |
| | Cleveland Leader | Sunday | do | 1848 | 2 00 |
| | Cleveland Leader | Weekly | do | 1848 | 1 25 |
| | Cleveland Leader | Tri-weekly | do | 1848 | 5 00 |
| | Ohio Practical Farmer | Weekly | Agricultural | 1848 | 1 50 |
| | Evangelical Messenger | do | Religious (*Evangelical*) | 1848 | 2 00 |
| | Wæchter Am Erie | Daily (*evening*) | News and politics (*German*) | 1852 | 6 00 |
| | Sonntagsblatt des Wæchter Am Erie | Sunday | News and politics (*German*) | 1877 | 1 50 |
| | Wæchter Am Erie | Weekly | News and politics (*German*) | 1852 | 2 00 |
| | Reformirte Kirchenzeitung | do | Religious (*Reformed; German*) | 1854 | 2 00 |
| | Der Christliche Kinderfreund | Weekly | Sunday school (*German*) | 1856 | 75 |
| | Der Christliche Kinderfreund | Semi-monthly | Sunday school (*German*) | 1856 | 40 |
| | Der Christliche Kinderfreund | Monthly | Sunday school (*German*) | 1856 | 25 |
| | Brainard's Musical World | do | Musical | 1864 | 1 50 |
| | Sunday School Messenger | Weekly | Sunday school | 1864 | 75 |
| | Sunday School Messenger | Semi-monthly | do | 1864 | 40 |
| | Sunday School Messenger | Monthly | do | 1864 | 25 |

*a* Suspended September, 1879.
*b* Suspended July, 1880.
*c* Suspended November, 1880; succeeded the "Mail" January, 1880.
*d* Merged in "Daily Democrat" January, 1880.
*e* Suspended 1880.
*f* Merged in "New Vienna Record" after census year.
*g* Merged in "Akron Advance".
*h* Suspended 1879.

## OHIO—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| CUYAHOGA CO.—Continued. | | | | | |
| Cleveland—Continued | Laemmerhirte | Monthly | Religious (*German*) | 1865 | $1 00 |
| | Der Sendbote | Weekly | Religious (*Baptist; German*) | 1866 | 2 00 |
| | Living Epistle | Monthly | Religious (*Evangelical*) | 1866 | 1 00 |
| | Trade Review | Weekly | Commerce and trade | 1867 | 3 00 |
| | Locomotive Engineers' Journal | Monthly | do | 1867 | 1 00 |
| | Das Evangelische Magazin | do | Religious (*Evangelical; German*) | 1868 | 1 25 |
| | Anzeiger | Daily (*evening*) | News and politics (*German*) | 1871 | 7 50 |
| | Anzeiger | Sunday | News and politics (*German*) | 1871 | 2 50 |
| | Anzeiger | Weekly | News and politics (*German*) | 1871 | 2 00 |
| | Cleveland Voice | Sunday | News and politics | 1871 | 2 00 |
| | Die Biene | do | News and politics (*German*) | 1872 | 2 00 |
| | Christian Harvester | Semi-monthly | Religious (*Evangelical*) | 1872 | 75 |
| | South Cleveland Advocate | Weekly | News and politics | 1873 | 1 50 |
| | Home Companion | Semi-monthly | Juvenile | 1874 | 60 |
| | Catholic Universe | Weekly | Religious (*Catholic*) | 1874 | 2 50 |
| | Evangelical Sunday School Teacher | Monthly | Sunday school | 1875 | 50 |
| | My Lesson | Weekly | do | 1875 | 25 |
| | Evangelical Lesson Leaf | do | do | 1875 | 10 |
| | Laemmerweide | do | Sunday school (*German*) | 1875 | 25 |
| | Evangelisches Lectionsblatt | do | Sunday school (*German*) | 1875 | 10 |
| | Abendlust | Monthly | Religious (*German*) | 1876 | 1 00 |
| | Sunday Morning Times | Sunday | News and politics | 1876 | 2 00 |
| | Short-Hand Review | Quarterly | Phonography | 1877 | 1 00 |
| | Dennice Novoveku | Weekly | Secret society (*Bohemian*) | 1877 | 2 70 |
| | Lectionsblatter | do | Religious (*German*) | 1877 | 1 00 |
| | Penny Press | Daily (*evening*) | News and politics | 1878 | 3 00 |
| | Sunday School Blackboard | Weekly | Sunday school | 1878 | 3 00 |
| | Die Wandtafel | do | Religious (*German*) | 1878 | 3 00 |
| | Cleveland Sentinel | do | News and politics | 1879 | 1 25 |
| | Young Folks' Musical Monthly | Monthly | Musical | 1879 | 1 00 |
| | Evangelical Sunday School Quarterly | Quarterly | Sunday school | 1879 | 20 |
| | Evangelisches Sunday School Vierteljahrsheft | do | Sunday school (*German*) | 1879 | 20 |
| | Temperance Standard (*a*) | Weekly | Temperance | | |
| | The State (*b*) | do | News and politics | | |
| DARKE CO.—*Population:* 40,496. | | | | | |
| Ansonia | School Visitor | Monthly | Educational | 1880 | 60 |
| Arcanum | Arcanum News | Weekly | News and politics | 1879 | 1 25 |
| Greenville | Greenville Journal | do | do | 1832 | 1 50 |
| | Greenville Democrat | do | do | 1855 | 2 00 |
| | Sunday Courier | Sunday | do | 1875 | 1 50 |
| | Sunday Graphic (*a*) | do | do | 1879 | 1 00 |
| New Madison | New Madison News (*c*) | Weekly | do | 1879 | 1 50 |
| Versailles | Versailles Policy | do | do | 1874 | 1 50 |
| DEFIANCE CO.—*Population:* 22,515. | | | | | |
| Defiance | Defiance Democrat | Weekly | News and politics | 1844 | 2 00 |
| | Defiance County Express | do | do | 1868 | 2 00 |
| Hicksville | Hicksville News | do | do | 1874 | 1 50 |
| | Hicksville Republican | do | do | 1880 | 1 50 |
| DELAWARE CO.—*Population:* 27,381. | | | | | |
| Delaware | Delaware Gazette | Weekly | News and politics | 1818 | 2 00 |
| | Delaware Herald | do | do | 1866 | 2 00 |
| | College Transcript | Semi-monthly | Collegiate | 1868 | 1 50 |
| | Delaware Signal | Weekly | News and politics | 1873 | 2 00 |
| | Delaware Chronicle | Daily (*evening*) | do | 1878 | 4 50 |
| | Weekly Democrat | Weekly | do | 1878 | 1 50 |
| | Delaware County News | do | do | 1878 | 1 50 |
| ERIE CO.—*Population:* 32,640. | | | | | |
| Huron | Erie County Reporter | Weekly | News and politics | 1879 | 1 50 |
| Milan | Milan Advertiser | do | do | 1870 | 1 50 |
| Sandusky | Friend of the Family | Monthly | Miscellaneous | 1880 | 50 |
| | Sandusky Register | Daily (*morning*) | News and politics | 1844 | 9 00 |
| | Sandusky Register | Weekly | do | 1844 | 1 50 |
| | Sandusky Register | Tri-weekly | do | 1822 | 4 00 |
| | Der Demokrat | do | News and politics (*German*) | 1856 | 2 00 |
| | Sandusky Journal | Weekly | News and politics | 1866 | 1 50 |
| | Ice and Fish News | Monthly | Commerce and trade | 1870 | 50 |
| | Sandusky Tribune | Tri-weekly | News and politics | 1879 | 4 00 |
| | Sandusky Tribune | Weekly | do | 1879 | 1 50 |
| FAIRFIELD CO.—*Population:* 34,284. | | | | | |
| Lancaster | Ohio Eagle | Weekly | News and politics | 1809 | 1 50 |
| | Lancaster Gazette | do | do | 1826 | 2 00 |
| | Saturday Journal | do | do | 1875 | 1 50 |
| | Lancaster Free Press | do | do | 1879 | 1 50 |
| Lithopolis | Lithopolitan Home News | do | do | 1879 | 1 50 |
| Rushville | Rushville Times | do | do | 1879 | 1 50 |
| FAYETTE CO.—*Population:* 20,364. | | | | | |
| Washington | Ohio State Register | Weekly | News and politics | 1852 | 2 00 |
| | Fayette County Herald | do | do | 1858 | 1 50 |
| | Fayette Republican | do | do | 1879 | 1 50 |
| FRANKLIN CO.—*Population:* 86,797. | | | | | |
| Canal Winchester | Winchester Times | Weekly | News and politics | 1871 | 1 50 |
| Columbus | Ohio State Journal | Daily (*morning*) | do | 1840 | 8 00 |
| | Ohio State Journal | Weekly | do | 1811 | 1 00 |
| | Columbus Times | Daily (*evening*) | do | 1852 | 6 00 |
| | Columbus Times | Weekly | do | 1829 | 1 00 |
| | Evening Dispatch | Daily (*evening*) | do | 1832 | 7 00 |
| | Dollar Dispatch | Weekly | do | 1874 | 1 00 |
| | Columbus Gazette | do | Agricultural | 1840 | 1 00 |
| | Lutheran Standard | do | Religious (*Lutheran*) | 1842 | 2 00 |
| | Der Westbote | do | News and politics (*German*) | 1843 | 2 00 |
| | Der Westbote | Semi-weekly | News and politics (*German*) | 1854 | 3 50 |
| | Lutherische Kirchenzeitung | Semi-monthly | Religious (*Lutheran; German*) | 1860 | 1 00 |
| | Companion and American Odd Fellow | Monthly | Secret society | 1865 | 1 25 |
| | Sunday Morning News | Sunday | News and politics | 1867 | 2 00 |
| | Mute's Chronicle | Weekly | Educational | 1868 | 1 00 |
| | Ohio Waisenfreund | do | Religious (*Catholic; German*) | 1873 | 1 50 |
| | The Knight | Monthly | Secret society | 1873 | 1 00 |

*a* Suspended 1879. *b* Suspended. *c* Suspended June, 1880.

## OHIO—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| Franklin co.—Continued. | | | | | |
| Columbus—Continued | Columbus Sunday Herald | Sunday | News and politics | 1874 | $2 00 |
| | Catholic Columbian | Weekly | Religious (*Catholic*) | 1875 | 2 00 |
| | Ohio Medical Recorder | Monthly | Medicine | 1876 | 1 00 |
| | Ohio State Sentinel (*a*) | Weekly | News and politics | 1877 | 2 00 |
| | Sunday Capital | Sunday | do | 1878 | 2 00 |
| | Der Ohio Sonntagsgast (*b*) | Weekly | News and politics (*German*) | 1878 | 1 00 |
| | Der Ohio Sonntagsgast (*c*) | Sunday | News and politics (*German*) | 1880 | 2 00 |
| | Courier (*d*) | Daily (*evening*) | News and politics | 1878 | 4 50 |
| | Penny Post (*e*) | Daily (*evening*) | do | 1879 | 3 12 |
| | Franklin County Legal Record | Weekly | Legal | 1879 | 50 |
| | American Prohibitionist | do | Temperance | 1880 | 1 00 |
| | Western Home Journal | Monthly | Literary | 1880 | 1 00 |
| | Columbus Commonwealth (*f*) | Weekly | News and politics | 1879 | 1 50 |
| | Columbus Democrat (*g*) | Daily (*morning*) | do | 1878 | 10 00 |
| Westerville | Westerville Review | Weekly | do | 1869 | 1 00 |
| Fulton co.—*Population:* 21,053. | | | | | |
| Delta | Delta Avalanche | Weekly | News and politics | 1876 | 1 50 |
| Fayette | Fayette Record | do | do | 1872 | 1 50 |
| Wauseon | Northwestern Republican | do | do | 1855 | 1 50 |
| | Democratic Expositor | do | do | 1875 | 1 50 |
| Gallia co.—*Population:* 28,124. | | | | | |
| Gallipolis | Gallipolis Journal | Weekly | News and politics | 1817 | 1 50 |
| | Gallipolis Bulletin | do | do | 1867 | 1 50 |
| | Gallipolis Ledger | do | do | 1873 | 1 00 |
| Geauga co.—*Population:* 14,251. | | | | | |
| Burton | Geauga Leader | Weekly | News and politics | 1874 | 1 50 |
| Chardon | Geauga Republican | do | do | 1849 | 1 50 |
| Greene co.—*Population:* 31,349. | | | | | |
| Cedarville | Cedarville Herald | Weekly | News and politics | 1876 | 1 00 |
| Jamestown | Jamestown Tribune | do | do | 1875 | 1 50 |
| Xenia | Xenia Torchlight | do | do | 1838 | 2 00 |
| | Xenia Gazette | do | do | 1868 | 2 00 |
| | Xenia Democrat-News | do | do | 1874 | 1 50 |
| | Xenia Sunlight | do | do | 1878 | 1 50 |
| Guernsey co.—*Population:* 27,197. | | | | | |
| Cambridge | Guernsey Times | Weekly | News and politics | 1824 | 2 00 |
| | Cambridge Jeffersonian | do | do | 1832 | 2 00 |
| | Cambridge Herald | do | do | 1869 | 2 00 |
| | Boy in Blue (*h*) | do | do | 1871 | 75 |
| | National Tribune | do | do | 1880 | 2 00 |
| | Guernsey Teacher | Monthly | Educational | 1880 | ...... |
| Quaker City | Quaker City Independent | Weekly | News and politics | 1875 | 1 50 |
| Hamilton co.—*Population:* 313,374. | | | | | |
| Cincinnati | Gazette | Daily (*morning*) | News and politics | 1793 | 12 00 |
| | Gazette | Weekly | do | 1793 | 1 50 |
| | Gazette | Semi-weekly | do | 1793 | 3 00 |
| | Star in the West | Weekly | Religious (*Universalist*) | 1828 | 2 20 |
| | Cincinnati Medical Gazette and Recorder | Monthly | Medical | 1831 | 1 50 |
| | Journal and Messenger | Weekly | Religious (*Baptist*) | 1831 | 2 50 |
| | Catholic Telegraph | do | Religious (*Catholic*) | 1832 | 3 00 |
| | Western Christian Advocate | do | Religious (*Methodist*) | 1833 | 2 20 |
| | Taegliches Volksblatt | Daily (*morning*) | News and politics (*German*) | 1838 | 11 20 |
| | Westliche Blaetter | Sunday | News and politics (*German*) | 1864 | 2 00 |
| | Taegliches Volksblatt | Weekly | News and politics (*German*) | 1836 | 2 00 |
| | Times-Star | Daily (*morning*) | News and politics | ...... | 6 00 |
| | Times-Star | Daily (*evening*) | do | 1836 | 6 00 |
| | Times-Star | Weekly | do | 1836 | 1 00 |
| | Star (*i*) | Daily (*evening*) | do | 1871 | 6 00 |
| | Wahrheitsfreund | Weekly | Religious (*Catholic; German*) | 1837 | 2 50 |
| | Christliche Apologete | do | Religious (*Methodist; German*) | 1838 | 2 00 |
| | National Repository | Monthly | Religious (*Methodist*) | 1840 | 3 00 |
| | Herald and Presbyter | Weekly | Religious (*Presbyterian*) | 1840 | 2 50 |
| | Cincinnati Lancet and Clinic | do | Medical | 1841 | 3 50 |
| | Sunday School Advocate | Semi-monthly | Sunday school (*Methodist*) | 1841 | 35 |
| | Commercial | Daily (*morning*) | News and politics | 1842 | 14 00 |
| | Commercial | Sunday | do | ...... | ...... |
| | Dollar Commercial | Weekly | do | 1844 | 1 00 |
| | Enquirer | Daily (*morning*) | do | 1842 | 14 00 |
| | Enquirer | Sunday | do | ...... | ...... |
| | Enquirer | Weekly | do | 1842 | 1 15 |
| | Price Current and Commercial Review | do | Commerce and trade | 1844 | 3 00 |
| | Eclectic Medical Journal | Monthly | Medical | 1844 | 2 00 |
| | Masonic Review | do | Secret society | 1845 | 2 00 |
| | Dental Register | do | Medical | 1846 | 2 50 |
| | Protestantische Zeitblætter (*j*) | Weekly | Religious (*Evangelical; German*) | 1849 | 2 50 |
| | Volksfreund | Daily (*morning*) | News and politics (*German*) | 1850 | 11 00 |
| | Sonntagmorgen | Sunday | News and politics (*German*) | 1850 | 2 00 |
| | Volksfreund | Weekly | News and politics (*German*) | 1850 | 2 10 |
| | Christian Press | Monthly | Sunday school | 1852 | 30 |
| | Die Deborah | Weekly | Religious (*Jewish; German*) | 1854 | 2 00 |
| | American Israelite | do | Religious (*Jewish*) | 1854 | 4 00 |
| | Sunday School Glocke | Semi-monthly | Sunday school (*German*) | 1855 | 25 |
| | Law Bulletin | Daily (*morning*) | Legal | 1857 | 18 00 |
| | Law Bulletin | Weekly | do | 1876 | 3 00 |
| | American Christian Review | do | Religious (*Disciples*) | 1858 | 2 00 |
| | Iron Molders' Journal | Monthly | Commerce and trade | 1864 | 2 00 |
| | Journal of Commerce | Weekly | do | 1865 | 2 00 |
| | Christian Standard | do | Religious (*Disciples*) | 1866 | 2 00 |
| | Post | do | News and politics | 1867 | 2 50 |
| | Kikeriki | do | Commerce and trade (*German*) | 1868 | 2 00 |

*a* An edition of the "Advocate", Zanesville.
*b* State edition.
*c* City edition.
*d* Merged in "Times" May, 1880.
*e* Suspended June, 1880.
*f* Suspended.
*g* Merged in "Times".
*h* Merged in "Cambridge Jeffersonian".
*i* Consolidated with "Times".
*j* Consolidated with "Die Union".

## OHIO—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| Hamilton co.—Continued. | | | | | |
| Cincinnati—Continued | Der Deutsche Pionier | Monthly | Historical (*German*) | 1868 | $2 00 |
| | Golden Hours | do | Sunday school | 1868 | 2 60 |
| | Sunday School Journal | do | do | 1868 | 65 |
| | Merchant and Manufacture | do | Commerce and trade | 1869 | 3 00 |
| | Medical News | do | Medical | 1869 | 2 00 |
| | Physio-Medical Recorder | do | do | 1869 | 75 |
| | Children's Home Monthly Journal | do | Miscellaneous | 1869 | 75 |
| | Bibelforscher | Quarterly | Sunday school (*German*) | 1870 | 08 |
| | Cincinnati Trade List | Weekly | Commerce and trade | 1870 | 3 00 |
| | Church's Musical Visitor | Monthly | Musical | 1871 | 1 50 |
| | Harrison News | Weekly | News and politics | 1871 | 1 50 |
| | Mystic Jewel | Semi-monthly | Secret society | 1871 | 1 50 |
| | American Law Record | Monthly | Law | 1872 | 5 00 |
| | Cincinnati Saturday Night | Weekly | Family reading | 1872 | 2 00 |
| | Berean Leaf | Quarterly | Sunday school | 1872 | 06 |
| | Picture Lesson Paper | Monthly | do | 1872 | 25 |
| | Cincinnati Grange Bulletin | Weekly | Agricultural | 1873 | 1 60 |
| | Western Tobacco Journal and Grocers' Review | do | Commerce and trade | 1873 | 2 00 |
| | Miller and Millwright | Monthly | do | 1873 | 1 00 |
| | Cincinnati Medical Advance | do | Medical | 1873 | 2 00 |
| | Der Sendbote | do | Religious (*Catholic; German*) | 1873 | 2 00 |
| | Sabbath Visitor | Weekly | Sunday school | 1873 | 1 20 |
| | Haus und Herd | Monthly | Religious (*Methodist; German*) | 1873 | 2 00 |
| | { Freie Presse | Daily (*morning*) | News and politics (*German*) | 1874 | 8 00 |
| | { Freie Presse | Sunday | News and politics (*German*) | 1874 | 2 00 |
| | { Freie Presse | Weekly | News and politics (*German*) | 1876 | 2 00 |
| | National Bulletin | Semi-monthly | Secret society | 1874 | 1 25 |
| | Live-Stock Review | Weekly | Commerce and trade | 1875 | 1 10 |
| | Expressman's Monthly | Monthly | do | 1875 | 1 00 |
| | Transcript | Weekly | News and politics | 1875 | 1 00 |
| | Sunday School Standard | do | Sunday school | 1875 | 45 |
| | Cincinnati Public School Journal | Monthly | Educational | 1876 | 1 50 |
| | Baldwin's Musical Review | Quarterly | Musical | 1876 | 25 |
| | Irish Citizen | Weekly | News and politics | 1876 | 2 00 |
| | Sunday School Classmate | Semi-monthly | Sunday school | 1876 | 35 |
| | { Anzeiger (*a*) | Daily (*evening*) | News and politics (*German*) | 1877 | 7 50 |
| | { Anzieger | Sunday | News and politics (*German*) | 1877 | 1 50 |
| | { Anzieger | Weekly | News and politics (*German*) | 1877 | 1 50 |
| | Taegliche Abend-Presse | Daily (*evening*) | News and politics (*German*) | 1877 | 3 00 |
| | National Farmer | Monthly | Agricultural | 1877 | 50 |
| | Grocer and Commission Reporter | Weekly | Commerce and trade | 1877 | 2 00 |
| | Grocer and Merchants' Advocate | do | do | 1877 | 50 |
| | American Detective | Monthly | Miscellaneous | 1877 | 3 00 |
| | National Repository | do | Religious (*Methodist*) | 1877 | 3 00 |
| | Marine Journal | Weekly | Commerce and trade | 1878 | 1 00 |
| | Phonetic Educator | Quarterly | Educational | 1878 | 1 00 |
| | Obstetric Gazette | Monthly | Medical | 1878 | 3 00 |
| | American Inventor | do | Science and mechanics | 1878 | 1 00 |
| | Cincinnati Artisan | do | do | 1878 | 50 |
| | Cincinnati Bau Vereins Anzieger | do | Miscellaneous (*German*) | 1878 | 1 00 |
| | Biblischer Bildersaal | Quarterly | Sunday school (*German*) | 1878 | 4 00 |
| | Dictator | Weekly | Secret society | 1878 | 1 00 |
| | Labor Tribune | do | Trade | 1879 | 1 00 |
| | Grocers' Manual | do | Commerce and trade | 1879 | 2 00 |
| | Landlords' Bulletin | Semi-monthly | do | 1879 | 2 00 |
| | Our Village News | Weekly | News and politics | 1879 | 1 00 |
| | Baptist Review | Quarterly | Religious (*Baptist*) | 1879 | 2 50 |
| | { Young Catholic's Weekly | Weekly | Religious (*Catholic*) | 1879 | 1 00 |
| | { Young Catholic's Monthly | Monthly | Religious (*Catholic*) | 1879 | 50 |
| | Die Union | Weekly | Religious (*Evangelical; German*) | 1879 | 1 50 |
| | Cincinnati Volksbote | Monthly | Religious (*German*) | 1879 | 50 |
| | Kline Leute | Semi-monthly | Sunday school (*German*) | 1879 | 12 |
| | Musical People | Monthly | Musical | 1880 | 1 00 |
| | St. Xavier's Messenger | do | Religious (*Catholic*) | 1880 | 1 00 |
| | Clinic (*b*) | do | Medical | | |
| | American Messenger (*b*) | do | Miscellaneous | | |
| | Teachers' Monthly (*b*) | do | Educational | | |
| | Ohio River Traveler (*b*) | do | Commerce and trade | | |
| | Amusement Journal (*c*) | do | Dramatic | | |
| | Guiding Star (*c*) | Semi-monthly | Sunday school | 1868 | 75 |
| | Sabbath School Monthly (*c*) | Monthly | do | | |
| | Teachers' Mentor | do | do | 1876 | 75 |
| | Little Child | Weekly | do | | 25 |
| | Sabbath School Visitor (*b*) | do | do | | |
| Hancock co.—*Population:* 27,784. | | | | | |
| Findlay | Hancock Courier | Weekly | News and politics | 1836 | 2 00 |
| | Findlay Jeffersonian | do | do | 1854 | 2 00 |
| | Findlay Republican | do | do | 1879 | 1 00 |
| Hardin co.—*Population:* 27,023. | | | | | |
| Ada | Ada Record | Weekly | News and politics | 1872 | 1 50 |
| Dunkirk | Dunkirk Standard | do | do | 1875 | 1 50 |
| Forest | Forest Review | do | do | 1875 | 1 50 |
| | Ohio Home | Monthly | Miscellaneous | 1880 | 1 00 |
| Kenton | Kenton Republican | Weekly | News and politics | 1846 | 2 00 |
| | Hardin County Democrat | do | do | 1852 | 2 00 |
| Harrison co.—*Population:* 20,456. | | | | | |
| Bowerstown | Bowerstown Banner | Weekly | News and politics | 1879 | 1 50 |
| Cadiz | Cadiz Republican | do | do | 1815 | 2 00 |
| | Cadiz Sentinel | do | do | 1832 | 2 00 |
| Scio | Scio Herald | do | do | 1879 | 1 00 |
| Tippecanoe | Tippecanoe Commercial (*d*) | do | do | | |
| Henry co.—*Population:* 20,585. | | | | | |
| Deshler | Deshler Flag | Weekly | News and politics | 1876 | 1 50 |
| Napoleon | Democratic Northwest | do | do | 1852 | 1 50 |
| | Henry County Signal | do | do | 1865 | 1 50 |
| Highland co.—*Population:* 30,281. | | | | | |
| Greenfield | Highland Chief | Weekly | News and politics | 1865 | 1 50 |
| Hillsboro' | Hillsboro' Gazette | do | do | 1818 | 1 50 |
| | Highland News | do | do | 1837 | 1 50 |

*a* Changed name from "Abend-Post" to "Anzeiger" November, 1880. *b* No data given. *c* Suspended. *d* Suspended April, 1880.

## OHIO—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| HOCKING CO.—*Population:* 21,126. | | | | | |
| Logan | Hocking Sentinel | Weekly | News and politics | 1842 | $2 00 |
| | Logan Republican | do | do | 1869 | 1 50 |
| | Hocking Valley Gazette | do | do | 1877 | 2 00 |
| HOLMES CO.—*Population:* 20,776. | | | | | |
| Millersburg | Holmes County Farmer | Weekly | Agricultural | 1828 | 2 00 |
| | Holmes County Republican | do | News and politics | 1845 | 2 00 |
| HURON CO.—*Population:* 31,609. | | | | | |
| Bellevue | Bellevue Gazette | Weekly | News and politics | 1866 | 1 50 |
| | Bellevue Local News | do | do | 1875 | 1 50 |
| | Farmers' Reporter | do | Agricultural | 1880 | |
| Greenwich | Greenwich Review (*a*) | do | News and politics | | |
| Monroeville | Monroeville Spectator | do | do | 1870 | 2 00 |
| New London | New London Record | do | do | 1871 | 1 50 |
| Norwalk | Norwalk Reflector | do | do | 1830 | 2 00 |
| | Norwalk Experiment | do | do | 1835 | 1 75 |
| | Norwalk Chronicle | do | do | 1875 | 1 75 |
| | Ohio Adler | do | News and politics (*German*) | 1876 | 2 00 |
| Plymouth | Plymouth Advertiser | do | News and politics | 1851 | 1 50 |
| Wakeman | Wakeman Independent Press | do | do | 1875 | 1 00 |
| JACKSON CO.—*Population:* 23,686. | | | | | |
| Jackson | Jackson Standard | Weekly | News and politics | 1847 | 1 00 |
| | Jackson Herald | do | do | 1866 | 1 50 |
| JEFFERSON CO.—*Population:* 33,018. | | | | | |
| Knoxville | Banner of Zion | Monthly | Religious (*Evangelical*) | 1876 | 50 |
| Sloan's Station | Sloan's Enterprise | Weekly | News and politics | 1879 | 1 50 |
| Steubenville | Steubenville Herald | Daily (*evening*) | do | 1847 | 7 00 |
| | Steubenville Herald | Weekly | do | 1806 | 2 00 |
| | Steubenville Gazette | Daily (*evening*) | do | 1878 | 6 00 |
| | Steubenville Gazette | Weekly | do | 1865 | 2 00 |
| | Steubenville Germania | do | News and politics (*German*) | 1876 | 2 00 |
| | Sunday News (*b*) | Sunday | News and politics | 1879 | 1 50 |
| | Ohio Press | Weekly | do | 1879 | 2 00 |
| | Sunday Chronicle (*c*) | Sunday | do | 1879 | 1 50 |
| | Sunday Local (*d*) | do | do | | |
| KNOX CO.—*Population:* 27,431. | | | | | |
| Centerburg | Centerburg Mirror (*e*) | Weekly | News and politics | 1848 | 1 50 |
| Fredericktown | Free Press | do | do | 1875 | 2 00 |
| Gambier | Gambier Argus (*f*) | do | Collegiate | 1874 | 1 10 |
| | Kenyon Advance | Monthly | do | 1877 | 1 00 |
| Mount Vernon | Mount Vernon Democratic Banner | Weekly | News and politics | 1836 | 2 00 |
| | Mount Vernon Republican | do | do | 1854 | 2 00 |
| | Park's Floral Magazine | Monthly | Floriculture | 1871 | 50 |
| | Mount Vernon Advocate (*c*) | Weekly | News and politics | | |
| | Orphan's Friend (*g*) | Monthly | Philanthropical | | |
| LAKE CO.—*Population:* 16,326. | | | | | |
| Painesville | Painesville Telegraph | Weekly | News and politics | 1822 | 2 00 |
| | Painesville Advertiser | do | do | 1867 | 1 50 |
| | Northern Ohio Journal | do | do | 1871 | 1 50 |
| Willoughby | Willoughby Independent | do | do | 1879 | 1 50 |
| LAWRENCE CO.—*Population:* 39,068. | | | | | |
| Ironton | Ironton Register | Weekly | News and politics | 1850 | 1 50 |
| | Wæchter Am Ohio | do | News and politics (*German*) | 1872 | 2 00 |
| | Iron Era | do | News and politics | 1877 | 1 50 |
| | Dollar Irontonian | do | do | 1878 | 1 00 |
| LICKING CO.—*Population:* 40,450. | | | | | |
| Granville | Denison Collegian | Bi-weekly | Collegiate | 1868 | 1 50 |
| Newark | Newark Advocate | Weekly | News and politics | 1820 | 2 00 |
| | Newark American | do | do | 1856 | 2 00 |
| | Newark Banner | do | do | 1874 | 1 00 |
| | Newark Democrat (*h*) | do | do | 1878 | 1 50 |
| Utica | Utica Herald | do | do | 1878 | 1 50 |
| LOGAN CO.—*Population:* 26,267. | | | | | |
| Bellefontaine | Bellefontaine Examiner | Weekly | News and politics | 1830 | 1 50 |
| | Bellefontaine Republican | do | do | 1854 | 1 50 |
| | Logan County Index | do | do | 1859 | 1 50 |
| | Lutheran Evangelist | do | Religious (*Lutheran*) | 1877 | 1 75 |
| De Graff | De Graff Buckeye | do | News and politics | 1870 | 1 00 |
| | De Graff Banner (*i*) | do | do | | |
| West Liberty | West Liberty Gazette | do | do | 1878 | 1 50 |
| Zanesfield | Zanesfield News (*j*) | do | do | | |
| LORAIN CO.—*Population:* 35,526. | | | | | |
| Elyria | Elyria Republican | Weekly | News and politics | 1852 | 1 75 |
| | Elyria Constitution | do | do | 1865 | 1 75 |
| | Poultry Nation | Monthly | Agricultural | 1872 | 75 |
| | Elyria Astonisher (*k*) | Weekly | News and politics | | |
| | Elyria Post (*l*) | do | News and politics (*German*) | 1877 | 2 00 |
| Lorain | Lorain County Times | do | News and politics | 1879 | 1 50 |
| North Amherst | North Amherst Record (*a*) | do | do | 1879 | 1 25 |
| Oberlin | Oberlin News | do | do | 1860 | 1 50 |
| | Oberlin Review | Bi-weekly | Collegiate | 1873 | 1 50 |
| | Oberlin Gazette (*m*) | Weekly | News and politics | 1876 | 1 00 |
| | Fellowship | Monthly | Religious | 1880 | |
| Wellington | Wellington Enterprise | Weekly | News and politics | 1867 | 1 50 |
| LUCAS CO.—*Population:* 67,377. | | | | | |
| South Toledo | South Toledo Advertiser | Weekly | News and politics | 1872 | 1 00 |
| Toledo | Toledo Blade | Daily (*evening*) | do | 1835 | 10 00 |
| | Toledo Blade | Weekly | do | 1847 | 2 00 |
| | Toledo Blade | Tri-weekly | do | 1848 | 5 00 |
| | Morning Telegram (*n*) | Daily (*morning*) | do | 1858 | 9 00 |
| | Toledo Telegram | Sunday | do | 1850 | 1 00 |
| | Toledo Telegram | Weekly | do | 1850 | 1 00 |

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*a* Suspended July, 1880.
*b* Suspended August, 1880.
*c* Suspended September, 1879.
*d* Suspended July, 1879.
*e* Suspended February, 1880.
*f* Suspended after census year.
*g* Suspended January, 1881.
*h* Merged in Newark "Advocate," May, 1880.
*i* Merged in De Graff "Buckeye."
*j* Suspended May, 1880.
*k* Suspended January, 1880.
*l* Suspended December, 1879.
*m* Suspended April, 1880.
*n* Succeeded the "Commercial".

## OHIO—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **Lucas co.—Continued.** | | | | | |
| Toledo—Continued | Toledo Express | Daily (*evening*) | News and politics (*German*) | 1870 | $5 20 |
| | Toledo Express | Weekly | News and politics (*German*) | 1853 | 2 00 |
| | Le Phare des Lacs | do | News and politics (*French*) | 1857 | 3 00 |
| | Whitney Musical Guest | Quarterly | Musical | 1867 | 1 00 |
| | Northern Ohio Democrat | Weekly | News and politics | 1870 | 2 00 |
| | Sunday Democrat | Sunday | do | 1875 | 2 00 |
| | Times (*a*) | Weekly | do | 1873 | 2 00 |
| | Evening Bee | Daily (*evening*) | do | 1876 | 5 00 |
| | Toledo Bee | Weekly | do | 1876 | 1 00 |
| | Medical and Surgical Journal | Monthly | Medical | 1877 | 1 00 |
| | Golden Sheaf | do | Religious (*Unsectarian*) | 1878 | 25 |
| | Railroader | do | Railroads | 1878 | 1 00 |
| | True Nationalist | Weekly | News and politics | 1878 | 1 50 |
| | Toledo Journal | Sunday | do | 1868 | 2 00 |
| | Toledo Journal | Weekly | do | 1878 | 2 00 |
| | Toledo Globe | do | do | 1879 | 2 00 |
| | Toledo Volksfreund | do | News and politics (*German*) | 1879 | 2 00 |
| | National Literary Monthly | Monthly | Literary | 1880 | 1 50 |
| **Madison co.—*Population:* 20,129.** | | | | | |
| London | London Times | Weekly | News and politics | 1840 | 1 50 |
| | Madison County Democrat | do | do | 1858 | 1 50 |
| | London Enterprise | do | do | 1872 | 2 00 |
| **Mahoning co.—*Population:* 42,871.** | | | | | |
| Canfield | Mahoning Dispatch | Weekly | News and politics | 1877 | 1 50 |
| Youngstown | Register and Tribune | Daily (*evening*) | do | 1874 | 5 00 |
| | Register and Tribune | Weekly | do | 1854 | 1 50 |
| | Youngstown Vindicator | do | do | 1869 | 1 50 |
| | Youngstown Rundschau | do | News and politics (*German*) | 1874 | 2 00 |
| | Youngstown News | Daily (*evening*) | News and politics | 1877 | 5 00 |
| | Youngstown News | Weekly | do | 1877 | 1 50 |
| | New Star | do | do | 1879 | 1 00 |
| **Marion co.—*Population:* 20,565.** | | | | | |
| Caledonia | Caledonia Argus | Weekly | News and politics | 1875 | 1 50 |
| La Rue | La Rue News | do | do | 1877 | 1 25 |
| Marion | Marion Independent | do | do | 1828 | 2 00 |
| | Marion Democratic Mirror | do | do | 1840 | 2 00 |
| Prospect | Prospect Monitor | do | do | 1878 | 1 25 |
| **Medina co.—*Population:* 21,453.** | | | | | |
| Medina | Medina Gazette | Weekly | News and politics | 1835 | 2 00 |
| | Gleanings in Bee Culture | Monthly | Agricultural | 1873 | 1 00 |
| | Medina Democrat (*b*) | Weekly | News and politics | 1875 | 2 00 |
| Seville | Seville Times | do | do | 1871 | 1 50 |
| Wadsworth | Wadsworth Enterprise | do | do | 1866 | 1 25 |
| | Tidal Wave (*c*) | do | Temperance | | |
| **Meigs co.—*Population:* 32,325.** | | | | | |
| Middleport | Meigs County Republican | Weekly | News and politics | 1865 | 1 50 |
| | Meigs County Herald | do | do | 1876 | 1 50 |
| Pomeroy | Meigs County Telegraph | do | do | 1844 | 1 50 |
| | Pomeroy Journal | do | News and politics (*German*) | 1879 | 1 75 |
| | Der Freund Israels | Monthly | Religious (*Jewish; German*) | 1880 | 25 |
| **Mercer co.—*Population:* 21,808.** | | | | | |
| Celina | Mercer County Standard | Weekly | News and politics | 1848 | 1 50 |
| | Mercer County Observer | do | do | 1876 | 1 50 |
| Fort Recovery | Fort Recovery New Era | do | do | 1878 | 1 00 |
| **Miami co.—*Population:* 36,158.** | | | | | |
| Covington | Covington Gazette | Weekly | News and politics | 1870 | 1 50 |
| Piqua | Piqua Journal | do | do | 1849 | 1 50 |
| | Miami Democrat | do | do | 1864 | 2 00 |
| | Miami Helmet | do | do | 1874 | 2 00 |
| | Der Correspondent | do | News and politics (*German*) | 1878 | 1 50 |
| | Phonetic Magazine (*d*) | Monthly | Educational | | |
| Tippecanoe City | Tippecanoe City Herald | Weekly | News and politics | 1869 | 1 25 |
| Troy | Miami Union | do | do | 1864 | 1 50 |
| | Troy Sentinel (*c*) | do | do | 1878 | 1 50 |
| West Milton | West Milton Argus | do | do | 1879 | 1 50 |
| **Monroe co.—*Population:* 26,496.** | | | | | |
| Woodsfield | Spirit of Democracy | Weekly | News and politics | 1844 | 1 50 |
| | Monroe Gazette | do | do | 1873 | 1 50 |
| **Montgomery co.—*Population:* 78,550.** | | | | | |
| Dayton | Dayton Democrat | Daily (*morning*) | News and politics | 1874 | 8 00 |
| | Dayton Democrat | Sunday | do | | 2 00 |
| | Empire and Democrat | Weekly | do | 1808 | 2 00 |
| | Herald of Gospel Liberty | do | Religious (*Christian*) | 1808 | 2 00 |
| | Religious Telescope | do | Religious (*United Brethren*) | 1834 | 2 00 |
| | Dayton Journal | Daily (*morning*) | News and politics | 1840 | 9 00 |
| | Dayton Journal | Weekly | do | 1808 | 2 00 |
| | Der Froeliche Botschafter | do | Religious (*United Brethren; German*) | 1846 | 1 65 |
| | Christian World | do | Religious (*Reformed*) | 1849 | 2 00 |
| | Children's Friend | Semi-monthly | Sunday school | 1853 | 30 |
| | Die Daytoner Volkszeitung | Daily (*evening*) | News and politics (*German*) | 1866 | 5 00 |
| | Die Daytoner Volkszeitung | Weekly | News and politics (*German*) | 1866 | 2 00 |
| | Jugend Pilger | Semi-monthly | Religious (*United Brethren; German*) | 1867 | 30 |
| | Instructor | Quarterly | Sunday school | 1873 | 75 |
| | Our Bible Teacher | Monthly | Religious (*United Brethren*) | 1873 | 75 |
| | Leaves of Light | Semi-monthly | Sunday school | 1873 | 35 |
| | Anzeiger | Daily (*evening*) | News and politics (*German*) | 1876 | 5 00 |
| | Anzeiger | Weekly | News and politics (*German*) | 1876 | 2 00 |
| | Saturday People | do | News and politics | 1876 | 1 50 |
| | Life Boat (*e*) | do | Temperance | | |
| | Evening Record | Daily (*evening*) | News and politics | 1879 | 5 00 |
| Germantown | Germantown Press | Weekly | do | 1874 | 1 00 |
| Kinsey's Station | Kinsey's Station Vindicator | Monthly | Religious (*Dunkard*) | 1870 | 1 00 |
| Miamisburg | Miamisburg Bulletin | Weekly | News and politics | 1867 | 1 50 |

*a* Suspended February, 1881.

*b* Suspended September, 1880, and re-established February, 1881.

*c* Suspended March, 1880.

*d* Suspended March, 1880, and consolidated with the "Canadian Short-hand Writer", Toronto, Ontario, Canada.

*e* Suspended November, 1879.

## OHIO—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| MORGAN CO —*Population:* 20,074. | | | | | |
| McConnellsville | McConnellsville Herald | Weekly | News and politics | 1842 | $2 00 |
| | McConnellsville Democrat | do | do | 1871 | 2 00 |
| MORROW CO.—*Population:* 19,072. | | | | | |
| Cardington | Cardington Independent | Weekly | News and politics | 1857 | 1 50 |
| Mount Gilead | Morrow County Sentinel | do | do | 1848 | 2 00 |
| | Union Register | do | do | 1861 | 2 00 |
| MUSKINGUM CO.—*Population:* 49,774. | | | | | |
| Dresden | Dresden Doings | Weekly | News and politics | 1874 | 1 25 |
| Zanesville | Zanesville Courier | Daily (*evening*) | do | 1846 | 6 00 |
| | Zanesville Courier | Weekly | do | 1820 | 1 50 |
| | Zanesville Signal | do | do | 1833 | 1 50 |
| | Blandy's Journal | Monthly | Mechanics | 1864 | 2 00 |
| | Zanesville Advocate | Weekly | News and politics | 1870 | 2 50 |
| | Zanesville Post | do | News and politics (*German*) | 1872 | 2 00 |
| | Zanesville Times | Daily (*morning*) | do | 1877 | 6 00 |
| | Zanesville Times | Weekly | do | 1877 | 1 50 |
| | Zanesville Era (*a*) | Daily (*morning*) | do | 1880 | 5 00 |
| NOBLE CO.—*Population:* 21,138. | | | | | |
| Caldwell | Noble County Republican | Weekly | News and politics | 1852 | 1 50 |
| | Citizens' Press | do | do | 1871 | 1 50 |
| OTTAWA CO.—*Population:* 19,762. | | | | | |
| Elmore | Elmore Tribune | Weekly | News and politics | 1879 | 1 50 |
| Oak Harbor | Oak Harbor Press | do | do | 1874 | 1 50 |
| | Oak Harbor Exponent (*b*) | do | do | 1878 | 1 50 |
| Port Clinton | Ottawa County News | do | do | 1865 | 2 00 |
| | Ottawa County Reporter | do | do | 1874 | 2 00 |
| PAULDING CO.—*Population:* 13,485. | | | | | |
| Antwerp | Antwerp Banner | Weekly | News and politics | 1878 | 1 00 |
| Paulding | Paulding County Gazette | do | do | 1866 | 1 50 |
| | Paulding Democrat | do | do | 1873 | 1 50 |
| PERRY CO.—*Population:* 28,218. | | | | | |
| New Lexington | New Lexington Herald | Weekly | News and politics | 1867 | 2 00 |
| | New Lexington Tribune | do | do | 1871 | 1 50 |
| | Perry County Democrat (*c*) | do | do | 1879 | 1 00 |
| Somerset | Somerset Press | do | do | 1873 | 1 50 |
| PICKAWAY CO.—*Population:* 27,415. | | | | | |
| Circleville | Circleville Union-Herald | Weekly | News and politics | 1817 | 2 00 |
| | Circleville Democrat and Watchman | do | do | 1837 | 2 00 |
| | Circleville Herald | do | do | 1870 | 2 00 |
| PIKE CO.—*Population:* 17,927. | | | | | |
| Piketon | Piketon Courier | Weekly | News and politics | 1877 | 1 00 |
| Waverly | Waverly Republican | do | do | 1845 | 1 50 |
| | Waverly Watchman | do | do | 1856 | 1 00 |
| PORTAGE CO.—*Population:* 27,500. | | | | | |
| Garrettsville | Garrettsville Journal | Weekly | News and politics | 1866 | 1 50 |
| Kent | Kent Saturday Bulletin | do | do | 1866 | 1 50 |
| Ravenna | Ravenna Republican-Democrat | do | do | 1830 | 2 00 |
| | Portage County Republican | do | do | 1878 | 1 50 |
| PREBLE CO.—*Population:* 24,533. | | | | | |
| Camden | Camden Gazette | Weekly | News and politics | 1880 | 1 50 |
| Eaton | Eaton Register | do | do | 1816 | 1 50 |
| | Eaton Democrat | do | do | 1842 | 1 50 |
| PUTNAM CO.—*Population:* 23,713. | | | | | |
| Columbus Grove | Putnam County Vidette | Weekly | News and politics | 1873 | 1 50 |
| | Columbus Grove Journal (*d*) | do | do | 1877 | 1 00 |
| Leipsic | Leipsic Free Press | do | do | 1878 | 1 50 |
| Ottawa | Putnam County Sentinel | do | do | 1852 | 2 00 |
| RICHLAND CO.—*Population:* 36,306. | | | | | |
| Bellville | Bellville Weekly | Weekly | News and politics | 1876 | 1 25 |
| Mansfield | Richland Star | do | do | 1877 | 1 35 |
| | Mansfield Herald | do | do | 1818 | 2 00 |
| | Richland Shield and Banner | do | do | 1818 | 2 00 |
| | Ohio Liberal | do | do | 1872 | 1 50 |
| | Mansfield Courier | do | News and politics (*German*) | 1872 | 2 00 |
| | Mansfield Call | do | News and politics | 1876 | 2 00 |
| Plymouth | Plymouth Advertiser | do | do | 1878 | 1 50 |
| Shelby | Shelby News | do | do | 1868 | 2 00 |
| | Shelby Times | do | do | 1876 | 1 00 |
| Shiloh | Shiloh Review | do | do | 1875 | 1 50 |
| ROSS CO.—*Population:* 40,307. | | | | | |
| Adelphi | Bee-Keepers' Instructor | Monthly | Agricultural | 1879 | 50 |
| | Adelphi Border News | Weekly | News and politics | 1879 | 1 50 |
| Bainbridge | Bainbridge Chronicle (*e*) | do | do | 1878 | 1 50 |
| Chillicothe | Chillicothe Advertiser | do | do | 1829 | 2 00 |
| | Unsere Zeit | do | News and politics (*German*) | 1868 | 2 00 |
| | Ross County Register | do | News and politics | 1868 | 2 00 |
| | National Express | do | do | 1878 | 1 50 |
| | Scioto Gazette | do | do | 1800 | 2 00 |
| SANDUSKY CO.—*Population:* 32,057. | | | | | |
| Bellevue | Bellevue Local News | Weekly | News and politics | 1875 | 1 50 |
| Clyde | Clyde Sentinel (*f*) | do | do | 1876 | 1 25 |
| | Clyde Enterprise and Sentinel | do | do | 1878 | 2 00 |
| | Farmers' Mutual Relief Reporter | Bi-weekly | Insurance | 1878 | 25 |
| Fremont | Fremont Journal | Weekly | News and politics | 1829 | 2 00 |
| | Democratic Messenger | do | do | 1843 | 2 00 |
| | Fremont Courier | do | News and politics (*German*) | 1859 | 2 00 |
| SCIOTO CO.—*Population:* 33,511. | | | | | |
| Portsmouth | Portsmouth Tribune and Republican | Weekly | News and politics | 1836 | 2 00 |
| | Portsmouth Times | do | do | 1856 | 2 00 |
| | Portsmouth Correspondent | do | News and politics (*German*) | 1857 | 2 00 |
| | Portsmouth Blade | do | News and politics | 1876 | 1 50 |

*a* Suspended October, 1880.
*b* Suspended.
*c* Suspended March, 1881.
*d* Suspended July, 1880.
*e* Removed to Jeffersonville after census year.
*f* Consolidated with "Clyde Enterprise" May, 1880.

## OHIO—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| SENECA CO.—*Population:* 36,947. | | | | | |
| Attica | Attica Journal | Weekly | News and politics | 1874 | $1 50 |
| Bloomville | Seneca County Record | do | do | 1878 | 1 50 |
| Fostoria | Fostoria Review | do | do | 1860 | 1 50 |
| | Fostoria Democrat | do | do | 1875 | 1 50 |
| Green Spring | Green Spring Times | do | do | 1879 | 1 00 |
| Tiffin | Seneca Advertiser | do | do | 1842 | 2 00 |
| | Tiffin Tribune | do | do | 1849 | 2 00 |
| | Die Presse | do | News and politics (*German*) | 1872 | 2 00 |
| | Evening Herald | Daily (*evening*) | News and politics | 1877 | 6 00 |
| | Tiffin News | Semi-weekly | do | 1880 | 1 00 |
| SHELBY CO.—*Population:* 24,137. | | | | | |
| Sidney | Sidney Journal | Weekly | News and politics | 1831 | 2 00 |
| | Shelby County Democrat | do | do | 1849 | 2 00 |
| STARK CO.—*Population:* 64,031. | | | | | |
| Alliance | Alliance Review | Weekly | News and politics | 1868 | 2 00 |
| | Independent Age (*a*) | do | Religious | 1877 | 2 00 |
| | Alliance Standard | do | News and politics | 1880 | 1 50 |
| Canal Fulton | Stark County Signal | do | do | 1875 | 1 50 |
| Canton | Stark County Democrat | do | do | 1833 | 2 00 |
| | Canton Repository | Daily (*evening*) | do | 1878 | 5 00 |
| | Canton Repository | Weekly | do | 1815 | 1 50 |
| | Die Ohio Volks-Zeitung | do | News and politics (*German*) | 1879 | 2 00 |
| | Ohio Staats-Zeitung (*b*) | do | News and politics (*German*) | 1873 | 2 00 |
| Massillon | Massillon Independent | do | News and politics | 1863 | 1 50 |
| | Massillon American | do | do | 1869 | 2 00 |
| SUMMIT CO.—*Population:* 43,788. | | | | | |
| Akron | Akron City Times | Weekly | News and politics | 1868 | 1 50 |
| | Summit County Beacon | Daily (*evening*) | do | 1869 | 6 00 |
| | Summit County Beacon | Weekly | do | 1837 | 1 50 |
| | Akron Germania | do | News and politics (*German*) | 1869 | 2 00 |
| | Akron Commercial | Monthly | Miscellaneous | 1874 | 50 |
| | Akron Advance | Weekly | News and politics | 1877 | 1 50 |
| | Sunday Gazette | Sunday | do | 1878 | 2 00 |
| | Tribune (*c*) | Daily (*morning*) | do | | |
| | Akron Tribune | Weekly | do | 1879 | 1 50 |
| Cuyahoga Falls | Cuyahoga Falls Reporter | do | do | 1870 | 2 00 |
| Hudson | Hudson Enterprise | do | do | 1875 | 1 50 |
| TRUMBULL CO.—*Population:* 44,880. | | | | | |
| Cortland | Cortland Gazette | Weekly | News and politics | 1876 | 1 50 |
| | Trumbull Era | do | do | 1880 | 1 50 |
| Hubbard | Hubbard Signal | do | do | 1872 | 1 00 |
| Niles | Trumbull County Independent | do | do | 1867 | 1 50 |
| Warren | Western Reserve Chronicle | do | do | 1812 | 1 50 |
| | Warren Constitution | do | do | 1867 | 1 50 |
| | Warren Record | do | do | 1876 | 1 50 |
| | Warren Tribune | do | do | 1876 | 1 50 |
| TUSCARAWAS CO.—*Population:* 40,198. | | | | | |
| Canal Dover | Dover Argus | Weekly | News and politics | 1880 | 2 00 |
| | Iron Valley Reporter | do | do | 1872 | 2 00 |
| Dennison | Dennison Paragraph | do | do | 1879 | 1 00 |
| Newcomerstown | Newcomerstown Eye | do | do | 1878 | 2 00 |
| New Philadelphia | Tuscarawas Advocate | do | do | 1819 | 2 00 |
| | Ohio Democrat | do | do | 1839 | 2 00 |
| | Der Deutsche Beobachter | do | News and politics (*German*) | 1869 | 2 00 |
| Uhrichsville | Tuscarawas Chronicle | do | News and politics | 1865 | 2 00 |
| | Tuscarawas Democrat | do | do | 1879 | 2 00 |
| UNION CO.—*Population:* 22,375. | | | | | |
| Marysville | Marysville Tribune | Weekly | News and politics | 1848 | 2 00 |
| | Union County Journal | do | do | 1874 | 2 00 |
| Richwood | Richwood Gazette | do | do | 1872 | 2 00 |
| VAN WERT CO.—*Population:* 23,028. | | | | | |
| Delphos | Delphos Herald | Weekly | News and politics | 1869 | 1 50 |
| | Delphos Courant | do | do | 1877 | 2 00 |
| Van Wert | Van Wert Bulletin | do | do | 1846 | 2 00 |
| | Van Wert Times | do | do | 1866 | 2 00 |
| Willshire | Willshire Independent | do | do | 1865 | 2 00 |
| VINTON CO.—*Population:* 17,223. | | | | | |
| Hamden | Hamden Enterprise | Weekly | News and politics | 1880 | 1 00 |
| McArthur | Vinton Record | do | do | 1850 | 1 00 |
| | Christian Union Witness, or Olive Branch of Peace. (*d*) | do | Religious (*Unsectarian*) | 1865 | 1 75 |
| | McArthur Enquirer | do | News and politics | 1867 | 1 25 |
| | McArthur Journal | do | do | 1879 | 1 00 |
| WARREN CO.—*Population:* 28,392. | | | | | |
| Franklin | Valley Chronicle | Weekly | News and politics | 1876 | 1 00 |
| | Franklin Argus | do | do | 1879 | 1 50 |
| Lebanon | Western Star | do | do | 1806 | 2 00 |
| | Lebanon Patriot | do | do | 1867 | 1 50 |
| | Lebanon Gazette | do | do | 1874 | 1 50 |
| | Warren County Democrat (*e*) | do | do | 1879 | 1 50 |
| Mason | Mason Vanguard (*f*) | do | do | 1879 | 1 00 |
| Morrow | Morrow Telegram | do | do | 1876 | 1 25 |
| Waynesville | Miami Gazette | do | do | 1850 | 2 00 |
| WASHINGTON CO.—*Population:* 43,244. | | | | | |
| Belpré | Belpré News (*a*) | Weekly | News and politics | | |
| Beverly | Beverly Dispatch | do | do | 1879 | 1 50 |
| Marietta | Marietta Register | do | do | 1801 | 2 00 |
| | Marietta Times | do | do | 1864 | 2 00 |
| | Marietta Zeitung | do | News and politics (*German*) | 1868 | 1 50 |
| | College Olio | Monthly | Collegiate | 1872 | 1 50 |

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[a] Suspended.
[b] Suspended November, 1879.
[c] Suspended February, 1880.
[d] Suspended July, 1880.
[e] Suspended March, 1880.
[f] Established January, 1879, and suspended January, 1880; re-established August, 1880, and finally suspended February, 1881.

## OHIO—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| WAYNE CO.—*Population:* 40,076. | | | | | |
| Dalton | Dalton Gazette | Weekly | News and politics | 1875 | $1 10 |
| Doylestown | Doylestown Journal | do | do | 1874 | 1 50 |
| Fredericksburg | Fredericksburg Herald | do | do | 1875 | 2 00 |
| Orrville | Orrville Crescent | do | do | 1867 | 1 50 |
| Shreve | Shreve Journal | do | do | 1867 | 1 50 |
| West Salem | West Salem Monitor | do | do | 1875 | 1 50 |
| Wooster | Wayne County Democrat | do | do | 1826 | 2 00 |
| | Wooster Republican | do | do | 1832 | 2 00 |
| | Royal Arcanum Journal | Monthly | Secret society | 1878 | 1 00 |
| | Wayne County Herald | Weekly | News and politics | 1878 | 1 25 |
| WILLIAMS CO.—*Population:* 23,821. | | | | | |
| Bryan | Bryan Press | Weekly | News and politics | 1854 | 1 50 |
| | Bryan Democrat | do | do | 1863 | 1 50 |
| | Fountain City Argus (*a*) | do | do | 1876 | 1 50 |
| Edgerton | Edgerton Herald | do | do | 1875 | 1 00 |
| Pioneer | Border Alliance | do | do | 1879 | 1 25 |
| | Christian Messenger | do | Religious (*Methodist*) | 1880 | 1 25 |
| West Unity | Unity Eagle | do | News and politics | 1878 | 1 50 |
| WOOD CO.—*Population:* 34,022. | | | | | |
| Bowling Green | Wood County Sentinel | Weekly | News and politics | 1867 | 2 00 |
| | Bowling Green Democrat | do | do | 1875 | 1 50 |
| | Wood County Reporter (*b*) | do | do | 1879 | 1 50 |
| North Baltimore | North Baltimore Sun | do | do | 1879 | 1 00 |
| Pemberville | Pemberville Independent | do | do | 1877 | 1 50 |
| Perrysburg | Perrysburg Journal | do | do | 1853 | 1 50 |
| Weston | Weston Herald | do | do | 1879 | 1 50 |
| WYANDOT CO.—*Population:* 22,395. | | | | | |
| Carey | Wyandot County Times | Weekly | News and politics | 1872 | 1 50 |
| Nevada | Nevada Enterprise | do | do | 1872 | 1 50 |
| | Nevada Star | do | do | 1880 | 1 00 |
| Upper Sandusky | Wyandot County Republican | do | do | 1845 | 2 00 |
| | Wyandot Democratic Union | do | do | 1857 | 2 00 |

## OREGON.

| | | | | | |
|---|---|---|---|---|---|
| BAKER CO.—*Population:* 4,616. | | | | | |
| Baker | Bedrock Democrat | Weekly | News and politics | 1870 | $4 00 |
| BENTON CO.—*Population:* 6,403. | | | | | |
| Corvallis | Corvallis Gazette | Weekly | News and politics | 1863 | 2 50 |
| | Benton County Blade | do | do | 1879 | 2 50 |
| Philomath | Philomath Crucible | do | Religious (*United Brethren*) | 1877 | 2 00 |
| CLACKAMAS CO.—*Population:* 9,260. | | | | | |
| Oregon City | Oregon City Enterprise | Weekly | News and politics | 1866 | 2 50 |
| | Clackamas Democrat | do | do | 1879 | 1 75 |
| CLATSOP CO.—*Population:* 7,222. | | | | | |
| Astoria | Astorian | Daily (*morning*) | News and politics | 1873 | 6 00 |
| | Astorian | Weekly | do | 1873 | 2 00 |
| | Astorian | Sunday | do | ........ | 2 00 |
| COOS CO.—*Population:* 4,834. | | | | | |
| Empire City | Coos County Argus (*c*) | Weekly | News and politics | 1879 | 2 50 |
| Marshfield | Coos Bay News | do | do | 1873 | 2 50 |
| | Coast Mail | do | do | 1879 | 2 50 |
| CURRY CO.—*Population:* 1,208. | | | | | |
| Port Orford | Port Orford Post | Weekly | News and politics | 1880 | 2 00 |
| DOUGLAS CO.—*Population:* 9,596. | | | | | |
| Roseburg | Roseburg Plaindealer | Weekly | News and politics | 1869 | 3 00 |
| | Douglas Independent | do | do | 1876 | 2 00 |
| | Western Star | do | do | 1877 | 3 00 |
| GRANT CO.—*Population:* 4,303. | | | | | |
| Canyon City | Grant County News | Weekly | News and politics | 1879 | 3 00 |
| JACKSON CO.—*Population:* 8,154. | | | | | |
| Ashland | Ashland Tidings | Weekly | News and politics | 1876 | 2 50 |
| Jacksonville | Oregon Sentinel | do | do | 1856 | 2 50 |
| | Democratic Times | do | do | 1871 | 3 00 |
| LAKE CO.—*Population:* 2,804. | | | | | |
| Lakeview | State Line Herald | Weekly | News and politics | 1878 | 3 00 |
| | Lake County Examiner | do | do | 1880 | 3 00 |
| LANE CO.—*Population:* 9,411. | | | | | |
| Eugene | Oregon State Journal | Weekly | News and politics | 1864 | 2 50 |
| | Eugene City Guard | do | do | 1867 | 2 50 |
| Junction City | Junction City Republican (*d*) | do | do | 1878 | 2 00 |
| LINN CO.—*Population:* 12,676. | | | | | |
| Albany | State Rights Democrat | Weekly | News and politics | 1865 | 3 00 |
| | Albany Register | do | do | 1868 | 2 50 |
| | Albany Herald | do | do | 1879 | 2 50 |
| | Valley Fountain (*e*) | do | do | 1880 | ........ |
| Harrisburg | Harrisburg Review (*f*) | do | do | 1880 | ........ |
| MARION CO.—*Population:* 14,576. | | | | | |
| Salem | Salem Statesman | Daily (*morning*) | News and politics | 1861 | 6 00 |
| | Salem Statesman | Weekly | do | 1851 | 2 00 |
| | Salem Talk | Daily (*evening*) | do | 1879 | 4 00 |
| | Salem Rising Star | Weekly | do | 1880 | ........ |

*a* Suspended November, 1879.
*b* Suspended September, 1879.
*c* Suspended December, 1879.
*d* Suspended July, 1880.
*e* Suspended about October, 1880.
*f* Suspended.

## OREGON—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **MULTNOMAH CO.**—*Population:* 25,203. | | | | | |
| East Portland | East Portland Vindicator | Weekly | News and politics | 1878 | $2 50 |
| | Sunday Call (*a*) | Sunday | do | 1878 | 2 50 |
| Portland | Portland Oregonian | Daily (*morning*) | do | 1860 | 10 00 |
| | Oregonian | Weekly | do | 1850 | 3 00 |
| | Pacific Christian Advocate | do | Religious (*Methodist Episcopal*) | 1855 | 2 60 |
| | Columbia Churchman | Monthly | Religious (*Episcopal*) | 1860 | 1 50 |
| | Deutsche Zeitung | Weekly | News and politics (*German*) | 1866 | 3 00 |
| | Sunday Mercury | Sunday | News and politics | 1868 | 2 50 |
| | Willamette Farmer | Weekly | Agricultural | 1869 | 2 50 |
| | Catholic Sentinel | do | Religious (*Catholic*) | 1869 | 3 00 |
| | Commercial Reporter | do | Commerce and trade | 1873 | 3 00 |
| | New Northwest | do | News and politics | 1871 | 3 00 |
| | Archangel | Monthly | Collegiate | 1874 | 50 |
| | North Pacific | Quarterly | Insurance | 1874 | 1 00 |
| | Sunday Welcome | Sunday | News and politics | 1875 | 2 50 |
| | West Shore | Monthly | Literary | 1875 | 2 00 |
| | Bee | Daily (*evening*) | News and politics | 1875 | 8 00 |
| | Bee | Weekly | do | 1875 | 3 00 |
| | Standard | Daily (*morning*) | do | 1876 | 8 00 |
| | Standard | Weekly | do | 1876 | 3 00 |
| | Evening Telegram | Daily (*evening*) | do | 1878 | 6 00 |
| | Resources of Oregon and Washington | Monthly | Immigration | 1878 | 1 50 |
| | Oregon Staats Zeitung | Weekly | News and politics (*German*) | 1878 | 3 50 |
| | Medical Journal | Monthly | Medical | 1879 | 3 00 |
| | Oregon Literary Vidette | do | Literary | 1879 | 50 |
| | Journal of Education (*b*) | Semi-monthly | Educational | 1879 | 1 00 |
| **POLK CO.**—*Population:* 6,601. | | | | | |
| Dallas | Polk County Itemizer | Weekly | News and politics | 1874 | 2 50 |
| Independence | River Side | do | do | 1879 | 2 50 |
| Monmouth | Pacific Christian Messenger | do | Religious (*Disciples*) | 1870 | 2 50 |
| **UMATILLA CO.**—*Population:* 9,607. | | | | | |
| Pendleton | East Oregonian | Weekly | News and politics | 1875 | 3 00 |
| | Pendleton Tribune | do | do | 1878 | 3 00 |
| Weston | Weston Times | do | do | 1879 | 3 00 |
| **UNION CO.**—*Population:* 6,650. | | | | | |
| La Grande | Eastern Oregon Republican | Weekly | News and politics | 1880 | 4 00 |
| Union | Mountain Sentinel | do | do | 1868 | 3 00 |
| **WASCO CO.**—*Population:* 11,120. | | | | | |
| The Dalles | The Dalles Mountaineer | Weekly | News and politics | 1860 | 2 00 |
| | The Dalles Times | do | do | 1879 | 2 00 |
| **WASHINGTON CO.**—*Population:* 7,082. | | | | | |
| Cornelius | Cornelius Courant (*a*) | Weekly | News and politics | 1879 | 2 50 |
| Hillsboro' | Washington County Independent | do | do | 1873 | 2 00 |
| **YAM HILL CO.**—*Population:* 7,945. | | | | | |
| Lafayette | Lafayette Courier | Weekly | News and politics | 1871 | 2 50 |
| McMinnville | Yam Hill County Reporter (*c*) | do | do | 1871 | 2 50 |

## PENNSYLVANIA.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **ADAMS CO.**—*Population:* 32,455. | | | | | |
| Gettysburg | Gettysburg Star and Sentinel | Weekly | News and politics | 1800 | $2 00 |
| | Gettysburg Compiler | do | do | 1818 | 2 00 |
| | Lutheran Quarterly | Quarterly | Religious (*Lutheran*) | 1871 | 3 00 |
| | The Scroll | Monthly | Collegiate | 1875 | 1 00 |
| | Pennsylvania College Monthly | do | do | 1877 | 1 25 |
| New Oxford | New Oxford Item | Weekly | News and politics | 1879 | 1 00 |
| York Springs | York Springs Comet | do | do | 1877 | 1 00 |
| **ALLEGHENY CO.**—*Population:* 355,869. | | | | | |
| Allegheny | Evening Mail | Daily (*evening*) | News and politics | 1873 | 6 00 |
| | Der Sonntagsbote | Sunday | News and politics (*German*) | 1879 | 2 00 |
| | Pilgrim Echo | Monthly | Religious (*Congregational*) | 1880 | 50 |
| Braddock | Times and Railroad Advocate | Weekly | News and politics | 1875 | 1 00 |
| | Braddock Sun | do | do | 1878 | 1 00 |
| Elizabeth | Elizabeth Herald | do | do | 1873 | 1 50 |
| Green Tree | Green Tree Item | do | do | 1878 | 1 00 |
| McKeesport | McKeesport Paragon | Daily (*morning*) | do | 1878 | 6 00 |
| | Dollar Paragon | Weekly | do | 1870 | 1 00 |
| | McKeesport Times | do | do | 1871 | 2 00 |
| Mansfield | Mansfield Item | do | do | 1873 | 1 25 |
| | Business Map (*d*) | do | Miscellaneous | 1879 | |
| Pittsburgh | Commercial Gazette | Daily (*morning*) | News and politics | 1786 | 8 00 |
| | Commercial Gazette | Weekly | do | 1786 | 1 50 |
| | Commercial Gazette | Semi-weekly | do | | 2 75 |
| | Presbyterian Banner | Weekly | Religious (*Presbyterian*) | 1814 | 2 15 |
| | Evangelical Repository and Bible Teacher | Monthly | Religious (*Presbyterian*) | 1824 | 1 50 |
| | Pittsburgh Christian Advocate | Weekly | Religious (*Methodist*) | 1833 | 2 00 |
| | Freiheits Freund | Daily (*morning*) | News and politics (*German*) | 1848 | 6 00 |
| | Freiheits Freund und Pittsburger Courier | Weekly | News and politics (*German*) | 1834 | 1 50 |
| | Reformed Presbyterian and Covenant | Monthly | Religious (*Presbyterian*) | 1837 | 1 00 |
| | Methodist Recorder | Weekly | Religious (*Methodist*) | 1839 | 2 20 |
| | Pittsburgh Post | Daily (*morning*) | News and politics | 1842 | 8 00 |
| | Pittsburgh Post | Weekly | do | 1804 | 1 50 |
| | Pittsburgh Chronicle | Daily (*evening*) | do | 1841 | 8 00 |
| | Pittsburgh Chronicle | Weekly | do | 1841 | 1 70 |
| | United Presbyterian | do | Religious (*Presbyterian*) | 1842 | 2 00 |
| | Catholic | do | Religious (*Catholic*) | 1844 | 2 20 |
| | Pittsburgh Dispatch | Daily (*morning*) | News and politics | 1846 | 8 00 |
| | Pittsburgh Dispatch | Weekly | do | 1853 | 1 50 |
| | Pittsburgh Legal Journal | do | Law | 1853 | 3 00 |

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*a* Suspended. *b* Suspended March. 1880. *c* Consolidated with "Lafayette Courier". *d* Suspended May, 1880.

## PENNSYLVANIA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| ALLEGHENY CO.—Continued. | | | | | |
| Pittsburgh—Continued | Das Volksblatt | Daily (*morning*) | News and politics (*German*) | 1859 | $5 00 |
| | Pittsburger Volksblatt | Weekly | News and politics (*German*) | 1859 | 2 00 |
| | American Manufacturer and Iron World | do | Commerce and trade | 1861 | 4 25 |
| | Our Morning Guide | Semi-monthly | Sunday school | 1862 | 24 |
| | Leader | Daily (*evening*) | News and politics | 1870 | 6 00 |
| | Sunday Leader | Sunday | do | 1864 | 2 50 |
| | Advance | Weekly | Temperance | 1869 | 2 00 |
| | Bible Teacher | Monthly | Sunday school | 1870 | 60 |
| | People's Advocate and Commercial Advertiser | Weekly | News and politics (*German*) | 1870 | 2 50 |
| | Y Wasg | do | News and politics (*Welsh*) | 1872 | 2 00 |
| | Stowell's Petroleum Reporter | Monthly | Commerce and trade (*Eng. & Germ.*) | 1872 | 10 00 |
| | Pittsburgh Telegraph | Daily (*evening*) | News and politics | 1873 | 8 00 |
| | Pittsburgh Telegraph | Weekly | do | 1873 | 1 25 |
| | National Labor Tribune | do | Miscellaneous | 1873 | 2 00 |
| | Insurance World | Monthly | Insurance | 1874 | 3 00 |
| | Critic | Sunday | News and politics | 1874 | 2 50 |
| | Woolen Manufacturer | Monthly | Commerce and trade | 1875 | 50 |
| | Sunday Globe | Sunday | News and politics | 1876 | 2 50 |
| | Hardware Reporter | Weekly | Commerce and trade | 1876 | 3 00 |
| | Child's Recorder | Monthly | Sunday school | 1877 | 12 |
| | Sunday School | do | do | 1877 | 12 |
| | Pittsburgh Stockman | Weekly | Agricultural | 1877 | 1 50 |
| | Pittsburger Sonntagsblatt | Sunday | News and politics (*German*) | 1878 | 2 00 |
| | Grocers' Advocate | Weekly | Commerce and trade | 1878 | 1 00 |
| | American Journal of Industry | do | do | 1878 | 4 00 |
| | Record (*a*) | do | News and politics | 1879 | 1 00 |
| | American Pottery and Glassware Reporter | do | Commerce and trade | 1879 | 3 00 |
| | Railway Reporter | do | Insurance and railroads, etc | ...... | ...... |
| | Democrat (*b*) | do | News and politics | 1879 | ...... |
| | Times | Daily (*morning*) | do | 1880 | 6 60 |
| Sewickley | Sewickley Tribune (*b*) | Weekly | do | 1875 | 2 00 |
| Sharpsburg | Sharpsburg Herald | do | do | 1878 | 1 00 |
| Talley Cavey | Hampton Press | Monthly | Religious (*Evangelical*) | 1878 | 50 |
| Turtle Creek | Turtle Creek Raindrop (*b*) | do | Collegiate | 1879 | 1 00 |
| Wilkinsburg | Saturday Times (*c*) | Weekly | News and politics | 1875 | 1 25 |
| ARMSTRONG CO.—*Population:* 47,641. | | | | | |
| Parker | Parker City Phœnix | Weekly | News and politics | 1879 | 1 50 |
| Freeport | Freeport Journal | do | do | 1876 | 1 50 |
| Kittanning | Union Free Press | do | do | 1825 | 1 50 |
| | Armstrong Republican | do | do | 1834 | 1 50 |
| | Democratic Sentinel | do | do | 1864 | 1 50 |
| | Kittanning Times | do | do | 1876 | 1 00 |
| | Kittanning Gazette (*d*) | do | do | 1878 | 1 00 |
| BEAVER CO.—*Population:* 39,605. | | | | | |
| Beaver | Argus and Radical | Weekly | News and politics | 1818 | 1 50 |
| | Beaver Times | do | do | 1874 | 2 00 |
| | Beaver Star | do | do | 1877 | 1 50 |
| Beaver Falls | Globe Advertiser | Monthly | News and politics (*Eng. & Germ.*) | 1879 | 25 |
| | Beaver Falls Tribune | Weekly | News and politics | 1880 | 1 50 |
| New Brighton | Beaver Valley News | do | do | 1874 | 1 50 |
| | Field and River | Monthly | Sporting | 1877 | 1 00 |
| BEDFORD CO.—*Population:* 34,929. | | | | | |
| Bedford | Bedford Gazette | Weekly | News and politics | 1805 | 2 00 |
| | Bedford Inquirer | do | do | 1828 | 3 00 |
| Everett | Bedford County Press | do | do | 1866 | 1 50 |
| BERKS CO.—*Population:* 122,597. | | | | | |
| Birdsboro' | Birdsboro' Record (*b*) | Weekly | News and politics | 1879 | 1 50 |
| Boyertown | Boyertown Demokrat | do | News and politics (*Eng. & Germ.*) | 1858 | 1 00 |
| | Boyertown Messenger (*e*) | do | News and politics | 1877 | 1 25 |
| Hamburg | Hamburger Schnellpost | do | News and politics (*German*) | 1841 | 1 00 |
| | Hamburg Item | do | News and politics | 1875 | 50 |
| Kutztown | National Educator | Monthly | Educational | 1862 | 1 00 |
| | Kutztown Journal | Weekly | News and politics (*German*) | 1870 | 1 25 |
| | American Patriot | do | News and politics (*Eng. & Germ.*) | 1874 | 1 50 |
| Reading | News | Daily (*evening*) | News and politics | 1880 | 5 00 |
| | Adler | Weekly | News and politics (*German*) | 1796 | 1 50 |
| | Times and Dispatch | Daily (*morning*) | News and politics | 1857 | 6 00 |
| | Berks and Schuylkill Journal | Weekly | do | 1816 | 2 50 |
| | Eagle | Daily (*evening*) | do | 1868 | 5 00 |
| | Eagle | Sunday | do | 1841 | 1 50 |
| | Eagle | Weekly | do | 1841 | 2 00 |
| | Der Reformirte Hausfreund | Bi-weekly | Religious (*Reform Church; German*) | 1867 | 1 20 |
| | Die Post | Daily (*evening*) | News and politics (*German*) | 1868 | 5 00 |
| | Die Biene | Sunday | News and politics (*German*) | 1867 | 1 00 |
| | Banner von Berks | Weekly | News and politics (*German*) | 1865 | 1 50 |
| | Republikaner von Berks | do | News and politics (*German*) | 1869 | 1 50 |
| | Deutsche Eiche | do | Aid society (*German*) | 1869 | 2 20 |
| | Der Pilger Deutsche Welt und Kirche | do | Religious (*Lutheran; German*) | 1869 | 1 10 |
| | Spirit of Berks | do | News and politics | 1876 | 2 00 |
| BLAIR CO.—*Population:* 52,740. | | | | | |
| Altoona | Blair County Radical | Weekly | News and politics | 1846 | 1 50 |
| | Morning Tribune | Daily (*morning*) | do | 1873 | 4 80 |
| | Altoona Tribune | Weekly | do | 1856 | 1 50 |
| | Altoona Sun | Daily (*evening*) | do | 1879 | 5 00 |
| | Altoona Sun | Weekly | do | 1868 | 2 00 |
| | Evening Call | Daily (*evening*) | do | 1874 | 5 00 |
| | Altoona Call | Sunday | do | 1880 | 2 00 |
| | Altoona Call | Weekly | do | 1879 | 1 50 |
| | Musical Advocate | Monthly | Musical | 1877 | 50 |
| | Gospel Trumpet | do | Religious (*Unsectarian*) | 1878 | 25 |
| | Der Deutsche Volksfuehrer | Weekly | News and politics (*German*) | 1878 | 2 00 |
| | Altoona Advance | do | News and politics | 1879 | 50 |
| | The Mechanic | do | Science and mechanics | 1879 | 1 50 |
| | Youth's Mirror | Monthly | Juvenile | 1879 | 30 |
| Hollidaysburgh | Hollidaysburgh Register | Weekly | News and politics | 1836 | 2 00 |
| | Democratic Standard | do | do | 1846 | 2 50 |

*a* Suspended June, 1880.
*b* Suspended May, 1880.
*c* Suspended January, 1880.
*d* Suspended October, 1879.
*e* Suspended.

## PENNSYLVANIA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **BLAIR CO.**—Continued. | | | | | |
| Tyrone | Tyrone Herald | Weekly | News and politics | 1867 | $1 50 |
| | Tyrone Democrat | do | do | 1872 | 1 50 |
| **BRADFORD CO.**—*Population:* 58,541. | | | | | |
| Athens | Athens Gazette | Weekly | News and politics | 1870 | 1 25 |
| Canton | Canton Sentinel | do | do | 1870 | 1 50 |
| Le Raysville | Le Raysville Advertiser | do | do | 1879 | 1 00 |
| Towanda | Bradford Argus | do | do | 1833 | 1 50 |
| | Bradford Reporter | do | do | 1840 | 1 00 |
| | Towanda Journal | do | do | 1873 | 1 25 |
| | Bradford Republican | do | do | 1875 | 1 00 |
| | Knights of Honor Advocate | Monthly | Secret society | 1878 | 50 |
| | Towanda Review | Daily (*morning*) | News and politics | 1879 | 3 00 |
| | Towanda Gazette (*a*) | Daily (*evening*) | do | 1879 | 4 80 |
| Troy | Northern Tier Gazette | Weekly | do | 1866 | 1 50 |
| **BUCKS CO.**—*Population:* 68,656. | | | | | |
| Bristol | Bristol Observer | Weekly | News and politics | 1871 | 1 50 |
| | Bucks County Gazette | do | do | 1873 | 1 50 |
| | Bristol Times | do | do | 1879 | 1 00 |
| Doylestown | Bucks County Intelligencer | do | do | 1804 | 2 00 |
| | Doylestown Democrat | do | do | 1816 | 2 00 |
| | Bucks County Express and Reform | do | News and politics (*German*) | 1827 | 1 25 |
| | Der Morgenstern | do | News and politics (*German*) | 1835 | 1 25 |
| | Bucks County Mirror | do | News and politics | 1869 | 1 50 |
| | Die Wacht | do | News and politics (*German*) | 1875 | 1 00 |
| Hulmeville | Delaware Valley Advance | do | News and politics | 1877 | 1 00 |
| Langhorne | Langhorne Beacon | do | do | 1871 | 1 50 |
| Milford Square | Mennonitische Friedensbote | Semi-monthly | Religious (*Mennonite; German*) | 1852 | 1 00 |
| | Der Bucks County Patriot | Weekly | News and politics (*German*) | 1867 | 1 00 |
| | Das Himmels Manna | Monthly | Sunday school (*German*) | 1876 | 25 |
| Newtown | Newtown Enterprise | Weekly | News and politics | 1868 | 1 50 |
| Perkasie | Perkasie Banner | do | News and politics (*Eng. and Germ.*) | 1879 | 1 00 |
| **BUTLER CO.**—*Population:* 52,536. | | | | | |
| Butler | Democratic Herald | Weekly | News and politics | 1842 | 1 50 |
| | Butler Citizen | do | do | 1863 | 1 50 |
| | Butler Eagle | do | do | 1870 | 1 50 |
| | Christian Giver | do | Religious (*Unsectarian*) | 1880 | ........ |
| Karns City | Karns City Telephone | do | News and politics | 1879 | 1 50 |
| Millerstown | Millerstown Herald | do | do | 1876 | 1 00 |
| Petrolia | Petrolia Record | do | do | 1877 | 2 00 |
| Prospect | Prospect Leader (*b*) | do | do | 1879 | 1 00 |
| Zelienople | Connoquenessing Valley News | do | do | 1879 | 1 00 |
| **CAMBRIA CO.**—*Population:* 46,811. | | | | | |
| Carrolltown | Northern Cambria News | Weekly | News and politics | 1879 | 1 35 |
| Ebensburg | Cambria Freeman | do | do | 1867 | 1 50 |
| | Cambria Herald | do | do | 1871 | 1 50 |
| Johnstown | Johnstown Tribune | Daily (*evening*) | do | 1873 | 5 00 |
| | Johnstown Tribune | Weekly | do | 1853 | 1 50 |
| | Johnstown Democrat | do | do | 1863 | 2 00 |
| | Johnstown Freie Presse | do | News and politics (*German*) | 1871 | 2 00 |
| **CAMERON CO.**—*Population:* 5,159. | | | | | |
| Emporium | Emporium Independent | Weekly | News and politics | 1866 | 2 00 |
| | Cameron County Press | do | do | 1866 | 2 00 |
| **CARBON CO.**—*Population:* 31,923. | | | | | |
| Lehighton | Carbon Advocate | Weekly | News and politics | 1872 | 1 00 |
| Mauch Chunk | Mauch Chunk Coal Gazette | do | Commerce and trade | 1829 | 2 00 |
| | Mauch Chunk Democrat | do | News and politics | 1847 | 2 00 |
| | Carbon County Democrat | do | News and politics (*Eng. and Germ.*) | 1878 | 1 50 |
| Summit Hill | Summit Hill and Lansford Record | do | News and politics | 1879 | 1 50 |
| **CENTRE CO.**—*Population:* 37,922. | | | | | |
| Bellefonte | Democratic Watchman | Weekly | News and politics | 1856 | 2 00 |
| | Bellefonte Republican | do | do | 1869 | 2 00 |
| | Centre Democrat | do | do | 1879 | 1 50 |
| Centre Hall | Centre Reporter | do | do | 1868 | 2 00 |
| Millheim | Millheim Journal | do | do | 1828 | 1 00 |
| Philipsburg | Philipsburg Journal | do | do | 1868 | 1 00 |
| **CHESTER CO.**—*Population:* 83,481. | | | | | |
| Coatesville | Chester Valley Union | Weekly | News and politics | 1863 | 2 00 |
| | American Stock Journal | Quarterly | Agricultural | 1864 | 25 |
| | Coatesville Times | Weekly | News and politics | 1879 | 1 00 |
| | Chester Valley Farmer (*c*) | Monthly | Agricultural | 1879 | 25 |
| Downingtown | Chester County Archive | Weekly | News and politics | 1873 | 1 50 |
| Green Tree | Green Tree and Malvern Item | do | do | 1878 | 1 00 |
| Honeybrook | Honeybrook Graphic | do | do | 1879 | 1 50 |
| Kennett Square | Kennett News and Advertiser | do | do | 1876 | 1 00 |
| | Kennett Advance | do | do | 1877 | 1 00 |
| Oxford | Oxford Press | do | do | 1866 | 1 50 |
| | Bowman's Medical Journal (*a*) | Monthly | Medicine and surgery | 1879 | ........ |
| Parkesburg | Chester County Times | Weekly | News and politics | 1874 | 1 00 |
| | Parkesburg Ray | Monthly | Literary | 1877 | 50 |
| Phœnixville | Phœnixville Independent | Weekly | News and politics | 1856 | 2 00 |
| | Phœnixville Messenger | do | do | 1871 | 2 00 |
| | Phœnixville Journal | do | do | 1872 | 1 00 |
| Spring City | Spring City Sun | do | do | 1872 | 1 50 |
| West Chester | American Republican | Daily (*morning*) | do | 1878 | 3 00 |
| | West Chester Republican | Weekly | do | 1808 | 2 00 |
| | Chester County Village Record | do | do | 1809 | 2 00 |
| | Jeffersonian | do | do | 1842 | 2 00 |
| | Scattered Seeds | Monthly | Sunday school | 1868 | 50 |
| | Local News | Daily (*evening*) | News and politics | 1872 | 3 00 |
| | Our Monthly | Monthly | Religious (*Presbyterian*) | 1879 | 50 |
| | Chester County Democrat | Weekly | News and politics | 1879 | 1 50 |
| | Chester County Reporter | do | Law | 1880 | 1 00 |

*a* Suspended. *b* Suspended after census year. *c* Suspended 1880.

## PENNSYLVANIA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| CLARION CO.—*Population:* 40,328. | | | | | |
| Clarion | Clarion Democrat | Weekly | News and politics | 1840 | $1 50 |
| | Clarion Republican Gazette | do | do | 1851 | 1 50 |
| | Clarion Jacksonian | do | do | 1873 | 1 25 |
| East Brady | East Brady Press (*a*) | do | do | | |
| Edenburg | Edenburg Herald (*b*) | do | do | 1876 | 2 00 |
| Foxburg | Foxburg Gazette (*c*) | do | do | | |
| New Bethlehem | New Bethlehem Vindicator | do | do | 1879 | 1 50 |
| Saint Petersburg | Crude Local (*a*) | do | do | 1876 | 1 50 |
| CLEARFIELD CO.—*Population:* 43,408. | | | | | |
| Clearfield | Clearfield Republican | Weekly | News and politics | 1827 | 2 00 |
| | Raftsman's Journal | do | do | 1854 | 2 00 |
| | Clearfield Citizen | do | do | 1878 | 1 50 |
| Curwensville | Clearfield County Times | do | do | 1872 | 1 50 |
| Du Bois | Du Bois Courier | do | do | 1879 | 1 50 |
| Osceola Mills | Osceola Reveille | do | do | 1874 | 2 00 |
| CLINTON CO.—*Population:* 26,278. | | | | | |
| Lock Haven | Clinton Democrat | Weekly | News and politics | 1839 | 2 00 |
| | Clinton Republican | do | do | 1830 | 2 00 |
| | Lock Haven Journal | Daily (*evening*) | do | 1877 | 4 00 |
| | Lock Haven Journal | Weekly | do | 1879 | 1 00 |
| Renovo | Renovo Record | do | do | 1871 | 1 75 |
| COLUMBIA CO.—*Population:* 32,409. | | | | | |
| Berwick | Berwick Independent | Weekly | News and politics | 1871 | 1 50 |
| Bloomsburg | Columbia County Republican | do | do | 1857 | 2 00 |
| | Columbian | do | do | 1836 | 1 50 |
| | Democratic Sentinel | do | do | 1871 | 2 00 |
| | Bloomsburg Journal | do | do | 1876 | 1 00 |
| Catawissa | Catawissa News Item | do | do | 1878 | 1 00 |
| CRAWFORD CO.—*Population:* 68,607. | | | | | |
| Blooming Valley | Blooming Valley Advertiser | Monthly | News and politics | 1876 | 25 |
| Cambridge | Cambridge News | Weekly | do | 1877 | 1 50 |
| Cochranton | Cochranton Times | do | do | 1878 | 1 00 |
| Conneautville | Conneautville Courier | do | do | 1845 | 1 50 |
| Lineville | Lineville Leader (*d*) | do | do | 1875 | 2 00 |
| Meadville | Crawford Democrat | do | do | 1835 | 1 00 |
| | Crawford Journal | do | do | 1848 | 1 50 |
| | Meadville Republican | Daily (*evening*) | do | 1804 | 6 00 |
| | Meadville Republican | Weekly | do | 1850 | 1 00 |
| | Meadville Index | do | do | 1872 | 1 00 |
| | Chatauquan | Monthly | Literary | 1870 | 1 00 |
| | Crawford County Post | Weekly | News and politics (*German*) | 1876 | 2 00 |
| | Campus | Monthly | Collegiate | 1876 | 1 00 |
| | Crescent | do | do | 1877 | 1 00 |
| | Reporter (*e*) | Daily (*morning*) | News and politics | 1878 | 5 00 |
| | Democratic Messenger | Weekly | do | 1879 | 1 25 |
| | National Vindicator | do | do | 1879 | 1 00 |
| | Good Tidings | Monthly | Religious (*Unitarian*) | 1879 | 1 00 |
| Titusville | Morning Herald | Daily (*morning*) | News and politics | 1865 | 9 00 |
| | Titusville Herald | Weekly | do | 1865 | 2 00 |
| | Titusville Sunday News Letter (*f*) | Sunday | do | 1880 | 1 60 |
| CUMBERLAND CO.—*Population:* 45,977. | | | | | |
| Carlisle | Carlisle Herald | Weekly | News and politics | 1800 | 1 50 |
| | American Volunteer | do | do | 1814 | 1 50 |
| | Valley Sentinel | do | do | 1862 | 1 50 |
| | Carlisle Mirror | Semi-weekly | do | 1875 | 1 00 |
| | Commonwealth (*g*) | Weekly | do | | |
| Mechanicsburg | Independent Journal | do | do | 1854 | 1 50 |
| | Farmers' Friend | do | Agricultural | 1874 | 1 25 |
| | Saturday Journal | do | News and politics | 1875 | 50 |
| Mount Holly Springs | Mountain Echo | do | do | 1871 | 1 00 |
| Newburg | Newburg Telephone | do | do | 1879 | 1 00 |
| Newville | Star of the Valley | do | do | 1857 | 1 25 |
| | Newville Enterprise | do | do | 1871 | 1 25 |
| Shippensburg | Shippensburg News | do | do | 1844 | 1 50 |
| | Democratic Chronicle | do | do | 1875 | 1 50 |
| DAUPHIN CO.—*Population:* 76,148. | | | | | |
| Elizabethville | Elizabethville Democrat (*h*) | Weekly | News and politics | 1879 | 1 00 |
| Harrisburg | Church Advocate | do | Religious (*Evangelical*) | 1835 | 2 00 |
| | Harrisburg Telegraph | Daily (*evening*) | News and politics | 1856 | 7 00 |
| | Harrisburg Telegraph | Weekly | do | 1839 | 1 35 |
| | Harrisburg Patriot | Daily (*morning*) | do | 1858 | 7 00 |
| | Harrisburg Patriot | Weekly | do | 1858 | 1 00 |
| | National Era | do | do | 1858 | 1 50 |
| | Dauphin County Journal | do | News and politics (*German*) | 1860 | 1 50 |
| | Pennsylvanische Staats-Zeitung | do | News and politics (*German*) | 1866 | 2 00 |
| | Sunday School Gem | Monthly | Sunday school | 1867 | 25 |
| | Conference News | Semi-monthly | Religious (*Methodist Episcopal*) | 1875 | 50 |
| | Harrisburg Independent | Daily (*evening*) | News and politics | 1876 | 3 25 |
| | Monthly Itinerant | Monthly | Religious (*United Brethren*) | 1876 | 50 |
| | Every Saturday Night | Weekly | Family reading | 1879 | 2 00 |
| | Sunday School Workman | Monthly | Sunday school | 1879 | 75 |
| | Sunday Herald (*i*) | Sunday | News and politics | 1879 | 1 50 |
| Hummelstown | Hummelstown Sun | Weekly | do | 1871 | 1 00 |
| Lykens | Lykens Register | do | do | 1865 | 1 50 |
| Middletown | Middletown Journal | do | do | 1853 | 1 25 |
| Millersburg | Millersburg Herald | do | do | 1875 | 1 50 |
| Steelton | Steelton Item | do | do | 1875 | 1 25 |
| DELAWARE CO.—*Population:* 56,101. | | | | | |
| Chester | Delaware County Republican | Weekly | News and politics | 1833 | 2 00 |
| | Delaware County Democrat | do | do | 1867 | 1 50 |

[a] Suspended.
[b] Suspended May, 1880.
[c] Merged in "Clarion Republican" September, 1880.
[d] Suspended February, 1880.
[e] Daily suspended May, 1880.
[f] Changed to the "Sunday World".
[g] Suspended October, 1879.
[h] Suspended December, 1880.
[i] Suspended April, 1880.

## PENNSYLVANIA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| DELAWARE CO.—Continued. | | | | | |
| Chester—Continued | Delaware County Paper and Mail (*a*) | Weekly | News and politics | 1868 | $1 00 |
| | Evening News | Daily (*evening*) | do | 1872 | 3 00 |
| | Chester Times | Daily (*evening*) | do | 1876 | 3 00 |
| | Delaware County Advocate | Weekly | do | 1868 | 1 00 |
| | Chester Reveille | Monthly | Collegiate | 1876 | 1 00 |
| | Delaware County Gazette | Weekly | News and politics | 1879 | 1 50 |
| Media | Delaware County Record | do | do | 1878 | 1 50 |
| | Delaware County American | do | do | 1855 | 2 00 |
| ELK CO.—*Population:* 12, 800. | | | | | |
| Ridgway | Elk County Advocate | Weekly | News and politics | 1850 | 2 00 |
| | Elk Democrat | do | do | 1869 | 2 00 |
| Saint Mary's | Elk County Gazette | do | do | 1868 | 2 00 |
| ERIE CO.—*Population:* 74, 688. | | | | | |
| Amity township | Wattsburg Herald | Weekly | News and politics | 1878 | 1 50 |
| Corry | Corry Telegraph | do | do | 1865 | 1 50 |
| | Corry Herald | do | do | 1877 | 1 50 |
| Erie | Erie Gazette | do | do | 1820 | 1 00 |
| | Sunday Morning Gazette | Sunday | do | 1875 | 2 00 |
| | Erie Observer | Weekly | do | 1830 | 2 00 |
| | Erie Dispatch | Daily (*morning*) | do | 1861 | 8 00 |
| | Erie Dispatch | Weekly | do | 1851 | 2 00 |
| | Zuschauer Am Erie | do | News and politics (*German*) | 1854 | 2 00 |
| | Leuchtthurm | Daily (*evening*) | News and politics (*German*) | 1875 | 5 00 |
| | Leuchtthurm | Weekly | News and politics (*German*) | 1869 | 2 00 |
| | Lake Shore Visitor | do | Religious (*Catholic*) | 1873 | 1 50 |
| | Erie Advertiser | do | News and politics | 1874 | 75 |
| | Mathematical Visitor | Semi-annually | Educational | 1877 | 1 00 |
| | O Jornal De Noticias | Weekly | Religious (*Catholic; Portuguese*) | 1877 | 2 25 |
| | Erie Herald | Daily (*evening*) | News and politics | 1878 | 6 00 |
| | Dollar Herald | Weekly | do | 1878 | 1 00 |
| | Erie Sunday Graphic | Sunday | do | 1880 | 2 00 |
| Girard | Cosmopolite | Weekly | do | 1867 | 1 50 |
| Mill Village | Mill Village Herald | do | do | 1870 | 1 00 |
| North East | North East Sun | do | do | 1868 | 2 00 |
| | North East Advertiser | do | do | 1877 | 75 |
| Union City | Union City Times | do | do | 1870 | 1 50 |
| Waterford | Waterford Leader | do | do | 1878 | 1 50 |
| FAYETTE CO.—*Population:* 58,842. | | | | | |
| Brownsville | Brownsville Clipper | Weekly | News and politics | 1853 | 2 00 |
| | Labor Advocate | do | do | 1880 | 1 00 |
| Connellsville | Fayette Monitor | do | do | 1871 | 1 50 |
| | Keystone Courier | do | do | 1879 | 1 50 |
| Uniontown | Genius of Liberty | do | do | 1805 | 2 00 |
| | Republican Standard | do | do | 1827 | 2 00 |
| | Uniontown Democrat | do | do | 1878 | 1 50 |
| | Uniontown National (*b*) | do | do | | |
| FOREST CO.—*Population:* 4,385. | | | | | |
| Tionesta | Forest Republican | Weekly | News and politics | 1868 | 1 50 |
| | Forest National Democrat | do | do | 1880 | 1 00 |
| FRANKLIN CO.—*Population:* 49, 855. | | | | | |
| Chambersburg | Franklin Repository | Weekly | News and politics | 1790 | 1 50 |
| | Valley Spirit | do | do | 1847 | 1 50 |
| | Public Opinion | do | do | 1869 | 1 50 |
| | Highway of Holiness | Monthly | Religious (*Unsectarian*) | 1875 | 75 |
| | People's Register | Weekly | News and politics | 1876 | 65 |
| | Chambersburg Herald | Daily (*morning*) | do | 1878 | 2 50 |
| | Chambersburg Herald | Weekly | do | 1878 | 75 |
| Green Castle | Valley Echo | do | do | 1848 | 1 50 |
| | Green Castle Press | do | do | 1878 | 1 25 |
| Mercersburg | Mercersburg Journal | do | do | 1845 | 1 50 |
| Waynesborough | Village Record | do | do | 1847 | 2 00 |
| | Keystone Gazette | do | do | 1876 | 1 50 |
| | Brethren's Advocate | do | Religious (*Dunkards*) | 1879 | 1 00 |
| FULTON CO.—*Population:* 10,149. | | | | | |
| McConnellsburg | Fulton Democrat | Weekly | News and politics | 1851 | 1 50 |
| | Fulton Republican | do | do | 1852 | 2 00 |
| GREENE CO.—*Population:* 28,273. | | | | | |
| Waynesburgh | Waynesburgh Messenger | Weekly | News and politics | 1813 | 1 50 |
| | Waynesburgh Republican | do | do | 1835 | 1 50 |
| | Waynesburgh Independent | do | do | 1872 | 1 50 |
| HUNTINGDON CO.—*Population:* 33, 954. | | | | | |
| Huntingdon | Huntingdon Journal | Weekly | News and politics | 1835 | 2 00 |
| | Huntingdon Globe | do | do | 1844 | 2 00 |
| | Primitive Christian | do | Religious (*Dunkards*) | 1851 | 1 50 |
| | Huntingdon Monitor | do | News and politics | 1863 | 2 00 |
| | Huntingdon News | Semi-weekly | do | 1874 | 1 25 |
| Mount Union | Mount Union Times | Weekly | do | 1873 | 1 50 |
| Orbisonia | Orbisonia Leader | do | do | 1874 | 1 25 |
| INDIANA CO.—*Population:* 40,527. | | | | | |
| Blairsville | Blairsville Enterprise | Weekly | News and politics | 1880 | 1 50 |
| Indiana | Indiana Messenger | do | do | 1856 | 1 50 |
| | Indiana Democrat | do | do | 1862 | 1 50 |
| | Indiana Progress | do | do | 1870 | 1 50 |
| | Indiana Times | do | do | 1878 | 1 50 |
| | Indiana County National | do | do | 1878 | 1 50 |
| | Local Blade (*c*) | do | do | 1878 | 1 00 |
| Saltsburgh | Saltsburgh Press | do | do | 1875 | 2 00 |
| JEFFERSON CO.—*Population:* 27,925. | | | | | |
| Brookville | Brookville Jeffersonian | Weekly | News and politics | 1838 | 1 50 |
| | Brookville Republican | do | do | 1859 | 1 50 |
| | Graphic Democrat | do | do | 1878 | 1 50 |
| Punxsutawney | Punxsutawney Spirit | do | do | 1873 | 2 00 |
| Reynoldsville | Our Reynoldsville Paper | do | do | 1874 | 1 50 |

*a* Suspended January, 1880.

*b* Suspended.

*c* Suspended December, 1879.

## PENNSYLVANIA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| JUNIATA CO.—*Population:* 18,227. | | | | | |
| Mifflintown | Juniata Sentinel and Republican | Weekly | News and politics | 1846 | $1 50 |
| | Mifflintown Democrat and Register | do | do | 1847 | 1 50 |
| | Juniata Tribune | do | do | 1874 | 2 00 |
| | Juniata Herald | do | do | 1880 | 1 50 |
| Port Royal | Port Royal Times | do | do | 1876 | 1 00 |
| | Juniata News (*a*) | do | do | 1878 | 1 25 |
| LACKAWANNA CO.—*Population:* 89,269. | | | | | |
| Carbondale | Carbondale Advance | Weekly | News and politics | 1857 | 2 00 |
| | Carbondale Leader | do | do | 1872 | 1 00 |
| | Carbondale Critic (*b*) | do | do | 1879 | 1 00 |
| La Plume | Seed Time and Harvest | Quarterly | Agricultural | 1880 | 25 |
| Providence | Providence Echo | Weekly | News and politics | 1876 | 1 00 |
| Scranton | Scranton Republican | Daily (*morning*) | do | 1867 | 7 00 |
| | Scranton Republican | Weekly | do | 1856 | 1 50 |
| | Scranton Wochenblatt | do | News and politics (*German*) | 1865 | 2 00 |
| | Scranton Journal | do | News and politics | 1867 | 1 50 |
| | Scranton Times | Daily (*morning*) | do | 1870 | 6 00 |
| | Scranton Times | Weekly | do | 1873 | 1 00 |
| | Sunday Morning Free Press | Sunday | do | 1871 | 2 00 |
| | Law Times | Weekly | Law | 1873 | 2 00 |
| | Der Herold | do | News and politics (*German*) | 1874 | 2 00 |
| | Lackawanna Bar (*c*) | do | Law | 1878 | 2 00 |
| | Lackawanna Union (*d*) | Daily (*evening*) | News and politics | 1879 | 6 00 |
| | News-Dealer | Sunday | do | 1879 | 2 00 |
| | News-Dealer | Weekly | do | 1879 | 1 00 |
| LANCASTER CO.—*Population:* 139,447. | | | | | |
| Columbia | Columbia Spy | Weekly | News and politics | 1816 | 2 00 |
| | Columbia Courant | do | do | 1829 | 1 50 |
| | Columbia Herald | do | do | 1866 | 2 00 |
| Elizabethtown | Elizabethtown Chronicle | do | do | 1869 | 1 00 |
| Farmersville | Farmersville Guiding Star | Monthly | Religious (*Unsectarian*) | 1879 | 25 |
| Gap | Waffenlose Waechter | do | Religious (*Mennonite; English and German*). | 1870 | 75 |
| Lancaster | Lancaster Intelligencer | Daily (*evening*) | News and politics | 1864 | 5 00 |
| | Lancaster Intelligencer | Weekly | do | 1794 | 2 00 |
| | Der Volksfreund und Beobachter | do | News and politics (*German*) | 1808 | 1 50 |
| | Lancaster Examiner | Daily (*evening*) | News and politics | 1856 | 5 00 |
| | Lancaster Examiner | Weekly | do | 1828 | 2 00 |
| | Pennsylvania School Journal | Monthly | Educational | 1852 | 1 60 |
| | Lancaster Inquirer | Weekly | News and politics | 1856 | 1 50 |
| | Lancaster Bar | do | Law | 1869 | 2 00 |
| | Christlicher Kundschafter | Monthly | Religious (*Unsectarian; English and German*). | 1869 | 50 |
| | Lancaster Farmer | do | Agricultural | 1869 | 1 00 |
| | Die Laterne | Weekly | News and politics (*German*) | 1870 | 2 00 |
| | Lancaster New Era | Daily (*evening*) | News and politics | 1877 | 5 00 |
| | Lancaster New Era | Weekly | do | 1877 | 2 00 |
| | Owl | do | Miscellaneous (*English and German*) | 1877 | 2 00 |
| | Foot-light | do | Dramatic | 1878 | 50 |
| | Coin Journal | Quarterly | Miscellaneous | 1879 | 25 |
| | Torch of Truth | Monthly | Religious (*Unsectarian*) | 1880 | 25 |
| Litiz | Litiz Sunbeam | do | General literature | 1877 | 75 |
| | Litiz Record | Weekly | News and politics | 1877 | 1 50 |
| Manheim | Manheim Sentinel and Advertiser | do | do | 1846 | 1 50 |
| Marietta | Marietta Register | do | do | 1854 | 2 00 |
| | Marietta Times | do | do | 1876 | 2 00 |
| Mount Joy | Mount Joy Herald | do | do | 1854 | 1 50 |
| | Mount Joy Star and News | do | do | 1873 | 1 25 |
| New Holland | New Holland Clarion | do | do | 1873 | 1 50 |
| Strasburg | Strasburg Free Press (*e*) | do | do | 1870 | 1 50 |
| LAWRENCE CO.—*Population:* 33,312. | | | | | |
| New Castle | New Castle Courant | Weekly | News and politics | 1857 | 1 50 |
| | Lawrence Guardian | do | do | 1870 | 1 50 |
| | New Castle Paragraph | do | do | 1876 | 1 50 |
| | New Castle Index (*f*) | do | Temperance | 1879 | 1 50 |
| | News | Daily (*evening*) | News and politics | 1880 | 4 00 |
| | News | Weekly | do | 1879 | 1 50 |
| | New Castle Record (*g*) | Daily (*evening*) | do | 1880 | ........ |
| New Wilmington | New Wilmington Globe | Weekly | do | 1880 | 1 50 |
| LEBANON CO.—*Population:* 38,476. | | | | | |
| Annville | Londonderry Gazette | Weekly | News and politics | 1878 | 1 00 |
| Lebanon | Wahrer Demokrat | do | News and politics (*German*) | 1814 | 1 50 |
| | Lebanon Courier | do | News and politics | 1820 | 2 00 |
| | Der Pennsylvanier (*h*) | do | News and politics (*Eng. and Germ.*) | 1826 | 1 50 |
| | Lebanon Advertiser | do | News and politics | 1849 | 2 00 |
| | Lebanon Times | Daily (*morning*) | do | 1876 | 5 00 |
| | Valley Standard | Weekly | do | 1871 | 1 50 |
| | Lebanon Laborer (*i*) | do | News and politics (*Eng. and Germ.*) | 1871 | 2 00 |
| | Lebanon News | Daily (*evening*) | News and politics | 1872 | 5 00 |
| | Lebanon Review | Weekly | do | 1876 | 1 00 |
| LEHIGH CO.—*Population:* 65,969. | | | | | |
| Allentown | Unabhaengiger Republikaner | Weekly | News and politics (*German*) | 1810 | 1 50 |
| | Allentown Democrat | do | News and politics | 1830 | 2 00 |
| | Der Jugend-Freund | Monthly | Sunday school (*German*) | 1847 | 30 |
| | Chronicle and News | Daily (*evening*) | News and politics | 1870 | 4 50 |
| | Lehigh Register | Weekly | do | 1848 | 1 50 |
| | Bote Der Neuen Kirche | Semi-monthly | Religious (*Swedenborgian; German*) | 1854 | 2 00 |
| | Welt-Bote | Weekly | News and politics (*German*) | 1855 | 2 00 |
| | Herold und Zeitschrift | do | Religious (*Lutheran; German*) | 1856 | 1 10 |
| | Lecha Bote | Tri-weekly | News and politics (*German*) | 1874 | 3 00 |
| | City Item | Daily (*morning*) | News and politics | 1877 | 5 00 |
| Catasauqua | Valley Record | Weekly | do | 1870 | 1 00 |
| | Catasauqua Dispatch | do | do | 1871 | 1 50 |
| Slatington | Slatington News | do | do | 1868 | 1 00 |

*a* Suspended October, 1879.
*b* Suspended July, 1880.
*c* Suspended 1879.
*d* Suspended November, 1879.
*e* Suspended November, 1880.
*f* Merged in "Daily News".
*g* Suspended September, 1880.
*h* Succeeded by "Neue Volks Zeitung" November, 1880.
*i* Merged in "Neue Volks Zeitung" November, 1880.

## PENNSYLVANIA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| LUZERNE CO.—*Population:* 133,065. | | | | | |
| Hazleton | Hazleton Sentinel | Daily (*morning*) | News and politics | 1870 | $5 00 |
| | Hazleton Sentinel | Weekly | do | 1865 | 2 00 |
| | Hazleton Volksblatt | do | News and politics (*German*) | 1871 | 2 00 |
| | Das Journal | do | News and politics (*German*) | 1876 | 2 00 |
| | Mountain Beacon | do | News and politics | 1877 | 1 50 |
| | Hazleton Bulletin | Daily (*evening*) | do | 1878 | 3 00 |
| | Independent Democrat | Weekly | do | 1880 | 1 50 |
| Nanticoke | Nanticoke Chronicle | do | do | 1879 | 1 00 |
| Pittston | Pittston Gazette | do | do | 1850 | 1 50 |
| | Evening Press | Daily (*evening*) | do | 1877 | 3 00 |
| | Teachers' Journal (*a*) | Monthly | Educational | 1879 | 1 00 |
| Plymouth | Plymouth Star | Weekly | News and politics | 1869 | 1 50 |
| | Plymouth Record | do | do | 1879 | 1 50 |
| Shickshinny | Mountain Echo | do | do | 1873 | 1 50 |
| White Haven | White Haven Journal | do | do | 1879 | 1 00 |
| | White Haven Standard (*b*) | do | do | 1877 | 1 00 |
| Wilkesbarre | Record of the Times | Daily (*morning*) | do | 1873 | 6 00 |
| | Record of the Times | Weekly | do | 1841 | 1 00 |
| | Der Demokratischer Wæchter | do | News and politics (*German*) | 1842 | 2 00 |
| | Union-Leader | Daily (*evening*) | News and politics | 1879 | 6 00 |
| | Union-Leader | Weekly | do | 1848 | 1 50 |
| | Deutsch-Amerikanischer Volksfreund | do | News and politics (*German*) | 1866 | 2 00 |
| | Luzerne Legal Register | do | Law | 1872 | 3 00 |
| | National Reformer (*b*) | do | News and politics | 1878 | 1 50 |
| | Sunday Morning News Dealer (*c*) | Sunday | do | 1879 | 2 00 |
| | Teachers' Journal (*d*) | Monthly | Educational | 1879 | 75 |
| | People's Friend (*e*) | Weekly | News and politics | ...... | ...... |
| LYCOMING CO.—*Population:* 57,486. | | | | | |
| Hughesville | Hughesville Enterprise | Weekly | News and politics | 1874 | 1 00 |
| | Hughesville Mirror (*f*) | do | do | 1879 | 1 00 |
| Jersey Shore | Jersey Shore Herald | do | do | 1860 | 1 50 |
| Muncy | Muncy Luminary | do | do | 1841 | 1 50 |
| Williamsport | Gazette and Bulletin | Daily (*morning*) | do | 1861 | 6 00 |
| | Gazette and Bulletin | Daily (*evening*) | do | 1861 | 6 00 |
| | Gazette and Bulletin | Weekly | do | 1801 | 1 50 |
| | Die Susquehanna Zeitung | do | News and politics (*German*) | 1860 | 1 50 |
| | Sun and Democrat | do | News and politics | 1870 | 1 50 |
| | West Branch Beobachter | do | News and politics (*German*) | 1871 | 2 00 |
| | Williamsport Banner | Daily (*morning*) | News and politics | 1875 | 6 00 |
| | Williamsport Banner | Daily (*evening*) | do | 1875 | 6 00 |
| | Democratic Banner | Weekly | do | 1874 | 1 50 |
| | Star of Hope | do | Temperance | 1877 | 1 25 |
| | Dickinson Liberal | Monthly | Collegiate | 1877 | 1 00 |
| | National Standard | Weekly | News and politics | 1878 | 1 00 |
| | Sunday Breakfast Table | Sunday | do | 1879 | 2 00 |
| MCKEAN CO.—*Population:* 42,565. | | | | | |
| Bradford | Bradford Era | Daily (*morniag*) | News and politics | 1875 | 10 00 |
| | Bradford Evening Star | Daily (*evening*) | do | 1879 | 9 00 |
| | Bradford Sunday News | Sunday | do | 1879 | 2 50 |
| Duke Centre | Sunday Morning News | do | do | 1879 | 1 50 |
| | McKean County Herald | Weekly | do | 1879 | 1 50 |
| Eldred | Eldred Eagle | do | do | 1878 | 1 50 |
| Kane | Kane Blade | do | do | 1879 | 1 50 |
| Port Allegany | Northern Tier Reporter | do | do | 1874 | 1 50 |
| Smethport | McKean County Miner | do | do | 1863 | 1 50 |
| | McKean County Democrat | do | do | 1879 | 1 50 |
| MERCER CO.—*Population:* 56,161. | | | | | |
| Greenville | Greenville Advance Argus | Weekly | News and politics | 1859 | 1 50 |
| | Greenville Progress | do | do | 1877 | 1 50 |
| Jamestown | Jamestown Era | do | do | 1879 | 1 00 |
| | Jamestown Sun (*e*) | do | do | 1873 | 1 00 |
| Mercer | Western Press | do | do | 1811 | 2 00 |
| | Mercer Dispatch | do | do | 1841 | 1 50 |
| | Teachers' Advocate | Monthly | Educational | 1879 | 1 00 |
| | Mercer Index (*e*) | Weekly | News and politics | ...... | ...... |
| Sandy Lake | Sandy Lake News | do | do | 1874 | 2 00 |
| | Lake Local | do | do | 1879 | 75 |
| Sharon | Sharon Herald | do | do | 1864 | 1 00 |
| | Sharon Times (*g*) | do | do | 1868 | 2 00 |
| | Evening Eagle | Daily (*evening*) | do | 1874 | 5 00 |
| | Mercer County Eagle | Weekly | do | 1874 | 2 00 |
| Sharpsville | Sharpsville Advertiser | do | do | 1870 | 1 50 |
| MIFFLIN CO.—*Population:* 19,577. | | | | | |
| Lewistown | Lewistown Gazette | Weekly | News and politics | 1810 | 1 50 |
| | Lewistown Democrat and Sentinel | do | do | 1845 | 1 50 |
| | Lewistown Free Press | do | do | 1880 | 1 50 |
| | Lewistown True Democrat (*h*) | do | do | 1846 | 1 50 |
| McVeytown | McVeytown Journal | do | do | 1873 | 1 50 |
| MONROE CO.—*Population:* 20,175. | | | | | |
| East Stroudsburg | Monroe Gazette | Weekly | News and politics | 1878 | 1 00 |
| Stroudsburg | Monroe Democrat | do | do | 1830 | 1 50 |
| | Stroudsburg Jeffersonian | do | do | 1840 | 1 50 |
| | Farmers' Advocate | do | Agricultural | 1878 | 1 00 |
| MONTGOMERY CO.—*Population:* 96,494. | | | | | |
| Bryn Mawr | Bryn Mawr Home News | Weekly | News and politics | 1877 | 1 50 |
| Conshohocken | Conshohocken Recorder | do | do | 1869 | 1 25 |
| | Conshohocken Review (*e*) | do | do | ...... | ...... |
| Haverford | Haverfordian | Monthly | Collegiate | 1879 | 1 50 |
| Hatboro' | Public Spirit | Weekly | News and politics | 1873 | 2 50 |
| Lansdale | Lansdale Reporter | do | do | 1870 | 1 00 |
| | Medical Summary | Monthly | Medicine and surgery | 1879 | 1 00 |
| Norristown | Norristown Herald | Daily (*evening*) | News and politics | 1869 | 5 00 |
| | Norristown Herald and Free Press | Weekly | do | 1799 | 2 00 |
| | Norristown Register and Montgomery County Democrat. | do | do | 1800 | 1 50 |

*a* Suspended June, 1880.
*b* Suspended November, 1879.
*c* Edition of the "News Dealer", Scranton.
*d* Consolidated with "Teachers' Institute", New York, June, 1880.
*e* Suspended.
*f* Suspended February, 1881.
*g* Suspended October, 1880.
*h* Consolidated with "Sentinel" October, 1879.

## PENNSYLVANIA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| MONTGOMERY CO.—Continued. | | | | | |
| Norristown—Continued | National Defender | Weekly | News and politics | 1856 | $2 00 |
| | Montgomery County Post | do | News and politics (*German*) | 1867 | 1 00 |
| | Schuylkill Valley Sentinel | do | News and politics | 1875 | 1 00 |
| | Norristown Gazette (*a*) | do | do | 1877 | 2 00 |
| North Wales | North Wales Record | do | do | 1874 | 1 50 |
| Pennsburg | Bauern Freund | do | News and politics (*German*) | 1824 | 1 50 |
| | Perkiomen Valley Press | do | News and politics | 1874 | 1 50 |
| Pottstown | Pottstown Ledger | Daily (*evening*) | do | 1873 | 4 50 |
| | Montgomery Ledger | Weekly | do | 1843 | 2 00 |
| | Pottstown Chronicle | do | do | 1873 | 1 50 |
| Schwenkville | Schwenkville Item | do | do | 1877 | 1 00 |
| Skippack | Der Neutralist und Allgemeine Neuigkeits-Bote. | do | News and politics (*German*) | 1844 | 1 50 |
| Sonderton | Die Germania Gazette | do | News and politics (*German*) | 1878 | 1 00 |
| Telford | Montgomery County Presse | do | News and politics (*German*) | 1860 | 1 00 |
| Trappe | Providence Independent | do | News and politics | 1875 | 1 00 |
| MONTOUR CO.—*Population:* 15,468. | | | | | |
| Danville | Danville Intelligencer | Weekly | News and politics | 1827 | 1 75 |
| | Montour American | do | do | 1855 | 2 00 |
| | National Record | do | do | 1878 | 1 50 |
| NORTHAMPTON CO.—*Population:* 70,312. | | | | | |
| Bangor | Bangor Observer | Weekly | News and politics | 1879 | 1 00 |
| Bath | Central Advertiser | Monthly | Miscellaneous | 1880 | 20 |
| Bethlehem | Moravian | Weekly | Religious (*Moravian*) | 1856 | 2 00 |
| | Bethlehem Times | Daily (*evening*) | News and politics | 1866 | 5 25 |
| | Der Brueder Botschafter | Weekly | Religious (*Moravian; German*) | 1866 | 1 50 |
| | Church Messenger | Monthly | Religious (*Lutheran*) | 1875 | 50 |
| | Kinder Blattchen | do | Sunday school (*German*) | 1878 | 15 |
| Easton | Northampton Correspondent | Weekly | News and politics (*German*) | 1801 | 2 00 |
| | Easton Sentinel | do | News and politics | 1809 | 2 00 |
| | Easton Argus | Daily (*evening*) | do | 1879 | 3 50 |
| | Easton Argus | Weekly | do | 1826 | 2 00 |
| | Express | Daily (*evening*) | do | 1855 | 5 00 |
| | Easton Free Press | Daily (*evening*) | do | 1855 | 4 50 |
| | Easton Free Press | Weekly | do | 1855 | 2 50 |
| | American Mechanics' Advocate | Monthly | Secret society | 1869 | 75 |
| | Council Brand | do | do | 1874 | 1 00 |
| | La Fayette College Journal | do | Collegiate | 1875 | 1 50 |
| | Mutual Benefit | do | Insurance | 1875 | 50 |
| Portland | Portland Enterprise | Weekly | News and politics | 1874 | 1 50 |
| South Bethlehem | South Bethlehem Star | do | do | 1879 | 1 25 |
| NORTHUMBERLAND CO.—*Populat'n:* 53,123. | | | | | |
| Milton | Miltonian | Weekly | News and politics | 1816 | 1 50 |
| | Independent Weekly (*b*) | do | do | 1874 | 1 50 |
| | Milton Argus | Daily (*morning*) | do | 1880 | 3 00 |
| | Milton Argus | Weekly | do | 1874 | 1 25 |
| Mount Carmel | Mount Carmel News | do | do | 1879 | 1 50 |
| Northumberland | Public Press | do | do | 1872 | 2 00 |
| Shamokin | Shamokin Herald | do | do | 1863 | 1 50 |
| | Shamokin Times | do | do | 1872 | 1 50 |
| | National Greenback (*b*) | do | do | 1878 | 1 00 |
| Sunbury | Sunbury American | do | do | 1840 | 1 50 |
| | Northumberland County Democrat | do | do | 1861 | 2 00 |
| | Sunbury Daily | Daily (*evening*) | do | 1862 | 3 00 |
| Watsontown | Watsontown Record | Weekly | do | 1871 | 1 50 |
| PERRY CO.—*Population:* 27,522. | | | | | |
| Duncannon | Duncannon Record | Weekly | News and politics | 1872 | 1 25 |
| New Bloomfield | Perry County Democrat | do | do | 1836 | 1 50 |
| | Perry County Freeman | do | do | 1839 | 1 50 |
| | People's Advocate and Press | do | do | 1853 | 1 50 |
| | New Bloomfield Times | do | do | 1867 | 1 50 |
| Newport | Newport News | do | do | 1869 | 1 25 |
| | Newport Ledger | do | do | 1875 | 1 25 |
| PHILADELPHIA CO.—*Population:* 847,170. | | | | | |
| Frankford | Frankford Herald | Weekly | News and politics | 1845 | 2 00 |
| | Frankford Gazette | do | do | 1868 | 2 00 |
| | Frankford Dispatch | do | do | 1878 | 90 |
| Falls of Schuylkill | Falls Advertiser and Riverside Gazette | do | do | 1879 | 75 |
| Germantown | Germantown Telegraph | do | do | 1830 | 2 00 |
| | Germantown Guide | do | do | 1871 | 1 00 |
| | Germantown Commercial | do | do | 1877 | 1 50 |
| | Germantown Times | do | do | 1878 | 1 00 |
| | Germantown Gazette | do | do | 1879 | 50 |
| Manayunk | Manayunk Sentinel | do | do | 1859 | 1 00 |
| | Chronicle and Advertiser | do | do | 1869 | 2 00 |
| Philadelphia | Practical Farmer | Weekly | Agricultural | 1855 | 1 50 |
| | Gardeners' Monthly and Horticulturist | Monthly | do | 1859 | 2 10 |
| | Farm Journal | do | do | 1877 | 50 |
| | Farmers' Magazine and Rural Guide | do | do | 1878 | 35 |
| | Tribune and Farmer | Weekly | do | 1879 | 1 00 |
| | Sugar Beet | Quarterly | do | 1880 | 50 |
| | The University Magazine | Monthly | Educational | 1875 | 1 00 |
| | The Teacher | do | do | 1879 | 50 |
| | College, Academy, Seminary, and Institute (*b*) | do | do | | |
| | Commercial List and Price Current | Weekly | Commerce and trade | 1827 | 4 00 |
| | Dye's Government Counterfeit Detector | Monthly | Financial | 1850 | 3 00 |
| | Peterson's Counterfeit Detector (*b*) | do | do | 1858 | 1 50 |
| | Business Advocate and Price Current | Weekly | Commerce and trade | 1869 | 2 00 |
| | Maritime Register | do | do | 1870 | 2 00 |
| | Philadelphia Commercial | Semi-monthly | do | 1874 | 4 00 |
| | Commercial Bulletin (*b*) | Weekly | do | 1876 | 2 00 |
| | Foreign Mail | Monthly | do | 1878 | 1 50 |
| | Bullion Miner | Weekly | Financial | 1880 | 3 00 |
| | Commercial Reporter (*c*) | do | Commerce and trade | | 2 00 |
| | Market Journal (*b*) | do | do | | |
| | Peterson's Ladies' National Magazine | Monthly | General literature | 1841 | 2 00 |
| | Arthur's Illustrated Home Magazine | do | do | 1852 | 2 00 |

*a* Suspended August, 1879.

*b* Suspended.

*c* Suspended February, 1881.

## PENNSYLVANIA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| PHILADELPHIA CO.—Continued. | | | | | |
| Philadelphia—Continued | Saturday Night | Weekly | General literature | 1865 | $3 00 |
| | People's Magazine | Monthly | do | 1868 | 50 |
| | Lippincott's Magazine | do | do | 1868 | 4 00 |
| | Pennsylvania Monthly | do | do | 1870 | 3 00 |
| | Journal | Weekly | do | 1873 | 2 50 |
| | Potter's American Monthly | Monthly | do | 1875 | 3 00 |
| | Emerson Bennett's Weekly (*a*) | Weekly | do | 1879 | 3 00 |
| | Calvert's Magazine (*a*) | Monthly | do | 1879 | 1 50 |
| | Stoddard's Review (*b*) | Weekly | do | 1880 | 3 00 |
| | Atlantic Review | Monthly | do | | 3 00 |
| | Weekly Story Paper (*a*) | Weekly | do | | |
| | Pennsylvania Magazine of History and Biography. | Quarterly | Historical | 1877 | 3 00 |
| | Railway World | Weekly | Insurance, railroads, etc | 1856 | 4 00 |
| | Legal Insurance Reporter | Semi-monthly | do | 1859 | 2 00 |
| | American Exchange and Review | Monthly | do | 1862 | 3 00 |
| | Underwriter | do | do | 1868 | 3 00 |
| | United States Review | Weekly | do | 1868 | 3 00 |
| | New Northwest | Monthly | do | 1877 | 50 |
| | Legal Intelligencer | Weekly | Law | 1843 | 3 00 |
| | American Law Register | Monthly | do | 1852 | 5 00 |
| | Weekly Notes of Cases | Weekly | do | 1874 | 5 00 |
| | Court Record | Daily (*morning*) | do | 1876 | 10 00 |
| | Pennsylvania Legal Record (*c*) | Weekly | do | | |
| | Legal News (*a*) | Daily (*morning*) | do | | |
| | American Journal of the Medical Sciences | Quarterly | Medicine and surgery | 1820 | 5 00 |
| | Medical News and Abstract | Monthly | do | 1843 | 2 50 |
| | Medical and Surgical Reporter | Weekly | do | 1858 | 5 00 |
| | Dental Cosmos | Monthly | do | 1850 | 2 50 |
| | Eclectic Medical Journal of Pennsylvania | Bi-monthly | do | 1863 | 1 00 |
| | Hahnemannian Monthly | Monthly | do | 1865 | 3 00 |
| | Philadelphia Medical Times | Semi-monthly | do | 1870 | 4 00 |
| | Monthly Review of Medicine and Pharmacy | Monthly | do | 1877 | 1 00 |
| | Medical Bulletin | do | do | 1879 | 1 00 |
| | American Journal of Pharmacy | do | Pharmaceutical | 1825 | 3 00 |
| | Journal of the Franklin Institute | do | Scientific | 1826 | 3 00 |
| | Godey's Ladies' Book and Magazine | do | General literature | 1830 | 1 50 |
| | Pearson's Philadelphia Weekly Guide | Weekly | Miscellaneous | 1864 | 3 50 |
| | American Naturalist | Monthly | Scientific | 1866 | 4 00 |
| | Kneass' Philadelphia Magazine for the Blind | Semi-monthly | Educational | 1867 | 3 50 |
| | Building Association and Home Journal | Monthly | Miscellaneous | 1869 | 1 00 |
| | Traveler | Weekly | do | 1873 | 1 00 |
| | Voice of Peace | Monthly | do | 1874 | 1 00 |
| | Bayerische Wochenblatt | Weekly | Miscellaneous (*German*) | 1875 | 2 00 |
| | Kneass' Music Journal for the Blind | Quarterly | Musical | 1876 | 3 00 |
| | Woman's Words | Monthly | News and family reading | 1877 | 1 00 |
| | Agents' Herald | Semi-monthly | Miscellaneous | 1877 | 2 00 |
| | West End | Monthly | do | 1877 | 1 00 |
| | Illustrated Fashion Bazar | do | Fashion | 1877 | 3 00 |
| | Afield and Afloat | Weekly | Sporting | 1877 | 2 00 |
| | United Service | Monthly | Army and navy | 1878 | 5 00 |
| | Musician | do | Musical | 1879 | 1 00 |
| | Philadelphia Pamphlet | do | Miscellaneous | 1879 | 10 |
| | North Philadelphian | Weekly | do | 1879 | 2 00 |
| | Monthly Register | Monthly | Charitable | 1879 | 25 |
| | Irish Standard (*a*) | Weekly | Miscellaneous | 1879 | 1 50 |
| | Quiz | Semi-monthly | Society, art, etc | 1880 | 1 25 |
| | Public Opinion | Weekly | Miscellaneous | | 1 50 |
| | Post Office Bulletin (*a*) | Monthly | do | | |
| | United States Journal (*a*) | Weekly | do | | |
| | Comic News (*a*) | do | do | | |
| | Every Saturday (*d*) | do | do | | |
| | Saturday Evening Post | do | News and family reading | 1821 | 2 00 |
| | Die Neue Welt | do | News and family reading (*German*) | 1855 | 3 00 |
| | Commonwealth (*a*) | do | News and family reading | 1874 | 2 50 |
| | West Philadelphia Public Telephone | do | do | 1878 | 1 00 |
| | Haddington Nut Shell | do | do | 1878 | 50 |
| | Familien Journal (*e*) | do | News and family reading (*German*) | 1877 | 2 50 |
| | North American | Daily (*morning*) | News and politics | 1784 | 9 00 |
| | North American | Tri-weekly | do | 1771 | 5 00 |
| | Inquirer | Daily (*morning*) | do | 1829 | 6 00 |
| | Inquirer | Tri-weekly | do | | 4 00 |
| | Public Ledger | Daily (*morning*) | do | 1836 | 6 00 |
| | Demokrat | Daily (*morning*) | News and politics (*German*) | 1837 | 8 00 |
| | Demokrat | Sunday | News and politics (*German*) | | 2 50 |
| | Verernigte Staaten Zeitung | Weekly | News and politics (*German*) | 1844 | 2 50 |
| | Evening Bulletin | Daily (*evening*) | News and politics | 1847 | 8 00 |
| | Sun | Daily (*morning*) | do | 1847 | 3 00 |
| | Sun | Daily (*evening*) | do | 1847 | 3 00 |
| | Sunday Item | Sunday | do | | 3 00 |
| | Item | Weekly | do | 1847 | 3 00 |
| | Freie Presse | Daily (*morning*) | News and politics (*German*) | 1848 | 8 00 |
| | Die Republikanische Flagge | Weekly | News and politics (*German*) | 1856 | 2 00 |
| | Sonntags-Blatt | Sunday | News and politics (*German*) | 1877 | 2 00 |
| | Evening Telegraph | Daily (*evening*) | News and politics | 1851 | 9 00 |
| | Press | Daily (*morning*) | do | 1857 | 8 75 |
| | Press | Weekly | do | 1857 | 1 25 |
| | Abend Post | Daily (*evening*) | News and politics (*German*) | 1865 | 6 00 |
| | Evening Star | Daily (*evening*) | News and politics | 1866 | 3 00 |
| | Chronicle-Herald | Daily (*evening*) | do | 1866 | 6 00 |
| | Sunday Press and Mirror of Times | Sunday | do | 1872 | 2 50 |
| | Record | Daily (*morning*) | do | 1870 | 3 00 |
| | Volksblatt | Daily (*morning*) | News and politics (*German*) | 1871 | 8 00 |
| | Nord Amerika | Weekly | News and politics (*German*) | 1873 | 2 50 |
| | Day | Daily (*evening*) | News and politics | 1871 | 6 00 |
| | Evening Republican | Daily (*evening*) | do | 1874 | 3 00 |
| | Times | Daily (*morning*) | do | 1875 | 6 00 |
| | Times | Sunday | do | 1875 | 2 00 |
| | Times | Weekly | do | 1877 | 2 00 |
| | Tageblatt | Daily (*morning*) | News and politics (*German*) | 1877 | 7 80 |
| | Sonntags Blatt | Sunday | News and politics (*German*) | 1877 | 1 50 |
| | Gazette | Daily (*evening*) | News and politics (*German*) | 1879 | 6 00 |

*a* Suspended.
*b* Changed to monthly July, 1880.
*c* Suspended June, 1880.
*d* Merged in the "Traveler".
*e* An edition of the "Sonntags Journal".

## PENNSYLVANIA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| PHILADELPHIA CO.—Continued. | | | | | |
| Philadelphia—Continued | Evening News | Daily (*evening*) | News and politics | 1879 | $6 00 |
| | Evening Leader (*a*) | Daily (*evening*) | do | | |
| | Bible Banner | Weekly | Religious (*Adventist*) | 1871 | 2 00 |
| | Young Reaper | Semi-monthly | Sunday school | 1857 | 50 |
| | National Baptist | Weekly | Religious (*Baptist*) | 1865 | 2 50 |
| | Baptist Family Magazine | Monthly | Religious (*Baptist*) | 1880 | 1 00 |
| | Catholic Standard | Weekly | Religious (*Catholic*) | 1866 | 2 50 |
| | I. C. B. U. Journal | Monthly | Benevolent society (*Catholic*) | 1873 | 50 |
| | American Catholic Quarterly Review | Quarterly | Religious (*Catholic*) | 1876 | 5 00 |
| | Guardian Angel | Monthly | Religious (*Catholic*) | 1877 | 50 |
| | La Salle Advance (*a*) | do | Religious (*Catholic*) | 1878 | 50 |
| | Catholic Advance | Weekly | Religious (*Catholic*) | 1879 | 2 00 |
| | Episcopal Recorder | do | Religious (*Episcopal Reformed*) | 1822 | 3 00 |
| | Covenant | Semi-monthly | Religious (*Episcopal Reformed*) | 1879 | 1 50 |
| | Episcopal Register | Weekly | Religious (*Episcopal*) | 1879 | 3 00 |
| | Christian Standard and Home Journal | do | Religious (*Evangelical*) | 1867 | 2 00 |
| | Advocate of Holiness | Monthly | Religious (*Evangelical*) | 1870 | 1 00 |
| | Christian Woman | do | Religious (*Evangelical*) | 1871 | 1 00 |
| | Words of Faith | do | Religious (*Evangelical*) | 1874 | 35 |
| | Faith and Works | do | Religious (*Evangelical*) | 1875 | 1 00 |
| | Friend | Weekly | Religious (*Friends*) | 1827 | 2 00 |
| | Friends' Intelligencer | do | Religious (*Friends*) | 1844 | 2 50 |
| | Friends' Review | do | Religious (*Friends*) | 1847 | 2 10 |
| | Jewish Record | do | Religious (*Jewish*) | 1875 | 5 00 |
| | Lutheran Observer | do | Religious (*Lutheran*) | 1826 | 2 65 |
| | Lutheran and Missionary | do | Religious (*Lutheran*) | 1861 | 2 25 |
| | Christian Recorder | do | Religious (*Methodist*) | 1848 | 2 00 |
| | Philadelphia Methodist | do | Religious (*Methodist*) | 1879 | 1 00 |
| | Christian Statesman | do | Religious (*National Reformed*) | 1867 | 2 00 |
| | Presbyterian | do | Religious (*Presbyterian*) | 1831 | 2 65 |
| | Presbyterian Monthly Record | Monthly | Religious (*Presbyterian*) | 1850 | 50 |
| | Westminster Lesson Leaf | do | Religious (*Presbyterian*) | 1871 | 75 |
| | Presbyterian Journal | Weekly | Religious (*Presbyterian*) | 1875 | 1 50 |
| | Protestant Standard | do | Religious (*Protestant*) | 1878 | 2 00 |
| | Messenger | do | Religious (*Reformed*) | 1827 | 2 20 |
| | Guardian | Monthly | Religious (*Reformed*) | 1850 | 1 25 |
| | Reformed Church Review | Quarterly | Religious (*Reformed*) | 1851 | 3 00 |
| | Mind and Matter | Weekly | Religious (*Spiritualist*) | 1878 | 2 15 |
| | Association News | do | Religious (*Unsectarian*) | 1879 | 25 |
| | Christian Fireside | Monthly | Religious (*Unsectarian*) | 1880 | 1 00 |
| | Christian Reformer | do | Religious (*Unsectarian*) | 1880 | 1 00 |
| | Keystone | Weekly | Secret society | 1866 | 3 00 |
| | Camp News | Monthly | do | 1867 | 1 00 |
| | Junior American Mechanic | do | do | 1871 | 75 |
| | Merchant and Salesman | do | do | 1877 | 1 00 |
| | Propagator | do | do | 1878 | 1 00 |
| | Grand Army Review | do | do | 1879 | 1 50 |
| | Child's World | Semi-monthly | Sunday school | 1823 | 50 |
| | Sunday School World | Monthly | do | 1824 | 50 |
| | Sunday School Visitor | Weekly | do | 1850 | 75 |
| | { Child's Treasury | Monthly | do | 1857 | 25 |
| | { Child's Treasury | Semi-monthly | do | 1857 | 40 |
| | Sunday School Times | Weekly | do | 1859 | 2 00 |
| | Youth's Evangelist | Semi-monthly | do | 1859 | 50 |
| | Sabbath School Herald | Monthly | do | 1860 | 15 |
| | Children's Friend | do | Juvenile | 1866 | 1 50 |
| | Busy Bee | do | Sunday school | 1867 | 15 |
| | Young Folks' News | Weekly | do | 1869 | 1 25 |
| | Baptist Teacher | Monthly | do | 1870 | 75 |
| | Bible Lesson Monthly | do | do | 1870 | 20 |
| | Intermediate Lesson Paper | do | do | 1872 | 07 |
| | Scholars' Lesson Paper | do | do | 1872 | 07 |
| | Primary Lesson Paper | do | do | 1873 | 07 |
| | Westminster Teacher | do | do | 1873 | 60 |
| | Our Little Ones | Weekly | do | 1873 | 50 |
| | Children's Picture Lessons | Monthly | do | 1874 | 15 |
| | Augsburg Teacher | do | do | 1874 | 55 |
| | Augsburg Lesson Book | do | do | 1874 | 12 |
| | Augsburg Junior Lesson Book | do | do | 1874 | 12 |
| | Augsburg Lesson Leaves | do | do | 1874 | 07 |
| | Augsburg Junior Lesson Leaves | do | do | 1874 | 07 |
| | Little Ones | do | do | 1874 | 07 |
| | Sunbeam | Weekly | do | 1875 | 30 |
| | Scripture Lessons Monthly | Monthly | do | 1875 | 78 |
| | Christian Child | do | do | 1875 | 25 |
| | Scholars' Quarterly | Quarterly | do | 1876 | 25 |
| | Sunshine for Little Children | Monthly | Juvenile | 1876 | 3 00 |
| | Scholars' Companion | do | Sunday school | 1878 | 20 |
| | Sunshine | Weekly | do | 1879 | 85 |
| | Advanced Bible Lesson Quarterly | Quarterly | do | 1879 | 20 |
| | Westminster Quarterly | do | do | 1880 | 20 |
| | American Sunday School Union Quarterly | do | do | 1880 | 20 |
| | Golden Day for Boys and Girls | Weekly | Juvenile | 1880 | 3 00 |
| | Sunday Dispatch | Sunday | News and politics | 1848 | 2 60 |
| | Sunday Mercury | do | do | 1851 | 2 50 |
| | Sunday Transcript | do | do | 1856 | 2 50 |
| | Philadelphia Sunday Times | do | do | 1863 | 2 00 |
| | Sunday Republic | do | do | 1867 | 2 50 |
| | Sunday Mirror | do | do | 1875 | 2 00 |
| | Sunday World | do | do | 1876 | 1 50 |
| | Sonntags Journal | do | News and politics (*German*) | 1876 | 2 50 |
| | Sunday Herald | do | News and politics | 1879 | 2 00 |
| | Sunday Argus (*b*) | do | do | 1879 | 2 00 |
| | Typographic Advertiser | Quarterly | Typographical | 1855 | 25 |
| | Philadelphia Photographer | Monthly | Commerce and trade | 1864 | 5 00 |
| | Printers' Circular | do | Typographical | 1866 | 1 00 |
| | Bulletin of the American Steel and Iron Association. | Weekly | Commerce and trade | 1866 | 4 00 |
| | Carriage Monthly | Monthly | do | 1866 | 2 00 |

*a* Suspended.

*b* Suspended 1879.

## PENNSYLVANIA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| PHILADELPHIA CO.—Continued. | | | | | |
| Philadelphia—Continued | Proof Sheet | Quarterly | Typographical | 1867 | $1 00 |
| | Philadelphia Trade Journal | Weekly | Commerce and trade | 1867 | 3 00 |
| | Philadelphia Textile Journal | Monthly | do | 1875 | 2 00 |
| | Philadelphia Grocer | Weekly | do | 1875 | 1 00 |
| | Confectioners' Journal | Monthly | do | 1875 | 2 00 |
| | Ice Trade | do | do | 1877 | 1 00 |
| | Textile Colorist | do | do | 1879 | 4 00 |
| | Merchants' Guide | Weekly | do | 1879 | 1 50 |
| | Barbers' National Journal | Semi-monthly | do | 1879 | 1 50 |
| | Dry Goods Journal (*a*) | Weekly | do | 1877 | 1 50 |
| | American Textile Manufacturer | Monthly | do | 1880 | 3 00 |
| PIKE CO.—*Population:* 9,663. | | | | | |
| Milford | Milford Dispatch | Weekly | News and politics | 1867 | 2 00 |
| POTTER CO.—*Population:* 13,797. | | | | | |
| Coudersport | Potter County Journal | Weekly | News and politics | 1848 | 1 50 |
| | Potter Enterprise | do | do | 1874 | 1 50 |
| SCHUYLKILL CO.—*Population:* 129,974. | | | | | |
| Ashland | Ashland Advocate | Weekly | News and politics | 1864 | 2 00 |
| Girardville | Girardville Gazette | do | do | 1878 | 1 00 |
| Mahanoy | Mahanoy Tribune | do | do | 1865 | 1 50 |
| | Parker's Record | Tri-weekly | do | 1877 | 1 50 |
| Minersville | Schuylkill Republican | Weekly | do | 1872 | 2 00 |
| Pine Grove | Pine Grove Herald | do | do | 1878 | 1 50 |
| Pottsville | Miners' Journal | Daily (*morning*) | do | 1871 | 6 00 |
| | Miners' Journal | Weekly | do | 1824 | 2 00 |
| | Evening Chronicle | Daily (*evening*) | do | 1875 | 3 00 |
| | Pottsville Standard | Weekly | do | 1842 | 2 00 |
| | Amerikanischer Republikaner | do | News and politics (*German*) | 1855 | 1 50 |
| | Jefferson Demokrat | do | News and politics (*German*) | 1855 | 1 50 |
| | Emerald Vindicator | Monthly | Beneficial society (*Catholic*) | 1874 | 75 |
| | Schuykill Legal Record | Weekly | Law | 1879 | 3 00 |
| Shenandoah | Shenandoah Herald | do | News and politics | 1870 | 1 50 |
| | Sunday Morning News | Sunday | do | 1878 | 2 00 |
| Tamaqua | Tamaqua Courier | Weekly | do | 1869 | 2 00 |
| Tremont | Tremont News | do | do | 1865 | 1 50 |
| | West Schuylkill Press | do | do | 1877 | 1 50 |
| SNYDER CO.—*Population:* 17,797. | | | | | |
| Freeburgh | Freeburgh Courier | Weekly | News and politics | 1866 | 1 50 |
| Middleburg | Middleburg Post | do | do | 1861 | 1 50 |
| Selin's Grove | Selin's Grove Times | do | do | 1822 | 1 50 |
| | Snyder County Tribune | do | do | 1850 | 1 50 |
| SOMERSET CO.—*Population:* 33,110. | | | | | |
| Berlin | Progressive Christian | Weekly | Religious (*Dunkard*) | 1879 | 1 25 |
| Meyersdale | Meyersdale Commercial | do | News and politics | 1878 | 2 00 |
| Somerset | Somerset Herald | do | do | 1827 | 2 50 |
| | Somerset Democrat | do | do | 1854 | 2 00 |
| SULLIVAN CO.—*Population:* 8,073. | | | | | |
| Dushore | Sullivan Review | Weekly | News and politics | 1878 | 1 50 |
| La Porte | Sullivan County Democrat | do | do | 1851 | 1 50 |
| SUSQUEHANNA CO.—*Population:* 40,354. | | | | | |
| Great Bend | Great Bend Reporter | Weekly | News and politics | 1874 | 1 50 |
| Montrose | Montrose Democrat | do | do | 1844 | 1 50 |
| | Independent Republican | do | do | 1854 | 2 00 |
| New Milford | New Milford Advertiser | do | do | 1880 | 1 00 |
| Susquehanna Depot | Susquehanna Journal | do | do | 1868 | 1 50 |
| | Susquehanna Gazette | do | do | 1873 | 1 50 |
| TIOGA CO.—*Population:* 45,814. | | | | | |
| Blossburg | Blossburg Industrial Register | Weekly | News and politics | 1879 | 1 50 |
| Elkland | Elkland Journal | do | do | 1876 | 1 00 |
| Mansfield | Mansfield Advertiser | do | do | 1872 | 1 50 |
| Millerton | Millerton Advocate | do | do | 1878 | 1 00 |
| Tioga | Tioga Express (*b*) | do | do | 1873 | 1 50 |
| Wellsboro' | Wellsboro' Agitator | do | do | 1854 | 2 00 |
| | Wellsboro' Gazette | do | do | 1874 | 2 00 |
| | Tioga County Leader | do | do | 1878 | 1 00 |
| Westfield | Westfield Free Press | do | do | 1878 | 1 50 |
| UNION CO.—*Population:* 16,905. | | | | | |
| Lewisburg | Lewisburg Chronicle | Weekly | News and politics | 1843 | 1 50 |
| | Lewisburg Journal | do | do | 1864 | 1 50 |
| | College Herald | Monthly | Collegiate | 1870 | 1 00 |
| | Fireside Messenger | do | General literature | 1880 | 1 00 |
| Mifflinburg | Mifflinburg Telegraph | Weekly | News and politics | 1862 | 1 50 |
| New Berlin | Seminary Guard (*c*) | Monthly | Collegiate | | |
| VENANGO CO.—*Population:* 43,670. | | | | | |
| Emlenton | Emlenton Register (*d*) | Weekly | News and politics | 1876 | 1 00 |
| Franklin | Venango Spectator | do | do | 1849 | 1 50 |
| | Venango Citizen | do | do | 1855 | 1 50 |
| | Independent Press | do | do | 1875 | 1 50 |
| Oil City | Oil City Derrick | Daily (*morning*) | do | 1871 | 10 00 |
| | Oil City Derrick (*e*) | Sunday | do | 1879 | 1 50 |
| WARREN CO.—*Population:* 27,981. | | | | | |
| Sugar Grove | Home Journal | Weekly | News and politics | 1880 | 1 50 |
| | Sugar Grove Independent (*f*) | do | do | 1878 | 1 50 |
| Tidioute | Tidioute News | do | do | 1874 | 1 25 |
| | Family Medical Abstract | Monthly | Medicine and surgery | 1880 | 3 00 |
| Warren | Warren Mail | Weekly | News and politics | 1848 | 1 50 |
| | Warren Ledger | do | do | 1849 | 1 50 |
| | Nation | Monthly | do | 1873 | 25 |
| | Warren Reporter and Farmer | Weekly | do | 1877 | 1 00 |
| WASHINGTON CO.—*Population:* 55,418. | | | | | |
| Burgettstown | Burgettstown Enterprise | Monthly | News and politics | 1879 | 50 |
| California | Washington County Gazette (*g*) | Weekly | do | 1877 | 1 50 |

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*a* Suspended.
*b* Suspended after census year.
*c* Suspended December, 1879.
*d* Suspended in fall of 1880.
*e* Sunday edition was discontinued December, 1880.
*f* Suspended January, 1880.
*g* Suspended February, 1880.

## PENNSYLVANIA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| WASHINGTON CO.—Continued. | | | | | |
| Canonsburg | Canonsburg Herald | Weekly | News and politics | 1872 | $1 50 |
| | Rural Notes | do | do | 1875 | 50 |
| Claysville | Claysville Sentinel | do | do | 1878 | 1 50 |
| | The Cross and Crown | Monthly | Religious (*Baptist*) | 1879 | 50 |
| Monongahela City | Monongahela Valley Republican | Weekly | News and politics | 1830 | 2 00 |
| | Pennsylvania Reserve News-Letter | Monthly | Miscellaneous | 1875 | 1 00 |
| | Valley Record | Weekly | News and politics | 1876 | 1 50 |
| Washington | Evening Reporter | Daily (*evening*) | do | 1876 | 3 00 |
| | Washington Reporter | Weekly | do | 1808 | 2 00 |
| | Review and Examiner | do | do | 1815 | 1 50 |
| | Washington Observer | do | do | 1872 | 1 50 |
| | Washington Jeffersonian | Monthly | Collegiate | 1877 | 1 25 |
| | Washington Democrat | Weekly | News and politics | 1878 | 1 50 |
| WAYNE CO.—*Population:* 33,513. | | | | | |
| Hawley | Hawley Times | Weekly | News and politics | 1874 | 1 50 |
| Honesdale | Wayne County Herald | do | do | 1833 | 1 50 |
| | Honesdale Citizen | do | do | 1844 | 2 00 |
| | Wayne County Independent | do | do | 1878 | 1 50 |
| WESTMORELAND CO.—*Population:* 78,036. | | | | | |
| Greensburgh | Westmoreland Democrat | Weekly | News and politics | 1818 | 1 50 |
| | Pennsylvania Argus | do | do | 1832 | 1 50 |
| | Greensburgh Tribune and Herald | do | do | 1807 | 1 50 |
| | National Issue | do | do | 1877 | 1 30 |
| Latrobe | Latrobe Advance | do | do | 1873 | 1 50 |
| Mount Pleasant | Mount Pleasant Dawn | do | do | 1875 | 1 50 |
| | Mount Pleasant Times and Mining Journal | do | do | 1879 | 1 00 |
| West Newton | West Newton Press | do | do | 1878 | 1 00 |
| WYOMING CO.—*Population:* 15,598. | | | | | |
| Tunkhannock | Wyoming Democrat | Weekly | News and politics | 1854 | 1 50 |
| | Tunkhannock Republican | do | do | 1869 | 2 00 |
| | Tunkhannock Standard | do | do | 1879 | 1 50 |
| YORK CO.—*Population:* 87,841. | | | | | |
| Delta | Delta Herald | Weekly | News and politics | 1878 | 1 00 |
| Dillsburg | Dillsburg Bulletin | do | do | 1874 | 1 00 |
| Glen Rock | Glen Rock Item | do | do | 1870 | 1 50 |
| Hanover | Hanover Citizen | do | do | 1810 | 1 50 |
| | Der Citizen | do | News and politics (*German*) | 1810 | 1 00 |
| | Hanover Spectator | do | News and politics | 1844 | 1 50 |
| | Hanover Herald | do | do | 1872 | 1 50 |
| Wrightsville | Wrightsville Star | do | do | 1854 | 1 00 |
| York | York Republican | do | do | 1789 | 1 00 |
| | Die York Gazette | do | News and politics (*German*) | 1795 | 1 00 |
| | York Gazette | do | News and politics | 1815 | 1 50 |
| | York Democratic Press | do | do | 1838 | 1 00 |
| | York Pennsylvanian | do | do | 1851 | 1 50 |
| | Evening Dispatch | Daily (*evening*) | do | 1876 | 3 00 |
| | True Democrat | Weekly | do | 1864 | 1 50 |
| | York Daily | Daily (*morning*) | do | 1870 | 3 00 |
| | York Weekly | Weekly | do | 1877 | 1 00 |
| | Teachers' Journal | Monthly | Sunday school | 1874 | 56 |
| | Christian Guide and Home Magazine | do | Religious (*Unsectarian*) | 1878 | 50 |
| | Theological Monthly | do | Religious (*Lutheran*) | 1879 | 1 00 |
| | Shining Star | do | Sunday school | 1880 | 40 |

## RHODE ISLAND.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| BRISTOL CO.—*Population:* 11,394. | | | | | |
| Bristol | Bristol Phœnix | Weekly | News and politics | 1837 | $2 00 |
| Warren | Warren Gazette | do | do | 1867 | 2 50 |
| KENT CO.—*Population:* 20,588. | | | | | |
| East Greenwich | Rhode Island Pendulum | Weekly | News and politics | 1854 | 2 00 |
| | Odd Fellows' Register | Monthly | Secret society | 1877 | 50 |
| | Academy Trio | do | Collegiate | 1879 | 50 |
| Phœnix | Pawtuxet Valley Gleaner | Weekly | News and politics | 1876 | 1 50 |
| NEWPORT CO.—*Population:* 24,180. | | | | | |
| Newport | News | Daily (*evening*) | News and politics | 1846 | 6 00 |
| | Journal | Weekly | do | 1867 | 2 00 |
| | Newport Advertiser | do | do | 1840 | 50 |
| | Newport Mercury | do | do | 1758 | 2 00 |
| PROVIDENCE CO.—*Population:* 197,874. | | | | | |
| Central Falls | Central Falls Visitor | Weekly | News and politics | 1869 | 1 50 |
| Providence | Manufacturers' and Farmers' Journal | Semi-weekly | do | 1820 | 3 50 |
| | Rhode Island Country Journal | Weekly | do | 1824 | 2 00 |
| | Journal | Daily (*morning*) | do | 1829 | 8 00 |
| | Evening Bulletin | Daily (*evening*) | do | 1863 | 6 00 |
| | Evening Press | Daily (*evening*) | do | 1859 | 8 00 |
| | Morning Star | Daily (*morning*) | do | 1869 | 5 00 |
| | Rhode Island Press | Weekly | do | 1859 | 2 00 |
| | Weekly Advertiser and Gazette | do | do | 1848 | 1 00 |
| | Brunonian | Bi-weekly | Collegiate | 1866 | 2 50 |
| | Freemason's Repository | Monthly | Secret society | 1871 | 1 50 |
| | Town and Country (*a*) | Weekly | Temperance | 1874 | 2 00 |
| | Sunday Dispatch | Sunday | Family reading | 1874 | 2 50 |
| | Providence Visitor | Weekly | News and politics | 1875 | 1 50 |
| | Sunday Visitor (*b*) | Sunday | do | 1875 | 1 50 |
| | Deutsche Anzeiger (*c*) | Weekly | News and politics (*German*) | 1876 | 2 00 |
| | Saturday Times (*d*) | do | News and politics | 1876 | 2 00 |
| | Parrot (*e*) | do | do | 1877 | 1 00 |
| | Sunday Morning Transcript | Sunday | Family reading | 1877 | 2 00 |
| | Providence Herald | Weekly | News and politics | 1879 | 1 50 |
| | Rhode Island Democrat | do | do | 1879 | 2 00 |

*a* Consolidated with "Living Issue", Portland, Maine, June, 1879.

*b* Edition of "Weekly Visitor".

*c* Suspended October, 1879.

*d* Merged into "New England Anzeiger" of New Haven, Conn.

*e* Suspended in census year, 1879.

## RHODE ISLAND—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| Providence co.—Continued. | | | | | |
| Providence—Continued | Daily Telegram | Daily (*evening*) | News and politics | 1880 | $5 00 |
| | Telegram | Sunday | do | 1876 | 2 00 |
| | Eastern Review (*a*) | Weekly | do | 1879 | 1 50 |
| Pawtucket | Gazette and Chronicle | do | do | 1825 | 2 25 |
| Woonsocket | Patriot | Daily (*evening*) | do | 1876 | 3 50 |
| | Patriot | Weekly | do | 1833 | 2 50 |
| | Evening Reporter | Daily (*evening*) | do | 1873 | 2 50 |
| | Courrier Canadien (*b*) | Weekly | News and politics (*French*) | 1876 | 2 00 |
| Pascoag | Burrillville Gazette | do | News and politics | 1880 | 1 50 |
| Washington co.—*Population:* 22,495. | | | | | |
| Hopkinton | Wood River Advertiser | Weekly | News and politics | 1876 | 1 00 |
| Narragansett Pier | Narragansett Herald (*c*) | do | do | 1875 | 2 50 |
| South Kingston | Narragansett Times | do | do | 1855 | 1 50 |
| Westerly | Narragansett Weekly | do | do | 1858 | 2 00 |

## SOUTH CAROLINA.

| | | | | | |
|---|---|---|---|---|---|
| Abbeville co.—*Population:* 40,815. | | | | | |
| Abbeville | Abbeville Press and Banner | Weekly | News and politics | 1844 | $2 00 |
| | Abbeville Medium | do | do | 1871 | 2 00 |
| Due West | Associate Reformed Presbyterian | do | Religious (*Presbyterian*) | 1850 | 2 00 |
| Aiken co.—*Population:* 28,112. | | | | | |
| Aiken | Aiken Journal and Review | Weekly | News and politics | 1879 | 2 00 |
| Anderson co.—*Population:* 33,612. | | | | | |
| Anderson | Anderson Intelligencer | Weekly | News and politics | 1860 | 1 50 |
| | Anderson Journal | do | do | 1876 | 1 00 |
| Williamston | Temperance Standard (*d*) | do | Temperance | 1877 | 1 50 |
| Barnwell co.—*Population:* 39,857. | | | | | |
| Barnwell | Barnwell Sentinel | Weekly | News and politics | 1852 | 2 00 |
| | The People | do | do | 1877 | 2 00 |
| Beaufort co.—*Population:* 30,176. | | | | | |
| Beaufort | Beaufort Crescent | Weekly | News and politics | 1873 | 2 00 |
| | Sea Island News | do | do | 1879 | 2 00 |
| Charleston co.—*Population:* 102,800. | | | | | |
| Charleston | Charleston News and Courier | Daily (*morning*) | News and politics | | 10 00 |
| | Charleston News and Courier | Tri-weekly | do | | 5 00 |
| | News | Weekly | do | 1803 | 2 00 |
| | Sunday News | Sunday | do | 1879 | 2 00 |
| | Charleston Mercury | Daily (*evening*) | do | 1876 | 6 00 |
| | Charleston Mercury | Weekly | do | 1830 | 1 50 |
| | Southern Christian Advocate | do | Religious (*Methodist*) | 1837 | 2 50 |
| | Deutsche Zeitung | Semi-weekly | News and politics (*German*) | 1853 | 5 00 |
| | Sunday Times | Sunday | News and politics | 1870 | 2 50 |
| | Southern Educational Monthly | Monthly | Educational | 1879 | 50 |
| | Charleston New Era | Weekly | News and politics | 1880 | 1 50 |
| | People's Watchman (*e*) | do | do | | |
| | Southern Evangelist (*f*) | do | Religious (*Presbyterian*) | | |
| | Charleston Record (*d*) | Monthly | Religious (*Episcopal*) | 1870 | 1 50 |
| Chester co.—*Population:* 24,153. | | | | | |
| Chester | State Bulletin | Weekly | News and politics | 1879 | 2 00 |
| Chesterfield co.—*Population:* 16,345. | | | | | |
| Cheraw | Carolina Sun | Weekly | News and politics | 1880 | 2 00 |
| Chesterfield | Chesterfield Banner (*g*) | do | do | 1880 | |
| Clarendon co.—*Population:* 19,190. | | | | | |
| Manning | Clarendon Press | Weekly | News and politics | 1867 | 2 00 |
| Colleton co.—*Population:* 36,386. | | | | | |
| Walterboro' | Colleton Democrat | Weekly | News and politics | 1877 | 1 00 |
| Darlington co.—*Population:* 34,485. | | | | | |
| Darlington | Darlington Southerner | Weekly | News and politics | 1860 | 1 50 |
| | Darlington News | do | do | 1875 | 2 00 |
| Florence | Florence Times | do | do | 1876 | 1 50 |
| Edgefield co.—*Population:* 45,844. | | | | | |
| Edgefield | Edgefield Advertiser | Weekly | News and politics | 1835 | 2 00 |
| Johnston | Edgefield Monitor | do | do | 1877 | 2 00 |
| Fairfield co.—*Population:* 27,765. | | | | | |
| Winnsborough | News and Herald | Weekly | News and politics | 1851 | 2 00 |
| | News and Herald | Tri-weekly | do | 1865 | 4 00 |
| Georgetown co.—*Population:* 19,613. | | | | | |
| Georgetown | Georgetown Times | Weekly | News and politics | 1802 | 2 00 |
| Greenville co.—*Population:* 37,496. | | | | | |
| Greenville | Greenville Enterprise and Mountaineer | Weekly | News and politics | 1824 | 2 00 |
| | Baptist Courier | do | Religious (*Baptist*) | 1870 | 2 00 |
| | Greenville News | Daily (*morning*) | News and politics | 1879 | 6 00 |
| | Greenville News | Weekly | do | 1874 | 2 00 |
| | Greenville Advertiser | do | do | 1878 | 1 00 |
| | Greenville Chronicle (*h*) | do | do | 1880 | 1 50 |

[a] Suspended 1880.

[b] An edition of "Le Travailleur", Worcester, Mass.

[c] Published daily two months in the year.

[d] Suspended April, 1880.

[e] Merged in "Mercury" January, 1880.

[f] Consolidated with "African American Presbyterian", Washington, 1879.

[g] Suspended June, 1880.

[h] Suspended May, 1880.

## SOUTH CAROLINA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| HAMPTON CO.—*Population:* 18,741. | | | | | |
| Hampton | Hampton County Guardian | Weekly | News and politics | 1879 | $2 00 |
| Varnville | Varnville Messenger | do | do | 1880 | 1 00 |
| HORRY CO.—*Population:* 15,574. | | | | | |
| Conwayboro' | Conwayboro' Telephone | Weekly | News and politics | 1878 | 2 00 |
| KERSHAW CO.—*Population:* 21,538. | | | | | |
| Camden | Camden Journal | Weekly | News and politics | 1827 | 2 00 |
| | Kershaw Gazette | do | do | 1873 | 2 00 |
| LANCASTER CO.—*Population:* 16,903. | | | | | |
| Lancaster | Lancaster Ledger | Weekly | News and politics | 1852 | 1 50 |
| | Lancaster Review | do | do | 1878 | 1 50 |
| LAURENS CO.—*Population:* 29,444. | | | | | |
| Clinton | Our Monthly | Monthly | Religious (*Presbyterian*) | 1866 | 1 00 |
| Laurens | Laurensville Herald | Weekly | News and politics | 1846 | 2 00 |
| LEXINGTON CO.—*Population:* 18,564. | | | | | |
| Lexington | Lexington Dispatch | Weekly | News and politics | 1870 | 1 50 |
| Summit | Summit Courier | do | do | 1876 | 1 00 |
| MARION CO.—*Population:* 34,107. | | | | | |
| Marion | Marion Star | Weekly | News and politics | 1846 | 3 00 |
| | Merchant and Farmer | do | do | 1875 | 2 00 |
| MARLBOROUGH CO.—*Population:* 20,598. | | | | | |
| Bennettsville | Marlborough Planter | Weekly | News and politics | 1875 | 2 00 |
| NEWBERRY CO.—*Population:* 26,497. | | | | | |
| Newberry | Newberry Herald | Weekly | News and politics | 1865 | 2 00 |
| | Newberry News | do | do | 1878 | 2 00 |
| Prosperity | Lutheran Visitor | do | Religious (*Lutheran*) | 1868 | 2 15 |
| OCONEE CO.—*Population:* 16,256. | | | | | |
| Walhalla | Keowee Courier | Weekly | News and politics | 1848 | 1 50 |
| ORANGEBURGH CO.—*Population:* 41,395. | | | | | |
| Orangeburgh | Orangeburgh Times | Weekly | News and politics | 1872 | 1 00 |
| | Orangeburgh Democrat | do | do | 1879 | 1 00 |
| PICKENS CO.—*Population:* 14,389. | | | | | |
| Pickens Court House | Pickens Sentinel | Weekly | News and politics | 1871 | 1 50 |
| RICHLAND CO.—*Population:* 28,573. | | | | | |
| Columbia | Southern Presbyterian Review | Quarterly | Religious (*Presbyterian*) | 1847 | 3 00 |
| | Southern Presbyterian Review | Weekly | Religious (*Presbyterian*) | 1850 | 3 00 |
| | Christian Neighbor | do | Religious (*Methodist*) | 1868 | 2 00 |
| | Register | Daily (*morning*) | News and politics | 1875 | 9 00 |
| | Register | Tri-weekly | do | 1875 | 4 00 |
| | Register | Weekly | do | 1875 | 2 00 |
| | Temperance Advocate (*a*) | do | Temperance | 1880 | ...... |
| | Columbia Beacon (*b*) | do | News and politics | 1879 | 2 00 |
| SPARTANBURGH CO.—*Population:* 40,409. | | | | | |
| Spartanburgh | Carolina Spartan | Weekly | News and politics | 1844 | 1 50 |
| | Spartanburgh Herald | do | do | 1872 | 1 50 |
| SUMTER CO.—*Population:* 37,037. | | | | | |
| Sumter | Sumter Watchman | Weekly | News and politics | 1850 | 2 00 |
| | True Southron | do | do | 1866 | 2 00 |
| UNION CO.—*Population:* 24,080. | | | | | |
| Union | Union Times | Weekly | News and politics | 1856 | 2 00 |
| YORK CO.—*Population:* 30,713. | | | | | |
| Rock Hill | Rock Hill Herald | Weekly | News and politics | 1872 | 2 00 |
| Yorkville | Yorkville Enquirer | do | do | 1855 | 2 50 |
| | Yorkville News (*c*) | do | do | 1878 | 2 00 |

## TENNESSEE.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| BEDFORD CO.—*Population:* 26,025. | | | | | |
| Shelbyville | Shelbyville Commercial | Weekly | News and politics | 1869 | $1 00 |
| | Shelbyville Gazette | do | do | 1874 | 1 00 |
| BENTON CO.—*Population:* 9,780. | | | | | |
| Camden | Benton Banner (*c*) | Weekly | News and politics | 1875 | 1 25 |
| BLOUNT CO.—*Population:* 15,985. | | | | | |
| Maryville | Maryville Index | Weekly | News and politics | 1878 | 1 50 |
| | Blount County Democrat | do | do | 1879 | 1 00 |
| BRADLEY CO.—*Population:* 12,124. | | | | | |
| Cleveland | Cleveland Banner | Weekly | News and politics | 1854 | 2 00 |
| | Cleveland Herald | do | do | 1874 | 2 00 |
| CANNON CO.—*Population:* 11,859. | | | | | |
| Woodbury | Woodbury Press | Weekly | News and politics | 1872 | 1 50 |
| | Baptist Messenger | Semi-monthly | Religious (*Baptist*) | 1874 | 1 25 |
| CARROLL CO.—*Population:* 22,103. | | | | | |
| Huntingdon | Tennessee Republican | Weekly | News and politics | 1870 | 1 00 |
| | Huntingdon Vindicator | do | do | 1877 | 1 00 |
| CARTER CO.—*Population:* 10,019. | | | | | |
| Elizabethtown | Elizabethtown Mountaineer | Weekly | News and politics | 1878 | 2 00 |

*a* Suspended in census year.

*b* Suspended January, 1880.

*c* Suspended September, 1879.

## TENNESSEE—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| CHEATHAM CO.—*Population:* 7,956. | | | | | |
| Ashland City | Plaindealer (*a*) | Weekly | News and politics | 1877 | $1 00 |
| COCKE CO.—*Population:* 14,808. | | | | | |
| Newport | Newport Reporter | Weekly | News and politics | 1875 | 1 00 |
| | Eastern Sentinel | do | do | 1878 | 1 25 |
| COFFEE CO.—*Population:* 12,894. | | | | | |
| Manchester | Manchester Guardian | Weekly | News and politics | 1872 | 1 00 |
| CROCKETT CO.—*Population:* 14,109. | | | | | |
| Alamo | Crockett County Sentinel | Weekly | News and politics | 1873 | 1 00 |
| Belleville | Belleville Enterprise (*b*) | do | do | 1875 | 1 50 |
| DAVIDSON CO.—*Population:* 79,026. | | | | | |
| Nashville | Nashville American | Daily (*morning*) | News and politics | 1812 | 10 60 |
| | Nashville American | Weekly | do | 1812 | 1 00 |
| | Nashville American | Semi-weekly | do | 1812 | 4 00 |
| | Christian Advocate | Weekly | Religious (*Methodist Episcopal*) | 1837 | 2 00 |
| | Cumberland Presbyterian | do | Religious (*Presbyterian*) | 1840 | 2 00 |
| | Sunday School Visitor | do | Sunday school | 1844 | 54 |
| | Journal of Medicine and Surgery | Monthly | Medicine and surgery | 1851 | 3 00 |
| | Ladies' Pearl | do | Literary | 1852 | 2 10 |
| | Gospel Advocate | Weekly | Religious (*Disciples*) | 1859 | 2 00 |
| | Sabbath School Gem | do | Sunday school | 1866 | 30 |
| | National Flag | do | News and politics | 1867 | 1 00 |
| | Herald and Pilot | do | do | 1868 | 1 50 |
| | Sunday School Magazine | Monthly | Sunday school | 1870 | 50 |
| | Southern Industries | Weekly | Commerce and trade | 1875 | 50 |
| | Our Lambs | do | Sunday school | 1876 | 11 |
| | Banner | Daily (*evening*) | News and politics | 1876 | 7 80 |
| | Banner | Weekly | do | 1876 | 1 00 |
| | Tennessee Good Templar | do | Temperance | 1878 | 1 00 |
| | Southern Practitioner | Monthly | Medicine and surgery | 1879 | 1 00 |
| | Educator and Reformer | Weekly | Educational | 1879 | 2 00 |
| | Gem Lesson Leaf | do | Sunday school | 1879 | 10 |
| | Daily Herald | Daily (*evening*) | News and politics | 1880 | 5 20 |
| | Sunday School Comments | Quarterly | Sunday school | 1880 | 25 |
| | Sunday Morning (*c*) | Monthly | Religious (*Presbyterian*) | 1874 | 60 |
| | Sunday Times (*d*) | Sunday | News and politics | 1880 | ........ |
| | Vanderbilt Austral (*e*) | Monthly | Collegiate | 1879 | 1 00 |
| | Southern Reporter (*f*) | do | Secret society | 1875 | 1 00 |
| DE KALB CO.—*Population:* 14,813. | | | | | |
| Smithville | Smithville Journal | Weekly | News and politics | 1874 | 1 50 |
| DICKSON CO.—*Population:* 12,460. | | | | | |
| Dickson | Dickson County Independent (*f*) | Weekly | News and politics | 1878 | 2 00 |
| DYER CO.—*Population:* 15,118. | | | | | |
| Dyersburg | Neal's State Gazette | Weekly | News and politics | 1865 | 2 00 |
| Newbern | Newbern Enquirer | do | do | 1875 | 1 00 |
| FAYETTE CO.—*Population:* 31,871. | | | | | |
| Somerville | Somerville Falcon | Weekly | News and politics | 1867 | 1 50 |
| FRANKLIN CO.—*Population:* 17,178. | | | | | |
| Sewanee | Mountain News | Weekly | News and politics | 1875 | 1 00 |
| | University Bulletin (*g*) | do | Collegiate | ........ | ........ |
| | Missionary Leaflet (*g*) | do | Religious (*Unsectarian*) | ........ | ........ |
| Winchester | Winchester Home Journal | do | News and politics | 1856 | 2 00 |
| GIBSON CO.—*Population:* 32,685. | | | | | |
| Humboldt | Humboldt Argus | Weekly | News and politics | 1878 | 1 50 |
| Milan | Milan Exchange | do | do | 1874 | 2 00 |
| Trenton | Gibson County Mirror | do | do | 1876 | 2 00 |
| | Trenton Herald | do | do | 1878 | 2 00 |
| GILES CO.—*Population:* 36,014. | | | | | |
| Pulaski | Pulaski Citizen | Weekly | News and politics | 1855 | 2 00 |
| | Literary Bouquet | Monthly | Literary | 1880 | 50 |
| | Pulaski Herald | Weekly | News and politics | 1880 | 2 00 |
| GREENE CO.—*Population:* 24,005. | | | | | |
| Greenville | Greenville New Era | Weekly | News and politics | 1865 | 1 50 |
| | Greenville Democrat | do | do | 1879 | 1 00 |
| Tusculum | Tusculum Record | do | Collegiate | 1878 | 1 25 |
| HAMBLEN CO.—*Population:* 10,187. | | | | | |
| Morristown | Morristown Gazette | Weekly | News and politics | 1866 | 2 00 |
| | Morristown Times | do | do | 1877 | 1 50 |
| HAMILTON CO.—*Population:* 23,642. | | | | | |
| Chattanooga | Chattanooga Times | Daily (*morning*) | News and politics | 1869 | 8 00 |
| | Chattanooga Times | Weekly | do | 1869 | 1 50 |
| | Chattanooga Commercial | Sunday | do | 1877 | 1 50 |
| | Chattanooga Chronicle | Weekly | do | 1879 | 1 00 |
| | Chattanooga News (*h*) | do | do | 1879 | 1 00 |
| | Chattanooga Tradesman | Semi-monthly | Commerce and trade | 1880 | 2 00 |
| | Woman's Health Journal (*g*) | Monthly | Medicine and surgery | ........ | ........ |
| HARDEMAN CO.—*Population:* 22,921. | | | | | |
| Bolivar | Bolivar Bulletin | Weekly | News and politics | 1864 | 1 50 |
| HARDIN CO.—*Population:* 14,793. | | | | | |
| Savannah | Tennessee Transcript | Weekly | News and politics | 1874 | 1 50 |
| | Savannah Record (*i*) | do | do | 1879 | 1 50 |
| HAWKINS CO.—*Population:* 20,610. | | | | | |
| Rogersville | Rogersville Spectator | Weekly | News and politics | 1876 | 1 50 |
| | Rogersville Press and Times | do | do | 1880 | 1 50 |

*a* Succeeded by "New Era" December, 1880.
*b* Suspended February, 1881.
*c* Suspended (merged in "Sunday School Comments").
*d* Suspended (merged in "Daily Herald").
*e* Suspended June, 1879.
*f* Suspended December, 1879.
*g* Suspended.
*h* Suspended 1880.
*i* Suspended August, 1880.

## TENNESSEE—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| HAYWOOD CO.—*Population:* 26,053. | | | | | |
| Brownsville | Brownsville States and Bee | Weekly | News and politics | 1870 | $2 00 |
| | Brownsville Democrat | do | do | 1874 | 2 00 |
| | Brownsville Bee (*a*) | do | do | 1868 | 2 00 |
| HENDERSON CO.—*Population:* 17,430. | | | | | |
| Lexington | Henderson County News | Weekly | News and politics | 1879 | 1 25 |
| HENRY CO.—*Population:* 22,142. | | | | | |
| Paris | Paris Intelligencer | Weekly | News and politics | 1866 | 2 00 |
| | Paris Post | do | do | 1879 | 1 50 |
| HICKMAN CO.—*Population:* 12,095. | | | | | |
| Centreville | Hickman Pioneer | Weekly | News and politics | 1878 | 1 00 |
| HOUSTON CO.—*Population:* 4,295. | | | | | |
| Erin | Houston County Review | Weekly | News and politics | 1876 | 1 00 |
| HUMPHREYS CO.—*Population:* 11,379. | | | | | |
| Waverly | Waverly Journal | Weekly | News and politics | 1871 | 1 50 |
| JACKSON CO.—*Population:* 12,008. | | | | | |
| Gainesborough | Upper Cumberland | Weekly | News and politics | 1878 | 1 50 |
| JEFFERSON CO.—*Population:* 15,846. | | | | | |
| Dandridge | Dandridge Watchman and Reporter | Weekly | News and politics | 1875 | 1 25 |
| Mossy Creek | Columbian Echo | Semi-monthly | Educational | 1879 | 50 |
| KNOX CO.—*Population:* 39,124. | | | | | |
| Knoxville | Tribune | Daily (*morning*) | News and politics | 1867 | 8 00 |
| | Tribune | Weekly | do | 1816 | 1 50 |
| | Chronicle | Daily (*morning*) | do | 1870 | 8 00 |
| | Whig and Chronicle | Weekly | do | 1839 | 1 50 |
| | Holston Methodist | do | Religious (*Methodist Episcopal*) | 1872 | 2 00 |
| | Girls' Own Paper | Monthly | Literary | 1876 | 50 |
| | Dispatch | Daily (*morning*) | News and politics | 1879 | 6 00 |
| | Dispatch | Weekly | do | 1879 | 1 00 |
| | Knoxville Herald (*b*) | Semi-monthly | Literary | 1879 | |
| | Knoxville Republican | Weekly | News and politics | 1879 | 1 25 |
| | Baptist Beacon | do | Religious (*Baptist*) | 1880 | 2 00 |
| | Christian Watchman | Monthly | Religious (*Baptist*) | 1880 | 1 00 |
| | Family Companion (*c*) | Weekly | Literary | | |
| LAKE CO.—*Population:* 3,968. | | | | | |
| Tiptonville | Lake County Star | Weekly | News and politics | 1880 | 1 50 |
| LAUDERDALE CO.—*Population:* 14,918. | | | | | |
| Ripley | Ripley News (*c*) | Weekly | News and politics | 1871 | 2 00 |
| LAWRENCE CO.—*Population:* 10,383. | | | | | |
| Lawrenceburg | Lawrenceburg Press | Weekly | News and politics | 1873 | 1 50 |
| LINCOLN CO.—*Population:* 26,960. | | | | | |
| Fayetteville | Fayetteville Observer | Weekly | News and politics | 1850 | 2 00 |
| | Fayetteville Express | do | do | 1873 | 1 50 |
| LOUDON CO.—*Population:* 9,148. | | | | | |
| Loudon | Loudon Journal | Weekly | News and politics | 1871 | 2 00 |
| | Zion's Banner | Semi-monthly | Religious (*Methodist Episcopal*) | 1878 | 1 00 |
| | Loudon Herald (*d*) | Weekly | News and politics | 1879 | 1 00 |
| McMINN CO.—*Population:* 15,064. | | | | | |
| Athens | Athens Post | Weekly | News and politics | 1852 | 2 00 |
| McNAIRY CO.—*Population:* 17,271. | | | | | |
| Purdy | McNairy County Sun | Weekly | News and politics | 1878 | 1 00 |
| | McNairy Independent | do | do | 1879 | 1 25 |
| Falcon | Falcon Worker (*c*) | do | do | 1880 | |
| MADISON CO.—*Population:* 30,874. | | | | | |
| Henderson | Institute Journal | Monthly | Collegiate | 1872 | 25 |
| Jackson | Madison County Herald | Weekly | News and politics | 1877 | 1 25 |
| | Jackson Tribune and Sun | do | do | 1842 | 1 50 |
| | Jackson Dispatch | do | do | 1873 | 2 00 |
| | Jackson Whig (*e*) | Daily (*evening*) | do | 1879 | 5 00 |
| | West Tennessee Whig | Weekly | do | 1842 | 1 00 |
| MARION CO.—*Population:* 10,910. | | | | | |
| Jasper | Valley Herald | Weekly | News and politics | 1874 | 1 00 |
| South Pittsburg | South Pittsburg Independent (*f*) | do | do | 1879 | 1 50 |
| MARSHALL CO.—*Population:* 19,259. | | | | | |
| Lewisburg | Marshall Gazette | Weekly | News and politics | 1871 | 1 00 |
| MAURY CO.—*Population:* 39,904. | | | | | |
| Columbia | Columbia Guardian | Bi-monthly | Collegiate | 1841 | 1 00 |
| | Columbia Herald | Weekly | News and politics | 1850 | 1 50 |
| | Columbia Journal | do | do | 1875 | 1 00 |
| | Maury Sentinel | do | do | 1877 | 1 50 |
| MONROE CO.—*Population:* 14,283. | | | | | |
| Sweet Water | Monroe Democrat | Weekly | News and politics | 1876 | 2 00 |
| | Youths' Sentinel | Semi-monthly | Religious (*Methodist Episcopal*) | 1880 | 50 |
| | Hiawassee College Reporter | Monthly | Collegiate | 1880 | 50 |
| MONTGOMERY CO.—*Population:* 28,481. | | | | | |
| Clarksville | Clarksville Chronicle | Weekly | News and politics | 1808 | 2 00 |
| | Clarksville Tobacco Leaf | Semi-weekly | do | 1869 | 2 00 |

*a* Consolidated with "States" August, 1880.
*b* Merged in "Press", and afterward in "Tribune" (daily).
*c* Suspended.
*d* Suspended September, 1879.
*e* Suspended October, 1879.
*f* Suspended May, 1880.

## TENNESSEE—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| MOORE CO.—*Population:* 6,233. | | | | | |
| Lynchburg | Lynchburg Sentinel | Weekly | News and politics | 1874 | $1 25 |
| MORGAN CO.—*Population:* 5,156. | | | | | |
| Wartburg | Morgan Dispatch | Weekly | News and politics | 1876 | 1 50 |
| OBION CO.—*Population:* 22,912. | | | | | |
| Kenton Station | Kenton Station Reporter | Weekly | News and politics | 1879 | 1 50 |
| Troy | Obion News | do | do | 1878 | 1 00 |
| Union City | Union City Herald | do | do | 1868 | 1 00 |
| | Union City Chronicle (*a*) | do | do | 1877 | 1 50 |
| | Union City Anchor | do | do | 1880 | 1 50 |
| PERRY CO.—*Population:* 7,174. | | | | | |
| Linden | Linden Times | Weekly | News and politics | 1880 | 1 25 |
| PUTNAM CO.—*Population:* 11,501. | | | | | |
| Cookeville | Cookeville Echo | Weekly | News and politics | 1876 | 1 00 |
| RHEA CO.—*Population:* 7,073. | | | | | |
| Dayton | Dayton Times | Weekly | News and politics | 1880 | 1 50 |
| Rhea Springs | Rhea Springs News | do | do | 1874 | 2 00 |
| ROANE CO.—*Population:* 15,237. | | | | | |
| Kingston | East Tennesseean | Weekly | News and politics | 1865 | 1 50 |
| ROBERTSON CO.—*Population:* 18,861. | | | | | |
| Springfield | Springfield Record | Weekly | News and politics | 1869 | 2 00 |
| RUTHERFORD CO.—*Population:* 36,741. | | | | | |
| Murfreesborough | Murfreesborough News | Weekly | News and politics | 1869 | 1 25 |
| | Murfreesborough Free Press | do | do | 1879 | 1 00 |
| SHELBY CO.—*Population:* 78,430. | | | | | |
| Bartlett | Bartlett News | Weekly | News and politics | 1879 | 1 00 |
| Collierville | Collierville Herald (*b*) | do | do | 1876 | 1 50 |
| Memphis | Memphis Appeal | Daily (*morning*) | do | 1840 | 10 00 |
| | Memphis Appeal | Weekly | do | 1840 | 1 00 |
| | Baptist | do | Religious (*Baptist*) | 1852 | 2 50 |
| | Memphis Avalanche | Daily (*morning*) | News and politics | 1857 | 10 00 |
| | Memphis Avalanche | Weekly | do | 1859 | 1 00 |
| | Memphis Public Ledger | Daily (*evening*) | do | 1865 | 5 00 |
| | Memphis Public Ledger | Weekly | do | 1870 | 1 00 |
| | Memphis Journal | do | News and politics (*German*) | 1875 | 2 50 |
| | Memphis Herald | do | News and politics | 1880 | 2 00 |
| | Memphis Trade List (*c*) | do | Commerce and trade | 1880 | 3 00 |
| | Bible Student (*c*) | Monthly | Religious (*Baptist*) | 1878 | 75 |
| | Memphis Resources (*c*) | do | Insurance, etc | 1878 | 1 00 |
| | Temperance Guide (*c*) | Weekly | Temperance | 1878 | 1 00 |
| | Evening Herald (*c*) | Daily (*evening*) | News and politics | 1877 | 5 00 |
| SMITH CO.—*Population:* 17,799. | | | | | |
| Carthage | Carthage Herald (*d*) | Weekly | News and politics | 1876 | 1 50 |
| STEWART CO.—*Population:* 12,690. | | | | | |
| Dover | Dover Courier | Weekly | News and politics | 1877 | 1 70 |
| SULLIVAN CO.—*Population:* 18,321. | | | | | |
| Blountville | Central Star | Weekly | News and politics | 1879 | 1 25 |
| | Sullivan Landmark (*c*) | do | do | 1875 | 1 00 |
| Bristol | Bristol Courier | do | do | 1870 | 1 00 |
| | Athenæum | Monthly | Collegiate | 1879 | 50 |
| | Bristol Reporter | Weekly | News and politics | 1879 | 1 00 |
| SUMNER CO.—*Population:* 23,625. | | | | | |
| Gallatin | Gallatin Examiner | Weekly | News and politics | 1857 | 2 00 |
| | Gallatin Tennesseean | do | do | 1872 | 2 00 |
| | Gallatin Real Estate Advertiser (*c*) | do | Real estate | 1878 | 25 |
| TIPTON CO.—*Population:* 21,033. | | | | | |
| Covington | Tipton Record | Weekly | News and politics | 1860 | 2 00 |
| Mason | Mason Call | do | do | 1879 | 1 50 |
| TROUSDALE CO.—*Population:* 6,646. | | | | | |
| Hartsville | Hartsville Sentinel | Weekly | News and politics | 1871 | 1 50 |
| WARREN CO.—*Population:* 14,079. | | | | | |
| McMinnville | McMinnville Era | Weekly | News and politics | 1855 | 2 00 |
| | Southern Standard | do | do | 1879 | 1 00 |
| WASHINGTON CO.—*Population:* 16,181. | | | | | |
| Jonesboro' | Jonesborough Herald and Tribune | Weekly | News and politics | 1869 | 2 00 |
| | Jonesborough Journal | do | do | 1874 | 1 50 |
| | Jonesborough Times (*c*) | do | do | 1877 | 1 50 |
| | Jonesborough Union Flag (*c*) | do | do | 1879 | ........ |
| WAYNE CO.—*Population:* 11,301. | | | | | |
| Clifton | Wayne County Citizen | Weekly | News and politics | 1874 | 1 25 |
| | Clifton Bulletin (*e*) | do | do | ........ | ........ |
| WEAKLEY CO.—*Population:* 24,538. | | | | | |
| Dresden | Our Country | Weekly | News and politics | 1879 | 1 50 |
| WHITE CO.—*Population:* 11,176. | | | | | |
| Sparta | White County Expositor | Weekly | News and politics | 1878 | 1 50 |
| | Sparta Index | do | do | ........ | 1 50 |
| WILLIAMSON CO.—*Population:* 28,318. | | | | | |
| Franklin | Franklin Review and Journal | Weekly | News and politics | 1825 | 2 00 |

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*a* Succeeded by "Solid South" September, 1880.
*b* Suspended since census year and succeeded by "Mail"
*c* Suspended.
*d* Removed to Lebanon.
*e* Suspended July, 1879

## TENNESSEE—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| WILSON CO.—*Population:* 28,747. | | | | | |
| Lebanon | Cumberland Presbyterian Quarterly Review | Quarterly | Theological (*Presbyterian*) | 1850 | $2 00 |
| | Lebanon Herald | Weekly | News and politics | 1853 | 2 00 |
| | Wilson County News | do | do | 1879 | 1 50 |
| | Pythian Period (*a*) | do | Secret society | 1878 | |

## TEXAS.

| | | | | | |
|---|---|---|---|---|---|
| ANDERSON CO.—*Population:* 17,395. | | | | | |
| Palestine | Palestine Advocate | Weekly | News and politics | 1833 | $2 00 |
| | Palestine New Era | do | do | 1874 | 2 00 |
| | Railway News | do | do | 1877 | 2 00 |
| ARANSAS CO.—*Population:* 996. | | | | | |
| Rockport | Rockport Transcript | Weekly | News and politics | 1869 | 2 50 |
| ATASCOSA CO.—*Population:* 4,217. | | | | | |
| Pleasanton | Stock Journal and Farmer (*b*) | Weekly | News and politics | 1873 | 2 50 |
| AUSTIN CO.—*Population:* 14,429. | | | | | |
| Bellville | Austin County Times | Weekly | News and politics (*Eng. and Germ.*) | 1879 | 2 00 |
| | Bellevile Beacon (*c*) | do | News and politics | 1877 | |
| BASTROP CO.—*Population:* 17,215. | | | | | |
| Bastrop | Bastrop Advertiser | Weekly | News and politics | 1853 | 2 50 |
| | Bastrop Chronicle (*c*) | do | do | | |
| Elgin | Elgin Meteor (*d*) | do | do | 1879 | 1 50 |
| BELL CO.—*Population:* 20,518. | | | | | |
| Belton | Belton Journal | Weekly | News and politics | 1866 | 2 00 |
| | Belton Courier | do | do | 1878 | 2 00 |
| | Texas Farmer | Semi-monthly | Agricultural | 1880 | 1 00 |
| BEXAR CO.—*Population:* 30,470. | | | | | |
| San Antonio | Freie Presse fur Texas | Daily (*evening*) | News and politics (*German*) | 1874 | 10 00 |
| | Freie Presse fur Texas | Weekly | News and politics (*German*) | 1853 | 3 00 |
| | San Antonio Herald (*e*) | Daily (*morning*) | News and politics | 1857 | 8 00 |
| | San Antonio Herald (*e*) | Weekly | do | 1855 | 2 50 |
| | San Antonio Express | Daily (*morning*) | do | 1865 | 10 00 |
| | San Antonio Express | Weekly | do | 1865 | 1 75 |
| | Texas Sun (*f*) | Monthly | Miscellaneous | 1877 | |
| | El Tiempo | Weekly | News and politics (*Spanish*) | 1877 | 4 50 |
| | Beobachter | do | News and politics (*German*) | 1880 | 4 00 |
| | Evening Courier (*c*) | Daily (*evening*) | News and politics (*Eng. and Span.*) | 1878 | 6 00 |
| | El Correo (*c*) | Weekly | News and politics (*Spanish*) | 1880 | |
| BLANCO CO.—*Population:* 3,583. | | | | | |
| Blanco | Blanco Star-Vindicator | Weekly | News and politics | 1874 | 2 00 |
| BOSQUE CO.—*Population:* 11,217. | | | | | |
| Meridian | Independent Blade | Weekly | News and politics | 1878 | 2 00 |
| Morgan | Bosque County Herald (*g*) | do | do | 1874 | 2 00 |
| BOWIE CO.—*Population:* 10,965. | | | | | |
| Texarkana | Texarkana News | Weekly | News and politics | 1874 | 1 50 |
| | Texarkana Visitor | do | do | 1879 | 1 50 |
| | Texarkana Index | do | do | 1879 | 1 50 |
| BRAZORIA CO.—*Population:* 9,774. | | | | | |
| Brazoria | Brazoria Independent | Weekly | News and politics | 1880 | 2 00 |
| BRAZOS CO.—*Population:* 13,576. | | | | | |
| Bryan | Brazos Pilot | Weekly | News and politics | 1877 | 2 00 |
| | Texas Collegian | Monthly | Collegiate | 1879 | 1 50 |
| | Voice of the People | do | Religious | 1879 | 1 00 |
| BROWN CO.—*Population:* 8,414. | | | | | |
| Brownwood | Brown County Banner | Weekly | News and politics | 1876 | 2 00 |
| | Brownwood Sentinel (*h*) | do | do | 1880 | 2 00 |
| BURLESON CO.—*Population:* 9,243. | | | | | |
| Caldwell | Caldwell Register | Weekly | News and politics | 1875 | 1 50 |
| | Caldwell Eagle | do | do | 1879 | 1 50 |
| BURNET CO.—*Population:* 6,855. | | | | | |
| Burnet | Burnet Bulletin | Weekly | News and politics | 1873 | 1 50 |
| | Once-a-Week and Path of Progress | do | do | 1879 | 1 50 |
| CALDWELL CO.—*Population:* 11,757. | | | | | |
| Lockhart | News Echo (*g*) | Weekly | News and politics | 1872 | 2 50 |
| Luling | Luling Signal | do | do | 1878 | 2 00 |
| CALLAHAN CO.—*Population:* 3,453. | | | | | |
| Belle Plain | Callahan County Clarendon | Weekly | News and politics | 1879 | 2 00 |
| CAMERON CO.—*Population:* 14,959. | | | | | |
| Brownsville | Democrat and Ranchero (*d*) | Semi-weekly | News and politics (*Eng. and Span.*) | 1874 | 6 00 |
| | Cosmopolitan | Daily (*evening*) | News and politics | 1879 | 15 00 |
| | Cosmopolitan | Weekly | do | 1879 | 3 00 |
| CAMP CO.—*Population:* 5,931. | | | | | |
| Pittsburgh | Pittsburgh Magnet | Weekly | News and politics | 1874 | 2 00 |
| CASS CO.—*Population:* 16,724. | | | | | |
| Atlanta | Atlanta Express | Weekly | News and politics | 1877 | 1 50 |
| Linden | Cass County Sun | do | do | 1876 | 1 50 |
| | Citizens' Journal | do | do | 1879 | 1 50 |
| Queen City | Queen City Crescent (*c*) | do | do | 1877 | 1 00 |
| CHEROKEE CO.—*Population:* 16,723. | | | | | |
| Rusk | Rusk Observer | Weekly | News and politics | 1865 | 1 50 |

*a* Suspended during census year.
*b* Changed to "Monitor" July, 1880.
*c* Suspended.
*d* Suspended December, 1880.
*e* Suspended July, 1880.
*f* Changed to quarterly January, 1881.
*g* Suspended June, 1880.
*h* Removed to Brodie after census year.

## TEXAS—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| CLAY CO.—*Population:* 5,045. | | | | | |
| Henrietta | Henrietta Journal | Weekly | News and politics | 1877 | $2 00 |
| | Henrietta Shield | do | do | 1880 | 2 00 |
| COLEMAN CO.—*Population:* 3,603. | | | | | |
| Coleman | Coleman Telegram | Weekly | News and politics | 1878 | 2 00 |
| | Coleman Courant | do | do | 1880 | 2 00 |
| COLLIN CO.—*Population:* 25,983. | | | | | |
| McKinney | McKinney Enquirer | Weekly | News and politics | 1866 | 2 00 |
| | McKinney Advocate | do | do | 1877 | 2 00 |
| COLORADO CO.—*Population:* 16,673. | | | | | |
| Columbus | Colorado Citizen | Weekly | News and politics | 1863 | 2 00 |
| | Columbus Plaindealer (*a*) | do | do | | |
| COMAL CO.—*Population:* 5,546. | | | | | |
| New Braunfels | Neu-Braunfelser Zeitung | Weekly | News and politics (*German*) | 1852 | 2 50 |
| COMANCHE CO.—*Population:* 8,608. | | | | | |
| Comanche | Comanche Chief | Weekly | News and politics | 1873 | 2 00 |
| COOKE CO.—*Population:* 20,391. | | | | | |
| Gainesville | Hesperian-Gazette | Daily (*morning*) | News and politics | 1879 | 12 00 |
| | Hesperian-Gazette | Weekly | do | 1870 | 2 00 |
| | Gainesville Register | do | do | 1879 | 2 00 |
| CORYELL CO.—*Population:* 10,924. | | | | | |
| Gatesville | Gatesville Sun | Weekly | News and politics | 1869 | 2 00 |
| DALLAS CO.—*Population:* 33,488. | | | | | |
| Dallas | Dallas Herald | Daily (*morning*) | News and politics | 1849 | 10 00 |
| | Dallas Herald | Weekly | do | 1849 | 2 00 |
| | Dallas Intelligencer | Daily (*evening*) | do | 1876 | 6 00 |
| | Norton's Union Intelligencer | Weekly | do | 1865 | 3 50 |
| | Texas Baptist | do | Religious (*Baptist*) | 1874 | 2 50 |
| | Texas Volksblatt | do | News and politics (*German*) | 1877 | 2 50 |
| | Baptist Journal | Monthly | Religious (*Baptist*) | 1877 | 1 00 |
| | Christian Preacher | Weekly | Religious (*Disciples*) | 1877 | 2 00 |
| | Dallas Standard | do | News and politics | 1878 | 1 50 |
| | Texas Products and Progress | Monthly | Agricultural | 1878 | 1 00 |
| | Christian Advocate (*b*) | do | Religious (*Methodist Episcopal*) | 1878 | 1 00 |
| | Dallas Times | Daily (*evening*) | News and politics | 1879 | 10 00 |
| | Dallas Times | Weekly | do | 1879 | 2 00 |
| | Redfield's Musical Journal | Monthly | Musical | 1879 | 1 00 |
| DELTA CO.—*Population:* 5,597. | | | | | |
| Cooper | Delta County Beacon | Weekly | News and politics | 1879 | 1 00 |
| DENTON CO.—*Population:* 18,143. | | | | | |
| Denton | Denton Monitor | Weekly | News and politics | 1868 | 2 00 |
| | Denton Herald (*c*) | do | do | | |
| Pilot Point | Pilot Point Post | do | do | 1878 | 1 50 |
| DE WITT CO.—*Population:* 10,082. | | | | | |
| Cuero | Cuero Bulletin | Weekly | News and politics | 1865 | 2 00 |
| | Cuero Star | do | do | 1873 | 1 50 |
| DONLEY CO.—*Population:* 160. | | | | | |
| Clarendon | Clarendon News (*d*) | Monthly | News and politics | 1878 | 50 |
| EASTLAND CO.—*Population:* 4,855. | | | | | |
| Eastland | Eastland Review | Weekly | News and politics | 1877 | 2 00 |
| ELLIS CO.—*Population:* 21,294. | | | | | |
| Ennis | Saturday Review | Weekly | News and politics | 1875 | 2 00 |
| Waxahachie | Waxahachie Enterprise | do | do | 1875 | 2 00 |
| ERATH CO.—*Population:* 11,796. | | | | | |
| Stephenville | Stephenville Empire | Weekly | News and politics | 1874 | 2 00 |
| FALLS CO.—*Population:* 16,240. | | | | | |
| Marlin | Marlin Ball | Weekly | News and politics | 1874 | 2 00 |
| | Falls County Index | do | do | 1879 | 2 00 |
| FANNIN CO.—*Population:* 25,501. | | | | | |
| Bonham | Bonham News | Weekly | News and politics | 1866 | 2 00 |
| | Christian Messenger | do | Religious (*Christian*) | 1875 | 2 25 |
| | Fannin County Advocate | do | News and politics | 1878 | 1 50 |
| Honey Grove | Honey Grove Independent | do | do | 1872 | 1 50 |
| FAYETTE CO.—*Population:* 27,996. | | | | | |
| Flatonia | Flatonia Argus | Weekly | News and politics | 1877 | 2 00 |
| La Grange | Slovan | do | News and politics (*Bohemian*) | 1879 | 2 50 |
| | La Grange Journal | do | News and politics | 1880 | 2 00 |
| FRANKLIN CO.—*Population:* 5,280. | | | | | |
| Mount Vernon | Franklin Herald | Weekly | News and politics | 1877 | 1 00 |
| FREESTONE CO.—*Population:* 14,921. | | | | | |
| Cotton Gin | Freestone Herald (*e*) | Weekly | News and politics | 1875 | 2 00 |
| Fairfield | Fairfield Recorder | do | do | 1876 | 2 00 |
| GALVESTON CO.—*Population:* 24,121. | | | | | |
| Galveston | Galveston Civilian | Daily (*evening*) | News and politics | 1838 | 8 00 |
| | Galveston News | Daily (*morning*) | do | 1842 | 12 00 |
| | Galveston News | Weekly | do | 1842 | 2 00 |
| | Texas Christian Advocate | do | Religious (*Methodist Episcopal*) | 1846 | 2 00 |
| | Texas Post | Daily (*evening*) | News and politics (*German*) | 1869 | 10 00 |
| | Texas Post | Weekly | News and politics (*German*) | 1860 | 3 00 |
| | Texas Journal of Commerce | do | Commerce and trade | 1870 | 3 00 |
| | Galveston Spectator | Sunday | News and politics | 1873 | 2 00 |

*a* Suspended in census year.
*b* Suspended September, 1879.
*c* Suspended.
*d* Changed to a semi-monthly September, 1880.
*e* Suspended December, 1880.

## TEXAS—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| GILLESPIE CO.—*Population:* 5,228. | | | | | |
| Fredericksburg | Fredericksburger Wochenblatt | Weekly | News and politics (*German*) | 1877 | $2 00 |
| GOLIAD CO.—*Population:* 5,832. | | | | | |
| Goliad | Goliad Guard | Weekly | News and politics | 1867 | 2 50 |
| GONZALES CO.—*Population:* 14,840. | | | | | |
| Gonzales | Gonzales Inquirer | Weekly | News and politics | 1853 | 2 00 |
| GRAYSON CO.—*Population:* 38,108. | | | | | |
| Denison | Denison News | Daily (*morning*) | News and politics | 1872 | 10 00 |
| | Denison News | Weekly | do | 1872 | 2 00 |
| | Denison Herald | Daily (*evening*) | do | 1874 | 12 00 |
| | Sunday Herald | Sunday | do | 1873 | 2 00 |
| Sherman | Sherman Courier (*a*) | Daily (*morning*) | do | 1868 | 10 00 |
| | Sherman Courier | Weekly | do | 1868 | 2 00 |
| | Sherman Democrat | do | do | 1877 | 1 50 |
| | Evening Chronicle | Daily (*evening*) | do | 1879 | 9 00 |
| | Sherman Chronicle | Weekly | do | 1879 | 1 50 |
| | Sherman Signal | do | do | 1879 | 1 00 |
| GREGG CO.—*Population:* 8,530. | | | | | |
| Longview | Texas New Era | Weekly | News and politics | 1871 | 1 50 |
| GRIMES CO.—*Population:* 18,603. | | | | | |
| Anderson | Grimes County Sentinel (*b*) | Weekly | News and politics | 1878 | 2 00 |
| Navasota | Navasota Tablet | do | do | 1869 | 2 00 |
| GUADALUPE CO.—*Population:* 12,202. | | | | | |
| Seguin | Guadalupe Times | Weekly | News and politics | 1870 | 2 00 |
| HAMILTON CO.—*Population:* 6,365. | | | | | |
| Hamilton | Hamilton Herald | Weekly | News and politics | 1876 | 2 00 |
| HARRIS CO.—*Population:* 27,985. | | | | | |
| Houston | Texas Baptist Herald | Weekly | Religious (*Baptist*) | 1865 | 2 50 |
| | Houston Age | Daily (*evening*) | News and politics | 1871 | 6 00 |
| | Houston Age | Weekly | do | 1871 | 1 25 |
| | Texas Deutsche-Zeitung | do | News and politics (*German*) | 1872 | 3 00 |
| | Houston Telegram | Daily (*morning*) | News and politics | 1877 | 8 00 |
| | Houston Telegram | Weekly | do | 1877 | 1 50 |
| | Houston Post | Daily (*morning*) | do | 1880 | 10 00 |
| | Houston Post | Weekly | do | 1880 | 1 50 |
| HARRISON CO.—*Population:* 25,177. | | | | | |
| Marshall | Marshall Herald | Tri-weekly | News and politics | 1875 | 5 00 |
| | Marshall Messenger | Weekly | do | 1877 | 2 00 |
| | Christian Advocate | Monthly | Religious (*Methodist Episcopal*) | 1878 | 1 00 |
| HAYES CO.—*Population:* 7,555. | | | | | |
| San Marcos | San Marcos Free Press | Weekly | News and politics | 1874 | 2 00 |
| HENDERSON CO.—*Population:* 9,735. | | | | | |
| Athens | Athens News | Weekly | News and politics | 1879 | 1 50 |
| HILL CO.—*Population:* 16,554. | | | | | |
| Hillsboro' | Hill County Expositor (*b*) | Weekly | News and politics | 1871 | 1 50 |
| Whitney | Prairie Bee (*c*) | do | do | 1879 | 1 50 |
| | Whitney Express (*d*) | do | do | 1880 | 2 00 |
| HOOD CO.—*Population:* 6,125. | | | | | |
| Granbury | Granbury Vidette | Weekly | News and politics | 1872 | 2 00 |
| Thorp's Spring | Thorp's Spring Student | do | do | 1879 | 1 50 |
| HOPKINS CO.—*Population:* 15,461. | | | | | |
| Sulphur Springs | North Texas Journal | Weekly | News and politics | 1878 | 1 50 |
| | Sulphur Springs Legal Tender | do | do | 1879 | 1 00 |
| | Sulphur Springs Tribune | do | do | 1879 | 1 50 |
| HOUSTON CO.—*Population:* 16,702. | | | | | |
| Crockett | East Texas Patron | Weekly | News and politics | 1875 | 2 00 |
| HUNT CO.—*Population:* 17,230. | | | | | |
| Greenville | Greenville Independent | Weekly | News and politics | 1875 | 1 50 |
| | Greenville Herald | do | do | 1879 | 1 50 |
| JACK CO.—*Population:* 6,626. | | | | | |
| Jacksboro' | Jack County Guide (*e*) | Weekly | News and politics | 1879 | 2 00 |
| | Sunday Wreath | Monthly | Religious | 1879 | 25 |
| JACKSON CO.—*Population:* 2,723. | | | | | |
| Texana | Jackson County Clarion | Weekly | News and politics | 1880 | 2 00 |
| JASPER CO.—*Population:* 5,779. | | | | | |
| Jasper | Jasper Newsboy | Weekly | News and politics | 1865 | 2 00 |
| | Southeast Texan | do | do | 1879 | 2 00 |
| JEFFERSON CO.—*Population:* 3,489. | | | | | |
| Beaumont | Beaumont Lumberman | Weekly | News and politics | 1877 | 2 00 |
| JOHNSON CO.—*Population:* 17,911. | | | | | |
| Cleburne | Cleburne Chronicle | Weekly | News and politics | 1868 | 2 00 |
| | Cleburne Avalanche (*b*) | do | do | 1880 | 1 00 |
| KARNES CO.—*Population:* 3,270. | | | | | |
| Helena | Helena Record (*f*) | Weekly | News and politics | 1879 | 1 50 |
| KAUFMAN CO.—*Population:* 15,448. | | | | | |
| Kaufman | Kaufman Sun | Weekly | News and politics | 1880 | 1 50 |
| Terrell | Terrell Star | do | do | 1865 | 1 50 |

*a* Consolidated with "Chronicle" spring of 1881, and called "Courier-Chronicle".
*b* Suspended August, 1880.
*c* Suspended December, 1880.
*d* Suspended June, 1880.
*e* Suspended May, 1880.
*f* Suspended 1879.

## TEXAS—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| Kaufman co.—Continued. | | | | | |
| Terrell—Continued | Temperance Vedette | Weekly | Temperance | 1868 | $1 00 |
| | Texas Knight | Monthly | Secret society | 1878 | 50 |
| | Terrell Times | Weekly | News and politics | 1879 | 1 50 |
| Kendall co.—*Population:* 2,763. | | | | | |
| Boerne | Union Land Register | Weekly | News and politics | 1876 | 2 00 |
| Kerr co.—*Population:* 2,168. | | | | | |
| Kerrville | Frontiersman | Weekly | News and politics | 1875 | 2 00 |
| Kinney co.—*Population:* 4,487. | | | | | |
| Fort Clark | Fort Clark News | Weekly | News and politics | 1880 | 2 00 |
| Lamar co.—*Population:* 27,193. | | | | | |
| Paris | Paris Press | Weekly | News and politics | 1859 | 2 00 |
| | Paris North Texan | do | do | 1869 | 2 00 |
| | Lamar Banner | do | do | 1879 | 1 50 |
| | Texas Progress | do | do | 1879 | 1 50 |
| Lampasas co.—*Population:* 5,421. | | | | | |
| Lampasas | Lampasas Dispatch | Weekly | News and politics | 1871 | 2 00 |
| Lavaca co.—*Population:* 13,641. | | | | | |
| Halletsville | Herald and Planter | Weekly | News and politics | 1872 | 2 00 |
| Lee co.—*Population:* 8,937. | | | | | |
| Giddings | Lone Star | Weekly | News and politics | 1877 | 2 00 |
| Leon co.—*Population:* 12,817. | | | | | |
| Jewett | Jewett Advance | Weekly | News and politics | 1877 | 1 50 |
| Limestone co.—*Population:* 16,246. | | | | | |
| Groesbeck | Limestone New Era | Weekly | News and politics | 1876 | 2 00 |
| Kosse | People's Vindicator | do | do | 1879 | 2 00 |
| Mexia | Mexia Ledger | do | do | 1869 | 2 00 |
| | Texas Observer | do | Religious (*Presbyterian*) | 1878 | 2 00 |
| McLennan co.—*Population:* 26,934. | | | | | |
| Waco | Waco Examiner | Daily (*morning*) | News and politics | 1873 | 10 00 |
| | Examiner and Patron | Weekly | do | 1867 | 2 00 |
| | Examiner | Sunday | do | 1867 | 1 25 |
| | Street's Monthly | Monthly | Literary | 1876 | 1 00 |
| | Waco Telephone | Daily (*morning*) | News and politics | 1877 | 12 00 |
| | Waco Telephone | Weekly | do | 1877 | 2 00 |
| | Waco Sun (*a*) | do | do | | |
| | Waco Times (*b*) | Daily (*evening*) | do | | |
| Marion co.—*Population:* 10,983. | | | | | |
| Jefferson | Jimplecute | Daily (*evening*) | News and politics | 1872 | 10 00 |
| | Jimplecute | Weekly | do | 1865 | 2 00 |
| | Jefferson Journal (*c*) | do | do | | |
| Mason co.—*Population:* 2,655. | | | | | |
| Mason | News Item | Weekly | News and politics | 1877 | 2 00 |
| Medina co.—*Population:* 4,492. | | | | | |
| Castroville | The Quill | Weekly | News and politics | 1879 | 2 00 |
| Milam co.—*Population:* 18,659. | | | | | |
| Cameron | Cameron Sentinel | Weekly | News and politics | 1876 | 2 00 |
| | Cameron Record (*d*) | do | do | | |
| Rockdale | Rockdale Messenger | do | do | 1873 | 2 50 |
| | Milam Record (*e*) | do | do | 1878 | 1 50 |
| Montague co.—*Population:* 11,257. | | | | | |
| Montague | Texas Northwest | Weekly | News and politics | 1875 | 1 50 |
| Montgomery co.—*Population:* 10,154. | | | | | |
| Montgomery | Montgomery Journal | Weekly | News and politics | 1878 | 2 00 |
| Morris co.—*Population:* 5,032. | | | | | |
| Daingerfield | Morris County Banner | Weekly | News and politics | 1877 | 1 50 |
| Nacogdoches co.—*Population:* 11,590. | | | | | |
| Nacogdoches | Nacogdoches News | Weekly | News and politics | 1875 | 1 00 |
| Navarro co.—*Population:* 21,702. | | | | | |
| Corsicana | Observer and Index | Weekly | News and politics | 1856 | 1 75 |
| | Texas Observer | do | Religious (*Presbyterian*) | 1878 | 2 00 |
| | Corsicana Courier | do | News and politics | 1878 | 1 00 |
| | Corsicana Methodist | Semi-monthly | Religious (*Methodist Episcopal*) | 1880 | 50 |
| Newton co.—*Population:* 4,359. | | | | | |
| Burkeville | New Era | Weekly | News and politics | 1879 | 2 00 |
| Nueces co.—*Population:* 7,673. | | | | | |
| Corpus Christi | Corpus Christi Free Press | Weekly | News and politics | 1877 | 3 00 |
| | Corpus Christi Ledger | Semi-weekly | do | 1879 | 4 00 |
| San Diego | San Diego Tribune | Weekly | do | 1879 | 2 00 |
| Orange co.—*Population:* 2,938. | | | | | |
| Orange | Orange Tribune | Weekly | News and politics | 1877 | 2 00 |
| Palo Pinto co.—*Population:* 5,885. | | | | | |
| Palo Pinto | Palo Pinto Star | Weekly | News and politics | 1876 | 1 50 |
| | Mountain Cresset (*d*) | do | do | 1878 | 1 50 |

*a* Suspended November, 1879.
*b* Suspended June, 1879.
*c* Suspended February, 1880.
*d* Suspended.
*e* Suspended September, 1879.

## TEXAS—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| PANOLA CO.—*Population:* 12,219. | | | | | |
| Carthage | Panola Watchman | Weekly | News and politics | 1873 | $2 00 |
| PARKER CO.—*Population:* 15,870. | | | | | |
| Weatherford | Weatherford Times | Weekly | News and politics | 1868 | 2 00 |
| | Weatherford Herald | do | do | 1879 | 2 00 |
| POLK CO.—*Population:* 7,189. | | | | | |
| Livingston | Polk County Banner (*a*) | Weekly | News and politics | | |
| RED RIVER CO.—*Population:* 17,194. | | | | | |
| Clarksville | Clarksville Standard | Weekly | News and politics | 1842 | 2 00 |
| | Clarksville Times | do | do | 1873 | 1 00 |
| ROBERTSON CO.—*Population:* 22,383. | | | | | |
| Calvert | Calvert Courier | Weekly | News and politics | 1878 | 2 00 |
| | Calvert Clipper (*b*) | do | do | 1879 | 1 50 |
| Franklin | Franklin Journal | do | do | 1879 | 2 00 |
| RUSK CO.—*Population:* 18,986. | | | | | |
| Henderson | Henderson Times | Weekly | News and politics | 1858 | 2 00 |
| | East Texas Beacon | do | do | 1878 | 2 00 |
| SAN AUGUSTINE CO.—*Population:* 5,084. | | | | | |
| San Augustine | Saxon | Weekly | News and politics | 1878 | 1 50 |
| SAN SABA CO.—*Population:* 5,324. | | | | | |
| San Saba | San Saba News | Weekly | News and politics | 1874 | 2 00 |
| SHACKELFORD CO.—*Population:* 2,037. | | | | | |
| Albany | Western Sun | Weekly | News and politics | 1879 | 1 50 |
| Fort Griffin | Fort Griffin Echo | do | do | 1875 | 2 00 |
| SHELBY CO.—*Population:* 9,523. | | | | | |
| Center | Laborers' Champion | Weekly | News and politics | 1877 | 2 00 |
| SMITH CO.—*Population:* 21,863. | | | | | |
| Tyler | Democrat and Reporter | Weekly | News and politics | 1848 | 2 00 |
| | National Index (*c*) | do | do | 1870 | 2 00 |
| | Tyler Courier | do | do | 1874 | 2 00 |
| | Texas Law Journal | do | Law | 1877 | 5 00 |
| STEPHENS CO.—*Population:* 4,725. | | | | | |
| Breckenridge | Northwest Texan | Weekly | News and politics | 1878 | 2 00 |
| TARRANT CO.—*Population:* 24,671. | | | | | |
| Fort Worth | Fort Worth Democrat | Daily (*morning*) | News and politics | 1870 | 10 00 |
| | Fort Worth Democrat | Weekly | do | 1870 | 2 00 |
| | Evening Journal | Daily (*evening*) | do | 1878 | 7 20 |
| | Fort Worth Advance | Weekly | do | 1879 | 2 00 |
| TAYLOR CO.—*Population:* 1,736. | | | | | |
| Buffalo Gap | Buffalo Gap News (*d*) | Weekly | News and politics | 1880 | 1 50 |
| TITUS CO.—*Population:* 5,959. | | | | | |
| Mount Pleasant | East Texas and Saint Louis News | Weekly | News and politics | 1879 | 1 50 |
| TRAVIS CO.—*Population:* 27,028. | | | | | |
| Austin | Austin Statesman | Daily (*morning*) | News and politics | 1871 | 12 00 |
| | Austin Statesman | Weekly | do | 1871 | 2 00 |
| | American Sketch Book | Monthly | Literary | 1874 | 3 00 |
| | Texas Volkszeitung | Weekly | News and politics (*German*) | 1877 | 2 00 |
| | Texas Capital | Sunday | News and politics | 1877 | 2 00 |
| | Austin Dispatch | Daily (*evening*) | do | 1880 | 8 00 |
| | Texas Iron Age | Weekly | Commercial | 1878 | 2 00 |
| | Sunday Leader | Sunday | News and politics | 1878 | 2 00 |
| | Austin Wochenblatt | Weekly | News and politics (*German*) | 1879 | 2 00 |
| | Austin Review | do | News and politics | 1879 | 2 00 |
| | Once a Week (*a*) | do | do | | |
| | State Gazette (*d*) | Daily (*evening*) | do | | |
| | State Guard (*d*) | Weekly | do | | |
| UPSHUR CO.—*Population:* 10,266. | | | | | |
| Gilmer | Upshur County Democrat | Weekly | News and politics | 1878 | 1 25 |
| UVALDE CO.—*Population:* 2,541. | | | | | |
| Uvalde | Uvalde Hesperian | Weekly | News and politics | 1878 | 1 00 |
| VAN ZANDT CO.—*Population:* 12,619. | | | | | |
| Canton | Canton Chronicle | Weekly | News and politics | 1878 | 1 00 |
| Will's Point | Will's Point Local | do | do | 1878 | 1 00 |
| | The Will's Pointer | do | do | 1879 | 1 50 |
| VICTORIA CO.—*Population:* 6,289. | | | | | |
| Victoria | Victoria Advocate | Weekly | News and politics | 1846 | 2 50 |
| WALKER CO.—*Population:* 12,024. | | | | | |
| Huntsville | Huntsville Item | Weekly | News and politics | 1850 | 2 00 |
| WALLER CO.—*Population:* 9,024. | | | | | |
| Hempstead | Waller County Courier | Weekly | News and politics | 1874 | 2 00 |
| | Texas Spiritualist | Monthly | Spiritualism | 1878 | 1 00 |
| WASHINGTON CO.—*Population:* 27,565. | | | | | |
| Brenham | Brenham Banner | Daily (*morning*) | News and politics | 1866 | 9 00 |
| | Brenham Banner | Weekly | do | 1866 | 2 00 |
| | Texas Volksbote | do | News and politics (*German*) | 1873 | 2 00 |

*a* Suspended August, 1879. *b* Suspended August, 1880. *c* Suspended October, 1880. *d* Suspended.

## TEXAS—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **Washington co.**—Continued. | | | | | |
| Brenham—Continued | Brenham Sentinel | Daily (*evening*) | News and politics | 1878 | $6 00 |
| | Texas Sentinel | Weekly | do | 1878 | 2 00 |
| | Brenham Reporter | do | do | 1879 | 1 50 |
| **Webb co.**—*Population:* 5,273. | | | | | |
| Laredo | Two Laredos | Weekly | News and politics (*English and Spanish*). | 1879 | 2 50 |
| **Williamson co.**—*Population:* 15,155. | | | | | |
| Georgetown | Georgetown Record | Weekly | News and politics | 1872 | 2 50 |
| | Williamson County Sun | do | do | 1877 | 2 00 |
| Round Rock | Round Rock Reporter | do | do | 1880 | 2 00 |
| Taylorsville | Texas Phonograph | do | do | 1880 | 2 00 |
| | Taylorsville Times (*a*) | do | do | | |
| **Wilson co.**—*Population:* 7,118. | | | | | |
| Floresville | Western Chronicle | Weekly | News and politics | 1877 | 1 50 |
| **Wise co.**—*Population:* 16,601. | | | | | |
| Decatur | Decatur Tribune | Weekly | News and politics | 1872 | 1 50 |
| **Wood co.**—*Population:* 11,212. | | | | | |
| Mineola | Wood County Flag (*b*) | Weekly | News and politics | 1877 | 1 00 |
| Winnsborough | Winnsborough Sentinel | do | do | 1879 | 1 00 |
| **Young co.**—*Population:* 4,726. | | | | | |
| Graham | Graham Leader | Weekly | News and politics | 1876 | 2 00 |

## UTAH TERRITORY.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **Beaver co.**—*Population:* 3,918. | | | | | |
| Beaver | Beaver Watchman (*c*) | Weekly | News and politics | | |
| Milford | Milford Sentinel | do | do | 1871 | $4 00 |
| **Cache co.**—*Population:* 12,562. | | | | | |
| Logan | Logan Leader | Weekly | News and politics | 1879 | 3 00 |
| **Salt Lake co.**—*Population:* 31,977. | | | | | |
| Salt Lake City | Deseret News | Daily (*evening*) | Religious (*Mormonism*) | 1867 | 10 00 |
| | Deseret News | Semi-weekly | Religious (*Mormonism*) | 1866 | 4 00 |
| | Deseret News | Weekly | Religious (*Mormonism*) | 1850 | 3 50 |
| | Salt Lake Juvenile Instructor | Semi-monthly | Sunday school | 1866 | 2 00 |
| | Salt Lake City Tribune | Daily (*morning*) | News and politics | 1868 | 12 00 |
| | Salt Lake City Tribune | Weekly | do | 1868 | 3 00 |
| | Salt Lake City Herald | Daily (*morning*) | do | 1870 | 10 50 |
| | Salt Lake City Herald | Semi-weekly | do | 1870 | 3 50 |
| | Salt Lake City Herald | Weekly | do | 1880 | 2 00 |
| | Rocky Mountain Christian Advocate | Monthly | Religious (*Methodist Episcopal*) | 1876 | 1 00 |
| | Anti-Polygamy Standard | do | Miscellaneous | 1880 | 1 00 |
| | Utah Farmer | do | Agricultural | 1880 | 1 50 |
| | Utah Commercial | do | News and politics | | 1 00 |
| **Summit co.**—*Population:* 4,921. | | | | | |
| Park City | Park Mining Record | Weekly | News and politics | 1880 | 3 00 |
| **Utah co.**—*Population:* 17,973. | | | | | |
| Provo | Territorial Enquirer | Semi-weekly | News and politics | 1876 | 3 50 |
| **Washington co.**—*Population:* 4,235. | | | | | |
| Silver Reef | Silver Reef Miner | Weekly | News and politics | 1878 | 8 00 |
| **Weber co.**—*Population:* 12,344. | | | | | |
| Ogden | Junction | Daily (*evening*) | News and politics (*Mormon*) | 1870 | 9 00 |
| | Junction | Semi-weekly | News and politics (*Mormon*) | 1870 | 4 00 |
| | Ogden Evening Dispatch (*d*) | Daily (*evening*) | News and politics | 1879 | 10 00 |

## VERMONT.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **Addison co.**—*Population:* 24,173. | | | | | |
| Bristol | Bristol Gazette (*e*) | Weekly | News and politics | | |
| | Bristol Herald | do | do | 1879 | $1 25 |
| Middlebury | Middlebury Register | do | do | 1836 | 1 50 |
| | Undergraduate | Monthly | Collegiate | 1875 | 1 00 |
| | Addison County Journal | Weekly | News and politics | 1876 | 1 25 |
| Vergennes | Vergennes Vermonter | do | do | 1838 | 1 50 |
| | Champlain Valley Record (*e*) | do | do | | |
| **Bennington co.**—*Population:* 21,950. | | | | | |
| Bennington | Bennington Banner | Weekly | News and politics | 1840 | 1 50 |
| | Bennington Reformer | do | do | 1876 | 1 50 |
| | Vermont Gazette (*f*) | do | do | | |
| Manchester | Manchester Journal | do | do | 1861 | 1 50 |
| **Caledonia co.**—*Population:* 23,607. | | | | | |
| Saint Johnsbury | St. Johnsbury Caledonian | Weekly | News and politics | 1837 | 1 75 |
| | St. Johnsbury Index | do | do | 1879 | 1 50 |
| | Vermont Journal (*g*) | do | do | 1846 | 3 00 |
| Danville | North Star | do | do | 1807 | 1 50 |
| Lyndon | Vermont Union | do | do | 1865 | 2 00 |

*a* Merged into "Phonograph".
*b* Suspended December, 1880.
*c* Merged into "Milford Sentinel".
*d* Suspended January, 1880.
*e* Consolidated with "Middlebury Journal".
*f* Suspended March, 1880.
*g* Edition of the "Vermont Journal", Windsor.

## VERMONT—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| CHITTENDEN CO.—*Population:* 32,792. | | | | | |
| Burlington | Free Press and Times | Daily (*morning*) | News and politics | 1847 | $8 00 |
| | Free Press and Times | Daily (*evening*) | do | 1847 | 8 00 |
| | Free Press | Weekly | do | 1827 | 2 00 |
| | Burlington Clipper | do | do | 1874 | 2 00 |
| | Saturday Evening Review | do | do | 1878 | 2 00 |
| | Democrat and Sentinel (*a*) | do | do | 1879 | 2 50 |
| | Sunday Sentinel (*a*) | Sunday | do | 1879 | 2 50 |
| | Vermont National (*b*) | Weekly | do | ...... | ...... |
| Colchester | National and Laborer | do | do | 1878 | 1 00 |
| ESSEX CO.—*Population:* 7,931. | | | | | |
| Island Pond | Essex County Herald | Weekly | News and politics | 1873 | 1 50 |
| FRANKLIN CO.—*Population:* 30,225. | | | | | |
| Saint Albans | Messenger and Advertiser | Daily (*evening*) | News and politics | 1861 | 7 00 |
| | Messenger and Advertiser | Weekly | do | 1833 | 2 00 |
| | Merchant Home Visitor (*a*) | do | do | 1879 | 2 50 |
| | Saint Albans Advertiser (*c*) | Daily (*evening*) | do | 1875 | 5 00 |
| Enosburgh | Enosburgh Falls Reporter (*d*) | Weekly | do | ...... | ...... |
| Fairfax | Fairfax Advertiser | Semi-monthly | do | 1880 | 50 |
| Richford | Richford Gazette | Weekly | do | 1878 | 1 00 |
| | Green Mountain Journal | do | do | 1878 | 1 00 |
| Swanton | Swanton Courier | do | do | 1877 | 1 00 |
| GRAND ISLE CO.—*Population:* 4,124. | | | | | |
| North Hero | North Hero Record (*a*) | Weekly | News and politics | 1879 | 2 50 |
| LAMOILLE CO.—*Population:* 12,684. | | | | | |
| Hyde Park | Lamoille News | Weekly | News and politics | 1877 | 1 25 |
| Morristown | Vermont Citizen | do | do | 1873 | 1 50 |
| ORANGE CO.—*Population:* 23,525. | | | | | |
| Bradford | Stanton's Bradford Opinion | Weekly | News and politics | 1866 | 1 50 |
| | Vermont Journal (*e*) | do | do | 1846 | 3 00 |
| Wells' River | Riverside | do | do | 1879 | 1 25 |
| West Randolph | Herald and News | do | do | 1873 | 1 25 |
| | Orange County Democrat (*f*) | do | do | 1840 | 1 75 |
| | Vermont Journal (*e*) | do | do | 1846 | 3 00 |
| ORLEANS CO.—*Population:* 22,083. | | | | | |
| Barton | Orleans County Monitor | Weekly | News and politics | 1872 | 1 50 |
| Newport | Express and Standard | do | do | 1865 | 1 50 |
| North Troy | North Troy Palladium | do | do | 1874 | 1 50 |
| RUTLAND CO.—*Population:* 41,829. | | | | | |
| Brandon | Brandon Union | Weekly | News and politics | 1872 | 1 50 |
| | Otter Creek News | do | do | 1876 | 2 00 |
| Fair Haven | Fair Haven Era | do | do | 1879 | 1 00 |
| Poultney | Poultney Journal | do | do | 1873 | 1 50 |
| Rutland | Herald and Globe | do | do | 1794 | 2 00 |
| | Herald and Globe | Daily (*morning*) | do | 1861 | 6 00 |
| | Vermont Baptist | Monthly | Religious (*Baptist*) | 1879 | 50 |
| | Rutland Inquirer | Weekly | News and politics | 1878 | 1 50 |
| | Rutland Sentinel (*a*) | Sunday | do | 1879 | 2 50 |
| Danby | Otter Creek Valley News (*g*) | Weekly | do | 1872 | 1 50 |
| WASHINGTON CO.—*Population:* 25,404. | | | | | |
| Montpelier | Vermont Watchman and State Journal | Weekly | News and politics | 1805 | 2 00 |
| | Montpelier Argus and Patriot | do | do | 1819 | 2 50 |
| | Vermont Chronicle | do | Religious (*Congregational*) | 1825 | 2 00 |
| | Green Mountain Freeman | do | News and politics | 1842 | 1 50 |
| | Vermont Christian Messenger | do | Religious (*Methodist*) | 1846 | 1 50 |
| | The Montpelierian | Quarterly | Collegiate | 1866 | 50 |
| | Vermont Farmer | Weekly | Agricultural | 1879 | 1 50 |
| Northfield | Northfield News | do | News and politics | 1878 | 1 00 |
| WINDHAM CO.—*Population:* 26,763. | | | | | |
| Bellows Falls | Bellows Falls Times | Weekly | News and politics | 1856 | 2 00 |
| Brattleboro' | Vermont Phœnix | do | do | 1834 | 2 00 |
| | The Household | Monthly | Literary | 1868 | 1 10 |
| | Windham County Reformer | Weekly | News and politics | 1876 | 1 50 |
| | Vermont Journal (*e*) | do | do | 1846 | 3 00 |
| | Record and Farmer (*h*) | do | do | ...... | ...... |
| WINDSOR CO.—*Population:* 35,196. | | | | | |
| Bethel | White River Standard (*i*) | Weekly | News and politics | 1869 | 1 50 |
| Ludlow | Vermont Tribune | do | do | 1876 | 1 50 |
| Springfield | Springfield Reporter | do | do | 1878 | 1 50 |
| | Springfield Hearthstone (*j*) | do | do | ...... | ...... |
| | Vermont Journal (*e*) | do | do | 1846 | 3 00 |
| South Royalton | Vermont Journal (*e*) | do | do | 1846 | 3 00 |
| White River Junction | Republican Observer (*k*) | do | do | 1878 | 2 00 |
| Windsor | Vermont Journal | do | do | 1845 | 2 50 |
| | Valley Farmer (*e*) | do | Agricultural | 1846 | 3 00 |
| Woodstock | Spirit of the Age | do | News and politics | 1840 | 1 50 |
| | Vermont Standard | do | do | 1857 | 1 50 |

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*a* Edition of the "Rhode Island Democrat", Providence, R. I.
*b* Suspended in 1879.
*c* Suspended.
*d* Suspended February, 1880.
*e* Edition of the "Vermont Journal", Windsor.
*f* Edition of the "Spirit of the Age", Woodstock.
*g* Suspended June, 1880.
*h* Suspended May, 1880.
*i* Edition of the "Vermont Standard", Woodstock.
*j* Suspended June, 1879.
*k* Removed to Keene, N. H.

## VIRGINIA.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| ACCOMAC CO.—*Population:* 24,408. | | | | | |
| Onancock | Eastern Virginian | Weekly | News and politics | 1873 | $2 00 |
| ALBEMARLE CO.—*Population:* 32,618. | | | | | |
| Charlottesville | Jeffersonian Republican | Weekly | News and politics | 1835 | 1 00 |
| | Charlottesville Chronicle | do | do | 1869 | 2 00 |
| | Virginia University Magazine | Monthly | Collegiate | 1857 | 3 00 |
| Scottsville | Scottsville Courier | Weekly | News and politics | 1862 | 1 50 |
| ALEXANDRIA CO.—*Population:* 17,546. | | | | | |
| Alexandria | Alexandria Gazette | Daily (*evening*) | News and politics | 1800 | 6 00 |
| | Alexandria Gazette | Tri-weekly | do | 1800 | 4 00 |
| | Academy Journal | Monthly | Collegiate | 1866 | 25 |
| | Sunday Picayune | Sunday | News and politics | 1878 | 1 50 |
| ALLEGHANY CO.—*Population:* 5,586. | | | | | |
| Covington | Alleghany Tribune | Weekly | News and politics | 1879 | 2 00 |
| AMHERST CO.—*Population:* 18,709. | | | | | |
| Amherst | Amherst Enterprise | Weekly | News and politics | 1871 | 1 50 |
| AUGUSTA CO.—*Population:* 35,710. | | | | | |
| Staunton | Staunton Spectator | Weekly | News and politics | 1822 | 2 00 |
| | Staunton Vindicator | do | do | 1840 | 2 00 |
| | Valley Virginian | do | do | 1865 | 2 00 |
| | Goodson Gazette | do | Collegiate | 1874 | 50 |
| | Valley Farmer, Live Stock, and Poultry Magazine. | Monthly | Agricultural | 1879 | 1 00 |
| | Virginias | do | Science and mechanics | 1880 | 2 00 |
| | Alma Mater | do | Collegiate | 1880 | 75 |
| Waynesboro' | Waynesboro' Tribune (*a*) | Weekly | News and politics | | |
| BEDFORD CO.—*Population:* 31,205. | | | | | |
| Liberty | Bedford Sentinel | Weekly | News and politics | 1850 | 1 50 |
| | Bedford Star | do | do | 1874 | 1 50 |
| | Literary Age (*b*) | Monthly | Literary | | |
| BLAND CO.—*Population:* 5,004. | | | | | |
| Seddon | South and West | Weekly | News and politics | 1877 | 1 00 |
| BOTETOURT CO.—*Population:* 14,809. | | | | | |
| Fincastle | Fincastle Herald | Weekly | News and politics | 1866 | 2 00 |
| | Botetourt News (*c*) | do | do | 1879 | 1 50 |
| BUCHANAN CO.—*Population:* 5,694. | | | | | |
| Grundy | Virginia Vidette | Weekly | News and politics | 1879 | 1 00 |
| CAMPBELL CO.—*Population:* 36,250. | | | | | |
| Lynchburg | Lynchburg Virginian | Daily (*morning*) | News and politics | 1808 | 6 00 |
| | Lynchburg Virginian | Weekly | do | 1808 | 1 25 |
| | Lynchburg Virginian | Tri-weekly | do | 1808 | 4 00 |
| | Lynchburg News | Daily (*morning*) | do | 1866 | 6 00 |
| | Lynchburg News | Weekly | do | 1866 | 1 00 |
| | Lynchburg News | Tri-weekly | do | 1866 | 4 00 |
| CARROLL CO.—*Population:* 13,323. | | | | | |
| Hillsville | Hillsville Virginian | Weekly | News and politics | 1870 | 1 00 |
| CHARLOTTE CO.—*Population:* 16,653. | | | | | |
| Smithville | Charlotte Gazette | Weekly | News and politics | 1873 | 2 00 |
| Keysville | Keysville Herald (*d*) | do | do | 1879 | |
| CHESTERFIELD CO.—*Population:* 25,085. | | | | | |
| Manchester | Virginia Sun | Weekly | News and politics | 1874 | 1 50 |
| CLARKE CO.—*Population:* 7,682. | | | | | |
| Berryville | Clarke Courier | Weekly | News and politics | 1869 | 1 50 |
| CULPEPER CO.—*Population:* 13,408. | | | | | |
| Culpeper | Culpeper Times | Weekly | News and politics | 1873 | 1 00 |
| | The Casket | Bi-monthly | Collegiate | 1880 | 50 |
| DINWIDDIE CO.—*Population:* 32,870. | | | | | |
| Petersburg | Petersburg Index-Appeal | Daily (*morning*) | News and politics | 1865 | 6 00 |
| | Petersburg Index-Appeal | Weekly | do | 1865 | 2 00 |
| | Petersburg Post (*e*) | Daily (*morning*) | do | | |
| | Rural Messenger | Weekly | Miscellaneous | 1871 | 2 00 |
| ELIZABETH CITY CO.—*Population:* 10,689. | | | | | |
| Hampton | Southern Workman | Monthly | Collegiate | 1872 | 1 00 |
| | Hampton Monitor | Weekly | News and politics | 1876 | 2 00 |
| ESSEX CO.—*Population:* 11,032. | | | | | |
| Tappahannock | Tidewater Index | Weekly | News and politics | 1869 | 1 50 |
| FAIRFAX CO.—*Population:* 16,025. | | | | | |
| Fairfax | Fairfax Messenger and Advertiser | Weekly | News and politics | 1876 | 1 50 |
| FAUQUIER CO.—*Population:* 22,993. | | | | | |
| Warrenton | True Index | Weekly | News and politics | 1865 | 1 00 |
| | Solid South | do | do | 1877 | 1 00 |
| | Warrenton Enterprise (*f*) | do | do | | |
| FLOYD CO.—*Population:* 13,255. | | | | | |
| Floyd | Floyd Reporter | Weekly | News and politics | 1873 | 1 50 |
| FRANKLIN CO.—*Population:* 25,084. | | | | | |
| Rocky Mount | Franklin Gazette | Weekly | News and politics | 1877 | 2 00 |

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*a* Suspended July, 1879.
*b* Merged with the "Bedford Star" May, 1880.
*c* Suspended March, 1880.
*d* Suspended July, 1880.
*e* Suspended July, 1879.
*f* Suspended September, 1879.

## VIRGINIA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **FREDERICK CO.**—*Population:* 17,553. | | | | | |
| Winchester | Winchester News | Weekly | News and politics | 1865 | $2 00 |
| | Winchester Times (*a*) | do | do | 1865 | 2 00 |
| | People's Voice | do | do | 1880 | ...... |
| | Polyhymnian Monthly | Monthly | Collegiate | 1879 | 80 |
| **GILES CO.**—*Population:* 8,794. | | | | | |
| Pearisburg | Pearisburg Virginian | Weekly | News and politics | 1856 | 1 50 |
| | True Issue | do | do | 1879 | 1 00 |
| **GRAYSON CO.**—*Population:* 13,068. | | | | | |
| Independence | Grayson Clipper | Weekly | News and politics | 1874 | 1 00 |
| **HALIFAX CO.**—*Population:* 33,588. | | | | | |
| South Boston | Halifax Record | Weekly | News and politics | 1870 | 1 50 |
| **HANOVER CO.**—*Population:* 18,588. | | | | | |
| Ashland | Randolph Macon Monthly | Monthly | Collegiate | 1878 | 50 |
| **HENRICO CO.**—*Population:* 82,703. | | | | | |
| Richmond | Richmond Whig | Daily (*morning*) | News and politics | 1824 | 5 00 |
| | Richmond Whig | Weekly | do | 1824 | 1 00 |
| | Richmond Whig | Semi-weekly | do | 1824 | 2 00 |
| | Religious Herald | Weekly | Religious (*Baptist*) | 1828 | 2 60 |
| | Christian Advocate | do | Religious (*Methodist Episcopal*) | 1832 | 2 50 |
| | Southern Churchman | do | Religious (*Protestant Episcopal*) | 1835 | 3 00 |
| | Central Presbyterian | do | Religious (*Presbyterian*) | 1837 | 3 00 |
| | Planter and Farmer | Monthly | Agricultural | 1840 | 2 00 |
| | Earnest Worker | do | Sunday school | 1871 | 60 |
| | Foreign Mission Journal | do | Religious (*Baptist*) | 1847 | 50 |
| | Richmond Dispatch | Daily (*morning*) | News and politics | 1850 | 6 00 |
| | Richmond Dispatch | Weekly | do | 1850 | 1 00 |
| | Richmond Dispatch | Semi-weekly | do | 1850 | 2 00 |
| | Virginia Staats Zeitung | Weekly | News and politics (*German*) | 1853 | 2 50 |
| | Taeglicher Anzeiger | Daily (*morning*) | News and politics (*German*) | 1857 | 6 00 |
| | Virginische Zeitung | Sunday | News and politics (*German*) | 1857 | 2 50 |
| | Children's Friend (*b*) | Semi-monthly | Sunday school | 1865 | 50 |
| | Lesson Papers | Monthly | do | 1866 | 07½ |
| | Guide and News (*c*) | Weekly | News and politics | 1867 | ...... |
| | Commercial and Tobacco Leaf | do | Trade | 1868 | 1 00 |
| | Educational Journal of Virginia | Monthly | Educational | 1869 | 1 00 |
| | Virginia Staats Gazette | Daily (*morning*) | News and politics (*German*) | 1869 | 6 00 |
| | Virginia Staats Gazette | Sunday | News and politics (*German*) | 1869 | 2 00 |
| | Insurance Advocate | Monthly | Insurance | 1870 | 2 00 |
| | College Messenger | do | Collegiate | 1874 | 1 00 |
| | Virginia Medical Journal | do | Medical | 1874 | 3 00 |
| | Catholic Visitor | Weekly | Religious (*Catholic*) | 1875 | 1 50 |
| | Virginia Star | do | Miscellaneous | 1876 | 1 50 |
| | Southern Historical Society Papers | Monthly | Historical society | 1876 | 3 00 |
| | State | Daily (*evening*) | News and politics | 1876 | 5 00 |
| | State | Weekly | do | 1876 | 1 00 |
| | State | Semi-weekly | do | 1876 | 2 00 |
| | Richmond Baton | Weekly | Musical | 1877 | 2 00 |
| | Pythian Herald | Monthly | Secret society | 1877 | 60 |
| | Virginia Law Journal | do | Law | 1877 | 5 00 |
| | Daily Record | Daily (*morning*) | do | 1878 | 6 00 |
| | Ancient Order of Hibernians | Monthly | Secret society | 1878 | 50 |
| | Field and Fireside (*c*) | do | Agricultural | 1878 | 50 |
| | Southern Clinic | do | Medical | 1878 | 1 50 |
| | Primary Lesson Papers | do | Sunday school | 1878 | 07½ |
| | Virginia Tobacco Journal | Weekly | Trade | 1878 | 4 00 |
| | Theological and Homiletic | Monthly | Religious (*Methodist Episcopal*) | 1878 | 2 50 |
| | Richmond Standard | Weekly | Miscellaneous | 1878 | 2 00 |
| | Southern Intelligencer | do | do | 1879 | 2 00 |
| | Every Saturday | do | do | 1879 | 2 00 |
| | Southern Quarterly Review | Quarterly | Literary | 1879 | 4 00 |
| | Kappa Alpha Journal | do | Secret society | 1879 | 1 00 |
| | Monthly Bulletin | Monthly | Agricultural | 1879 | 50 |
| | Commonwealth (*d*) | Daily (*morning*) | News and politics | 1880 | 6 00 |
| | Commonwealth | Weekly | do | 1880 | 1 00 |
| | American Breeders and Planters (*c*) | Monthly | Agricultural | 1880 | 1 00 |
| | Lesson Quarterly | Quarterly | Sunday school | 1880 | 15 |
| **HENRY CO.**—*Population:* 16,009. | | | | | |
| Martinsville | Martinsville Herald | Weekly | News and politics | 1876 | 1 50 |
| **HIGHLAND CO.**—*Population:* 5,164. | | | | | |
| Monterey | Highland Recorder | Weekly | News and politics | 1877 | 1 50 |
| **ISLE OF WIGHT CO.**—*Population:* 10,572. | | | | | |
| Smithfield | Smithfield News | Weekly | News and politics | 1879 | 1 50 |
| **KING WILLIAM CO.**—*Population:* 8,751. | | | | | |
| West Point | West Point Star | Weekly | News and politics | 1871 | 1 50 |
| **LEE CO.**—*Population:* 15,116. | | | | | |
| Jonesville | Lee County Sentinel | Weekly | News and politics | 1873 | 1 50 |
| **LOUDOUN CO.**—*Population:* 23,634. | | | | | |
| Hamilton | Loudoun Telephone | Weekly | News and politics | 1878 | 1 50 |
| Leesburg | Leesburg Washingtonian | do | do | 1805 | 2 00 |
| | Leesburg Mirror | do | do | 1855 | 2 00 |
| **LOUISA CO.**—*Population:* 18,942. | | | | | |
| Louisa | Louisa News and Farmer | Weekly | News and politics | 1879 | 1 00 |
| **MECKLENBURG CO.**—*Population:* 24,610. | | | | | |
| Boydton | Mecklenburg Democrat | Weekly | News and politics | 1877 | 1 50 |

*a* Suspended November, 1880. *b* Printed in the office of the "Earnest Worker". *c* Suspended. *d* Suspended July, 1880.

## VIRGINIA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| MONTGOMERY CO.—*Population:* 16,693. | | | | | |
| Christiansburg | Montgomery Messenger | Weekly | News and politics | 1870 | $1 50 |
| NANSEMOND CO.—*Population:* 15,903. | | | | | |
| Suffolk | Christian Sun | Weekly | Religious (*Christian*) | 1844 | 2 00 |
| | Suffolk Herald | do | News and politics | 1873 | 1 50 |
| | Suffolk Examiner (*a*) | do | do | 1879 | 1 50 |
| NELSON CO.—*Population:* 16,536. | | | | | |
| Lovingston | Nelson County Examiner | Weekly | News and politics | 1875 | 1 50 |
| NORFOLK CO.—*Population:* 58,657. | | | | | |
| Norfolk | Norfolk Day Book (*b*) | Daily (*evening*) | News and politics | 1857 | 3 00 |
| | Norfolk Day Book | Tri-weekly | do | 1857 | 2 00 |
| | Norfolk Virginian | Daily (*morning*) | do | 1865 | 5 00 |
| | Norfolk Virginian | Weekly | do | 1865 | 1 00 |
| | Norfolk Landmark | Daily (*morning*) | do | 1873 | 5 00 |
| | Norfolk Landmark | Weekly | do | 1873 | 1 00 |
| | Norfolk Landmark | Tri-weekly | do | 1873 | 3 00 |
| | Public Ledger | Daily (*evening*) | do | 1876 | 4 50 |
| | Norfolk Gazette | Sunday | do | 1878 | 2 00 |
| | Norfolk Herald | Weekly | do | 1879 | 2 00 |
| | Norfolk Liberal (*a*) | do | do | 1880 | |
| | Good Templar (*c*) | do | Temperance | | |
| | American Sentinel (*d*) | do | News and politics | | |
| Portsmouth | Portsmouth Enterprise | Daily (*morning*) | do | 1873 | 5 00 |
| | Portsmouth Times | Daily (*morning*) | do | 1878 | 5 00 |
| | Tidewater Times | Weekly | do | 1878 | 1 00 |
| | Virginia Granger | do | Agricultural | 1879 | 2 00 |
| NOTTOWAY CO.—*Population:* 11,156. | | | | | |
| Burkeville | South Side Sentinel | Weekly | News and politics | 1872 | 2 00 |
| ORANGE CO.—*Population:* 13,052. | | | | | |
| Gordonsville | Gordonsville Gazette | Weekly | News and politics | 1873 | 1 50 |
| | Virginia Missionary | do | Religious (*Disciples*) | 1880 | 1 50 |
| Orange | Piedmont Virginian | do | News and politics | 1867 | 2 00 |
| PAGE CO.—*Population:* 9,965. | | | | | |
| Luray | Page Courier | Weekly | News and politics | 1867 | 1 50 |
| PITTSYLVANIA CO.—*Population:* 52,589. | | | | | |
| Chatham | Pittsylvania Tribune | Weekly | News and politics | 1869 | 1 50 |
| Danville | Danville Register | do | do | 1837 | 2 00 |
| | Danville Times | do | do | 1865 | 1 50 |
| | Danville Post | Daily (*morning*) | do | 1879 | 5 00 |
| | Danville Post | Weekly | do | 1879 | 1 50 |
| | Danville News (*e*) | Daily (*evening*) | do | 1879 | 5 00 |
| PRINCE EDWARD CO.—*Population:* 14,668. | | | | | |
| Farmville | Farmville Mercury | Weekly | News and politics | 1829 | 2 00 |
| | Farmville Journal | do | do | 1879 | 2 00 |
| PRINCE WILLIAM CO.—*Population:* 9,180. | | | | | |
| Manassas | Manassas Gazette | Weekly | News and politics | 1869 | 1 50 |
| PULASKI CO.—*Population:* 8,755. | | | | | |
| Newbern | Virginia People | Weekly | News and politics | 1872 | 2 00 |
| RAPPAHANNOCK CO.—*Population:* 9,291. | | | | | |
| Washington | Blue Ridge Echo | Weekly | News and politics | 1878 | 1 00 |
| RICHMOND CO.—*Population:* 7,195. | | | | | |
| Warsaw | Northern Neck News | Weekly | News and politics | 1879 | 1 50 |
| ROANOKE CO.—*Population:* 13,105. | | | | | |
| Big Lick | Big Lick News | Weekly | News and politics | 1880 | 1 50 |
| Salem | Salem Register | do | do | 1855 | 2 00 |
| | Roanoke Collegian | Monthly | Collegiate | 1875 | 1 00 |
| | Conservative | Weekly | News and politics | 1876 | 2 00 |
| | Album | Monthly | Collegiate | 1878 | 1 00 |
| ROCKBRIDGE CO.—*Population:* 20,003. | | | | | |
| Lexington | Lexington Gazette | Weekly | News and politics | 1804 | 2 00 |
| | Southern Collegian | Monthly | Collegiate | 1868 | 2 50 |
| | Rockbridge Enterprise | Weekly | News and politics | 1879 | 1 50 |
| ROCKINGHAM CO.—*Population:* 29,567. | | | | | |
| Bridgewater | Bridgewater Journal | Weekly | News and politics | 1879 | 1 50 |
| Dayton | Musical Million and Fireside Friend | Monthly | Musical | 1870 | 50 |
| Harrisonburg | Rockingham Register | Weekly | News and politics | 1822 | 2 00 |
| | Old Commonwealth | do | do | 1865 | 2 00 |
| | Spirit of the Valley | do | do | 1876 | 2 60 |
| SHENANDOAH CO.—*Population:* 18,204. | | | | | |
| New Market | Shenandoah Valley | Weekly | News and politics | 1806 | 1 60 |
| | Our Church Paper | do | Religious (*Lutheran*) | 1873 | 1 60 |
| | Our Sunday School | Monthly | Sunday school | 1873 | 25 |
| Woodstock | Shenandoah Herald | Weekly | News and politics | 1817 | 1 50 |
| | Woodstock Virginian | do | do | 1880 | 1 50 |
| SMYTH CO.—*Population:* 12,160. | | | | | |
| Marion | Patriot and Herald | Weekly | News and politics | 1869 | 2 00 |
| SOUTHAMPTON CO.—*Population:* 18,012. | | | | | |
| Franklin | Franklin Gazette (*f*) | Weekly | News and politics | 1880 | 1 50 |
| SPOTSYLVANIA CO.—*Population:* 14,828. | | | | | |
| Fredericksburg | Fredericksburg News | Semi-weekly | News and politics | 1847 | 2 00 |
| | Virginia Star | do | do | 1869 | 1 50 |
| | Fredericksburg Recorder | Weekly | do | 1878 | 1 00 |

*a* Suspended January, 1881.
*b* Suspended July, 1880.
*c* Suspended January, 1880.
*d* Suspended.
*e* Suspended October 1, 1879; re-established June 1, 1880.
*f* Formerly the "Seaboard and Roanoke Times".

## VIRGINIA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| TAZEWELL CO.—*Population:* 12,861. | | | | | |
| Tazewell | Clinch Valley News | Weekly | News and politics | 1840 | $1 50 |
| WARREN CO.—*Population:* 7,399. | | | | | |
| Front Royal | Zion's Advocate | Semi-monthly | Religious (*Baptist*) | 1854 | 1 75 |
| | Warren Sentinel | Weekly | News and politics | 1869 | 2 00 |
| WASHINGTON CO.—*Population:* 25,203. | | | | | |
| Abingdon | Abingdon Virginian | Weekly | News and politics | 1836 | 2 00 |
| | Abingdon Standard | do | do | 1876 | 2 00 |
| Bristol | Bristol News | do | do | 1865 | 1 50 |
| Emory | Calliopean Clarion | Monthly | Collegiate | 1879 | 1 00 |
| WYTHE CO.—*Population:* 14,318. | | | | | |
| Wytheville | Wytheville Dispatch | Weekly | News and politics | 1862 | 2 00 |
| | Southwest Virginia Enterprise | Semi-weekly | do | 1870 | 3 00 |

## WASHINGTON TERRITORY.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| CLARKE CO.—*Population:* 5,490. | | | | | |
| Vancouver City | Vancouver Independent | Weekly | News and politics | 1875 | $2 00 |
| COLUMBIA CO.—*Population:* 7,103. | | | | | |
| Dayton | Dayton News | Weekly | News and politics | 1875 | 3 00 |
| | Columbia County Chronicle | do | do | 1878 | 2 00 |
| JEFFERSON CO.—*Population:* 1,712. | | | | | |
| Port Townsend | Puget Sound Argus | Weekly | News and politics | 1871 | 3 00 |
| | Democratic Press | do | do | 1877 | 3 00 |
| KING CO.—*Population:* 6,910. | | | | | |
| Seattle | { Seattle Intelligencer | Daily (*morning*) | News and politics | 1876 | 10 00 |
| | } Seattle Intelligencer | Weekly | do | 1867 | 3 00 |
| | { Seattle Post | Daily (*morning*) | do | 1878 | 12 00 |
| | } Seattle Post | Weekly | do | 1878 | 2 00 |
| | Seattle Dispatch | do | do | 1879 | 2 00 |
| KLIKITAT CO.—*Population:* 4,055. | | | | | |
| Goldendale | Klikitat Sun | Weekly | News and politics | 1878 | 3 00 |
| | Klikitat Sentinel | do | do | 1879 | 2 50 |
| PIERCE CO.—*Population:* 3,319. | | | | | |
| New Tacoma | North Pacific Coast (*a*) | Monthly | News and politics | 1879 | ........ |
| | New Tacoma Ledger | Weekly | do | 1880 | 3 00 |
| | New Tacoma Herald (*b*) | Daily (*morning*) | do | ........ | ........ |
| Steilacoom City | Puget Sound Express | Weekly | do | 1872 | 3 00 |
| SPOKANE CO.—*Population:* 4,262. | | | | | |
| Spokane Falls | Spokane Times | Weekly | News and politics | 1879 | 3 00 |
| THURSTON CO.—*Population:* 3,270. | | | | | |
| Olympia | Olympia Transcript | Weekly | News and politics | 1857 | 3 00 |
| | Washington Standard | do | do | 1860 | 3 00 |
| | Puget Sound Courier | do | do | 1872 | 3 00 |
| | Unitarian Advocate (*c*) | Monthly | Religious (*Unitarian*) | ........ | ........ |
| WALLA WALLA CO.—*Population:* 8,716. | | | | | |
| Walla Walla | { Walla Walla Statesman | Daily (*morning*) | News and politics | 1861 | 12 00 |
| | } Walla Walla Statesman | Weekly | do | 1861 | 3 00 |
| | Walla Walla Watchman | do | do | 1870 | 3 00 |
| | Walla Walla Union | do | do | 1869 | 3 00 |
| Waitsburg | Waitsburg Times | do | do | 1878 | 3 00 |
| WHATCOM CO.—*Population:* 3,137. | | | | | |
| La Conner | Puget Sound Mail | Weekly | News and politics | 1873 | 3 00 |
| WHITMAN CO.—*Population:* 7,014. | | | | | |
| Colfax | Palouse Gazette | Weekly | News and politics | 1877 | 3 00 |
| YAKIMA CO.—*Population:* 2,811. | | | | | |
| Yakima City | Yakima Record | Weekly | News and politics | 1879 | 3 00 |

## WEST VIRGINIA.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| BARBOUR CO.—*Population:* 11,870. | | | | | |
| Philippi | Barbour Jeffersonian | Weekly | News and politics | 1857 | $2 00 |
| | Philippi Plaindealer | do | do | 1873 | 1 50 |
| BERKELEY CO.—*Population:* 17,380. | | | | | |
| Gerardstown | Gerardstown Times | Bi-weekly | News and politics | 1870 | 50 |
| Martinsburg | Martinsburg Statesman | Weekly | do | 1869 | 2 00 |
| | Martinsburg Independent | do | do | 1873 | 2 00 |
| BRAXTON CO.—*Population:* 9,787. | | | | | |
| Sutton | Sutton Mountain | Weekly | News and politics | 1876 | 1 00 |
| BROOKE CO.—*Population:* 6,013. | | | | | |
| Wellsburg | Wellsburg Herald | Weekly | News and politics | 1846 | 1 50 |
| | Pan-Handle News | do | do | 1868 | 1 50 |
| CABELL CO.—*Population:* 13,744. | | | | | |
| Barboursville | Barboursville Independent (*d*) | Weekly | News and politics | 1879 | 1 25 |
| Huntington | Huntington Advertiser | do | do | 1868 | 1 50 |

*a* Suspended May, 1880.
*b* Suspended October, 1879.
*c* Suspended March, 1880.
*d* Succeeded by "Democrat" January, 1881.

## WEST VIRGINIA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| CABELL CO.—Continued. | | | | | |
| Huntington—Continued | Huntington Argus | Weekly | News and politics | 1872 | $1 50 |
| | Huntington Commercial | do | do | 1874 | 2 00 |
| | Odd Fellows' Advocate | Monthly | Odd Fellowship | 1876 | 50 |
| | Huntingtonian | Weekly | News and politics | 1880 | |
| | Church, School and Home (*a*) | Monthly | Miscellaneous | 1879 | |
| Milton | West Virginia Methodist (*b*) | do | Religious (*Methodist*) | 1879 | 50 |
| | Milton Messenger (*c*) | Weekly | News and politics | | |
| DODDRIDGE CO.—*Population:* 10,552. | | | | | |
| West Union | West Union Record | Weekly | News and politics | 1878 | 1 50 |
| FAYETTE CO.—*Population:* 11,560. | | | | | |
| Fayetteville | Fayette Enterprise | Weekly | Family news and reading | 1875 | 1 50 |
| | Fayetteville Legal-Tender | do | News and politics | 1879 | 1 00 |
| GILMER CO.—*Population:* 7,108. | | | | | |
| Glenville | The Gilmerite | Weekly | News and politics | 1879 | 1 50 |
| | Gilmer County Review | do | do | 1880 | 1 00 |
| GRANT CO.—*Population:* 5,542 | | | | | |
| Petersburg | South Branch Gazette | Weekly | News and politics | 1878 | 1 50 |
| GREENBRIER CO.—*Population:* 15,060. | | | | | |
| Lewisburg | Greenbrier Independent | Weekly | News and politics | 1866 | 2 00 |
| | Our District Methodist | Monthly | Religious (*Methodist Episcopal*) | 1876 | 25 |
| | Lewisburg Criterion (*d*) | Weekly | News and politics | 1878 | 1 50 |
| HAMPSHIRE CO.—*Population:* 10,366. | | | | | |
| Romney | South Branch Intelligencer | Weekly | News and politics | 1830 | 2 00 |
| | Romney Tablet | do | Collegiate | 1877 | 50 |
| HANCOCK CO.—*Population:* 4,882. | | | | | |
| Fairview | Hancock County Courier | Weekly | News and politics | 1869 | 1 00 |
| New Cumberland | Hancock County Independent | do | do | 1877 | 2 00 |
| HARDY CO.—*Population:* 6,794. | | | | | |
| Moorfield | Moorfield Examiner | Weekly | News and politics | 1874 | 1 50 |
| HARRISON CO.—*Population:* 20,181. | | | | | |
| Clarksburg | Clarksburg Telegram | Weekly | News and politics | 1861 | 2 00 |
| | Clarksburg News | do | do | 1876 | 1 50 |
| | Clarksburg Telephone (*e*) | do | do | | |
| JACKSON CO.—*Population:* 16,312. | | | | | |
| Jackson | Jackson Herald | Weekly | News and politics | 1876 | 1 50 |
| Ravenswood | Ravenswood News | do | do | 1867 | 1 50 |
| JEFFERSON CO.—*Population:* 15,005. | | | | | |
| Charlestown | Virginia Free Press | Weekly | News and politics | 1821 | 2 50 |
| | Spirit of Jefferson | do | do | 1844 | 2 00 |
| Shepherdstown | Shepherdstown Register | do | do | 1849 | 2 50 |
| KANAWHA CO.—*Population:* 32,466. | | | | | |
| Saint Albans | Saint Albans Express | Weekly | News and politics | 1879 | 1 00 |
| Charleston | Kanawha Gazette | do | do | 1877 | 1 50 |
| | Independent Forester | Monthly | General literature | 1878 | 1 00 |
| | Charleston Leader | Weekly | News and politics | 1878 | 1 50 |
| | Charleston News (*f*) | do | do | 1878 | 1 50 |
| LEWIS CO.—*Population:* 13,269. | | | | | |
| Weston | Weston Democrat | Weekly | News and politics | 1867 | 2 00 |
| | Weston Republican | do | do | 1879 | 1 50 |
| MARION CO.—*Population:* 17,198. | | | | | |
| Fairmont | Fairmont West Virginian | Weekly | News and politics | 1867 | 2 00 |
| | Fairmont Index | do | do | 1873 | 2 00 |
| MARSHALL CO.—*Population:* 18,840. | | | | | |
| Moundsville | Moundsville Reporter | Weekly | News and politics | 1869 | 1 50 |
| | New State Gazette | do | do | 1875 | 2 00 |
| | Moundsville Commercial (*g*) | do | do | 1879 | 1 50 |
| MASON CO.—*Population:* 22,293. | | | | | |
| Clifton | Valley Tribune (*h*) | Weekly | News and politics | 1880 | |
| Point Pleasant | Point Pleasant Register | do | do | 1862 | 1 50 |
| | West Virginia Monitor | do | do | 1874 | 1 50 |
| MERCER CO.—*Population:* 7,467. | | | | | |
| Concord | National Banner (*i*) | Weekly | News and politics | 1879 | 2 50 |
| Princeton | Princeton Journal | do | do | 1879 | 1 25 |
| MINERAL CO.—*Population:* 8,630. | | | | | |
| Keyser | West Virginia Tribune | Weekly | News and politics | 1870 | 2 00 |
| | Mountain Echo | do | do | 1876 | 1 50 |
| Piedmont | Potomac Herald (*j*) | do | do | | 1 50 |
| MONONGALIA CO.—*Population:* 14,985. | | | | | |
| Morgantown | Morgantown Post | Weekly | News and politics | 1864 | 2 00 |
| | New Dominion | do | do | 1876 | 1 50 |
| | West Virginia Journal of Education (*k*) | do | Collegiate | 1878 | |
| MONROE CO.—*Population:* 11,501. | | | | | |
| Alderson | Alderson Enterprise | Weekly | News and politics | 1879 | 1 50 |
| Union | Monroe County Register | do | do | 1865 | 2 00 |
| | Border Watchman | do | do | 1871 | 2 00 |
| MORGAN CO.—*Population:* 5,777. | | | | | |
| Berkeley Springs | Morgan Mercury | Weekly | News and politics | 1869 | 1 50 |
| OHIO CO.—*Population:* 37,457. | | | | | |
| Wheeling | Wheeling Intelligencer | Daily (*morning*) | News and politics | 1852 | 8 00 |
| | Wheeling Intelligencer | Weekly | do | 1852 | 1 50 |
| | Wheeling Intelligencer | Semi-weekly | do | 1852 | 3 00 |

*a* Suspended December, 1879.
*b* Suspended November, 1880.
*c* Suspended.
*d* Suspended May, 1880.
*e* Suspended March, 1880.
*f* Succeeded the "League and Courier"
*g* Suspended since census year.
*h* Suspended October, 1880.
*i* Removed to Princeton, August, 1880, and suspended February, 1881.
*j* Suspended September, 1880.
*k* Suspended January, 1880.

## WEST VIRGINIA—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| OHIO CO.—Continued. | | | | | |
| Wheeling—Continued | Wheeling Register | Daily (*morning*) | News and politics | 1863 | $8 00 |
| | Wheeling Register | Weekly | do | 1863 | 1 50 |
| | Wheeling Register | Tri-weekly | do | 1863 | 4 00 |
| | Deutsche Zeitung von West Virginia | Weekly | News and politics (*German*) | 1866 | 2 00 |
| | United States Post-Office Bulletin (*a*) | Quarterly | Miscellaneous | 1867 | 25 |
| | Sunday Leader | Sunday | News and politics | 1873 | 2 00 |
| | Wheeling News-Letter | do | do | 1878 | 2 00 |
| | Saturday Evening Journal | Weekly | do | 1879 | 2 00 |
| | Wheelinger Volksblatt (*b*) | Semi-weekly | News and politics (*German*) | 1880 | 3 00 |
| | National Post (*c*) | Weekly | News and politics | | |
| PLEASANTS CO.—*Population:* 6,256. | | | | | |
| Saint Mary's | St. Mary's Observer | Weekly | News and politics | 1877 | 1 00 |
| PRESTON CO.—*Population:* 19,091. | | | | | |
| Kingwood | Preston County Journal | Weekly | News and politics | 1866 | 1 50 |
| | West Virginia Argus | do | do | 1877 | 1 50 |
| PUTNAM CO.—*Population:* 11,375. | | | | | |
| Winfield | Putnam County Democrat | Weekly | News and politics | 1876 | 1 50 |
| RALEIGH CO.—*Population:* 7,367. | | | | | |
| Raleigh Court-House | Raleigh County Index | Weekly | News and politics | 1880 | 1 50 |
| RANDOLPH CO.—*Population:* 8,102. | | | | | |
| Beverly | Randolph Enterprise | Weekly | News and politics | 1874 | 2 00 |
| RITCHIE CO.—*Population:* 13,474. | | | | | |
| Cairo | Ritchie Democrat | Weekly | News and politics | 1877 | 1 50 |
| Harrisville | Ritchie Gazette | do | do | 1873 | 1 50 |
| ROANE CO.—*Population:* 12,184. | | | | | |
| Spencer | Spencer Interior | Weekly | News and politics | 1879 | 1 00 |
| | Roane County Index (*c*) | do | do | | |
| SUMMERS CO.—*Population:* 9,033. | | | | | |
| Hinton | Mountain Herald | Weekly | News and politics | 1873 | 2 00 |
| | Hinton Banner (*d*) | do | do | | |
| TAYLOR CO.—*Population:* 11,455. | | | | | |
| Grafton | Grafton Sentinel | Weekly | News and politics | 1870 | 1 50 |
| | Grafton Eagle | do | do | 1878 | 1 50 |
| TUCKER CO.—*Population:* 3,151. | | | | | |
| Saint George | Tucker County Pioneer | Weekly | News and politics | 1878 | 1 00 |
| | Tucker County Democrat | do | do | 1880 | 1 25 |
| TYLER CO.—*Population:* 11,073. | | | | | |
| Middlebourne | Tyler County Star | Weekly | News and politics | 1877 | 1 50 |
| Sistersville | Tyler Independent | do | do | 1878 | 75 |
| UPSHUR CO.—*Population:* 10,249. | | | | | |
| Buckhannon | Buckhannon Delta | Weekly | News and politics | 1871 | 1 50 |
| | Buckhannon Banner | do | do | 1876 | 1 50 |
| WAYNE CO.—*Population:* 14,739. | | | | | |
| Wayne | Wayne Advocate | Weekly | News and politics | 1874 | 1 50 |
| WETZEL CO.—*Population:* 13,896. | | | | | |
| New Martinsville | The Messenger | Weekly | News and politics | 1876 | 1 00 |
| | Wetzel Democrat | do | do | 1878 | 1 00 |
| WIRT CO.—*Population:* 7,104. | | | | | |
| Elizabeth | Wirt County Mentor | Weekly | News and politics | 1873 | 1 50 |
| | Wirt County Appeal | do | do | 1877 | 1 00 |
| WOOD CO.—*Population:* 25,006. | | | | | |
| Parkersburg | State Journal | Weekly | News and politics | 1869 | 2 00 |
| | Parkersburg Sentinel | do | do | 1875 | 2 00 |
| | Catholic Messenger | Monthly | Religious (*Catholic*) | 1876 | 1 00 |
| | Greenback Standard | Weekly | News and politics | 1879 | 1 25 |
| | Walking Beam (*e*) | do | do | | |

## WISCONSIN.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| ADAMS CO.—*Population:* 6,741. | | | | | |
| Friendship | Adams County Press | Weekly | News and politics | 1861 | $2 00 |
| ASHLAND CO.—*Population:* 1,559. | | | | | |
| Ashland | Ashland Press | Weekly | News and politics | 1872 | 2 00 |
| BARRON CO.—*Population:* 7,024. | | | | | |
| Barron | Barron County Shield | Weekly | News and politics | 1876 | 2 00 |
| Rice Lake | Barron County Chronotype | do | do | 1874 | 2 00 |
| BAYFIELD CO.—*Population:* 564. | | | | | |
| Bayfield | Bayfield Press | Weekly | News and politics | 1870 | 2 00 |
| BROWN CO.—*Population:* 34,078. | | | | | |
| Depere | Depere News and Herald | Weekly | News and politics | 1871 | 2 00 |
| | Depere Facts | do | do | 1876 | 1 50 |
| | De Standaard | do | News and politics (*Hollandish*) | 1878 | 2 00 |
| Fort Howard | Fort Howard Review | do | News and politics | 1876 | 2 00 |
| | Fort Howard Journal | do | do | 1878 | 1 50 |
| Green Bay | Green Bay Advocate | do | do | 1846 | 3 00 |
| | State Gazette | do | do | 1866 | 2 00 |

*a* Suspended June, 1879. *b* Changed to daily December, 1880. *c* Suspended 1880. *d* Suspended about April, 1880. *e* Suspended.

## WISCONSIN—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| ROWN CO.—Continued. | | | | | |
| Green Bay—Continued | State Gazette | Daily (*evening*) | News and politics | 1871 | $9 00 |
| | State Gazette | Weekly | do | 1866 | 2 00 |
| | Green Bay Concordia | do | News and politics (*German*) | 1874 | 2 50 |
| | Green Bay Globe | do | News and politics | 1875 | 1 00 |
| UFFALO CO.—*Population:* 15,528. | | | | | |
| Alma | Buffalo County Journal | Weekly | News and politics | 1861 | 2 00 |
| Fountain City | Buffalo County Republikaner | do | News and politics (*German*) | 1861 | 2 00 |
| Mondovi | Buffalo County Herald | do | News and politics | 1876 | 2 00 |
| URNETT CO.—*Population:* 3,140 | | | | | |
| Grantsburg | Burnett County Sentinel | Weekly | News and politics | 1875 | 1 50 |
| ALUMET CO.—*Population:* 16,632. | | | | | |
| Chilton | Chilton Times | Weekly | News and politics | 1857 | 2 00 |
| | Wiskonsin Demokrat | do | News and politics (*German*) | 1873 | 1 50 |
| | Der Volksbote | do | News and politics (*German*) | 1877 | 2 00 |
| CHIPPEWA CO.—*Population:* 15,491. | | | | | |
| Chippewa Falls | Chippewa Herald | Weekly | News and politics | 1860 | 2 00 |
| | Chippewa Times | do | do | 1875 | 2 00 |
| Phillips | Phillips Times | do | do | 1877 | 2 00 |
| CLARK CO.—*Population:* 10,715. | | | | | |
| Colby | Colby Phonograph | Weekly | News and politics | 1878 | 1 50 |
| Neillsville | Republican and Press | do | do | 1867 | 2 00 |
| | Clark County Courier | do | do | 1879 | 1 50 |
| | True Republican | do | do | 1879 | 2 00 |
| COLUMBIA CO.—*Population:* 28,065. | | | | | |
| Columbus | Columbus Democrat | Weekly | News and politics | 1868 | 2 00 |
| | Columbus Republican | do | do | 1868 | 2 00 |
| Kilbourn City | Dells Reporter | do | do | 1879 | 1 00 |
| Lodi | Lodi Valley News | do | do | 1874 | 1 50 |
| Portage | Wisconsin State Register | do | do | 1861 | 2 00 |
| | Western Advance (*a*) | do | do | ........ | ........ |
| | Columbia County Wecker | do | News and politics (*German*) | 1874 | 2 00 |
| | Portage Democrat | do | News and politics | 1877 | 2 00 |
| CRAWFORD CO.—*Population:* 15,644. | | | | | |
| Prairie du Chien | Prairie du Chien Courier | Weekly | News and politics | 1846 | 2 50 |
| | Prairie du Chien Union | do | do | 1863 | 1 50 |
| DANE CO.—*Population:* 53,233. | | | | | |
| Black Earth | Black Earth Advertiser | Weekly | News and politics | 1868 | 1 50 |
| Madison | Madison Democrat | Daily (*morning*) | do | 1850 | 10 00 |
| | Madison Democrat | Weekly | do | 1850 | 2 00 |
| | Wisconsin State Journal | Daily (*evening*) | do | 1852 | 10 00 |
| | Wisconsin State Journal | Weekly | do | 1839 | 1 50 |
| | Wisconsin State Journal | Tri-weekly | do | 1856 | 5 00 |
| | Wisconsin Journal of Education | Monthly | Educational | 1856 | 1 00 |
| | Wisconsin Botschafter | Weekly | News and politics (*German*) | 1869 | 2 00 |
| | University Press | Semi-monthly | Collegiate | 1870 | 1 75 |
| | Wisconsin Staats-Zeitung | Weekly | News and politics (*German*) | 1878 | 2 00 |
| Mazomanie | Mazomanie Sickle | do | News and politics | 1874 | 1 50 |
| Stoughton | Stoughton Courier | do | do | 1876 | 1 50 |
| Sun Prairie | Countryman | do | do | 1877 | 1 50 |
| DODGE CO.—*Population:* 45,931. | | | | | |
| Beaver Dam | Dodge County Citizen | Weekly | News and politics | 1856 | 2 00 |
| | Beaver Dam Argus | do | do | 1860 | 1 50 |
| | Wisconsin Calendar | Monthly | Religious (*Episcopalian*) | 1873 | 50 |
| | Beaver Dam Vedette | do | Literary | 1875 | 40 |
| Fox Lake | Fox Lake Representative | Weekly | News and politics | 1866 | 2 00 |
| Juneau | Juneau Telephone | do | do | 1878 | 1 50 |
| Mayville | Dodge County Pioneer | do | do | 1876 | 2 00 |
| DOOR CO.—*Population:* 11,645. | | | | | |
| Sturgeon Bay | Door County Advocate | Weekly | News and politics | 1862 | 1 50 |
| | Sturgeon Bay Expositor | do | do | 1873 | 1 50 |
| DOUGLAS CO.—*Population:* 655. | | | | | |
| Superior | Superior Times | Weekly | News and politics | 1868 | 2 00 |
| DUNN CO.—*Population:* 16,817. | | | | | |
| Menomonie | Dunn County News | Weekly | News and politics | 1860 | 2 00 |
| | Menomonie Times | do | do | 1876 | 1 50 |
| EAU CLAIRE CO.—*Population:* 19,993. | | | | | |
| Augusta | Augusta Eagle | Weekly | News and politics | 1874 | 2 00 |
| Eau Claire | Eau Claire News | do | do | 1870 | 1 50 |
| | Free Press | Daily (*evening*) | do | 1873 | 10 00 |
| | Free Press | Weekly | do | 1858 | 2 00 |
| | Chippewa Anzeiger | do | News and politics (*German*) | 1873 | 2 00 |
| | Eau Claire Argus | do | News and politics | 1879 | 1 00 |
| FOND DU LAC CO.—*Population:* 46,859. | | | | | |
| Brandon | Brandon Times | Weekly | News and politics | 1865 | 1 50 |
| Fond du Lac | Fond du Lac Journal | do | do | 1846 | 1 50 |
| | Fond du Lac Commonwealth | Daily (*evening*) | do | 1870 | 10 00 |
| | Fond du Lac Commonwealth | Weekly | do | 1853 | 2 00 |
| | Saturday Reporter | do | do | 1860 | 1 50 |
| | Nordwestlicher Courier | do | News and politics (*German*) | 1871 | 2 00 |
| | Die Freie Volks-Presse (*b*) | do | News and politics (*German*) | 1878 | ........ |
| | Pine River Pilot (*b*) | do | News and politics | ........ | ........ |
| | Wisconsin Farmer | Monthly | Agricultural | 1879 | 1 50 |
| | Fond du Lac Demokrat | Weekly | News and politics (*German*) | 1880 | 2 00 |
| | People's Advocate (*c*) | do | News and politics | ........ | ........ |
| Ripon | Ripon Commonwealth | do | do | 1864 | 1 50 |
| | Ripon Free Press | do | do | 1870 | 1 50 |
| Waupun | Waupun Times | do | do | 1858 | 1 50 |
| | Waupun Leader | do | do | 1866 | 1 50 |

*a* Suspended.

*b* Suspended 1880.

*c* Merged into the "Oshkosh Standard".

## WISCONSIN—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| GRANT CO.—*Population:* 37,852. | | | | | |
| Boscobel | Boscobel Dial | Weekly | News and politics | 1872 | $1 50 |
| Lancaster | Grant County Herald | do | do | 1843 | 2 00 |
| | Lancaster Gazette (*a*) | do | do | | |
| Muscoda | Muscoda News | do | do | 1874 | 1 00 |
| Platteville | Grant County Witness | do | do | 1857 | 1 50 |
| | Der Correspondent | do | News and politics (*German*) | 1879 | 2 00 |
| GREEN CO.—*Population:* 21,729. | | | | | |
| Albany | Albany Journal | Weekly | News and politics | 1878 | 1 25 |
| Brodhead | Brodhead Independent | do | do | 1860 | 1 50 |
| Juda | Latest News | do | do | 1878 | 1 00 |
| Monroe | Monroe Sentinel | do | do | 1840 | 1 50 |
| | Green County Reformer | Daily (*morning*) | do | 1870 | |
| | Reformer (*b*) | Weekly | do | 1870 | 1 50 |
| | Green County Herold | do | News and politics (*German*) | 1877 | 2 00 |
| GREEN LAKE CO.—*Population:* 14,483. | | | | | |
| Berlin | Berlin Courant | Weekly | News and politics | 1854 | 1 50 |
| | Berlin Journal | do | do | 1870 | 1 50 |
| Princeton | Princeton Republic | do | do | 1867 | 1 50 |
| | Green Lake County Democrat | do | do | 1876 | 1 50 |
| IOWA CO.—*Population:* 23,628. | | | | | |
| Arena | Arena Star | Weekly | News and politics | 1874 | 1 00 |
| Dodgeville | Dodgeville Chronicle | do | do | 1858 | 1 20 |
| Mineral Point | Mineral Point Tribune | do | do | 1847 | 1 50 |
| | Iowa County Democrat | do | do | 1866 | 1 50 |
| | Wisconsin Temperance Journal (*c*) | Semi-monthly | Temperance | 1875 | 50 |
| JACKSON CO.—*Population:* 13,285. | | | | | |
| Black River Falls | Badger State Banner | Weekly | News and politics | 1856 | 2 00 |
| | Wisconsin Independent | do | do | 1872 | 2 00 |
| Merrillon | Wisconsin Leader | do | do | 1877 | 1 50 |
| JEFFERSON CO.—*Population:* 32,156. | | | | | |
| Fort Atkinson | Wisconsin Chief | Monthly | Temperance | 1849 | 50 |
| | Jefferson County Union | Weekly | News and politics | 1870 | 1 75 |
| Jefferson | Jefferson Banner | do | do | 1859 | 1 50 |
| | Jefferson Independent | do | do | 1879 | 1 50 |
| Lake Mills | Lake Mills Spike | do | do | 1878 | 1 50 |
| Palmyra | Palmyra Enterprise | do | do | 1874 | 2 00 |
| Watertown | Watertown Weltburger | do | News and politics (*German*) | 1853 | 2 50 |
| | Watertown Democrat | do | News and politics | 1854 | 2 00 |
| | Watertown Republican | do | do | 1860 | 2 00 |
| | Watertown Gazette | do | do | 1878 | 1 50 |
| Waterloo | Waterloo Journal | do | do | 1870 | 1 50 |
| JUNEAU CO.—*Population:* 15,582. | | | | | |
| Elroy | Elroy Plain Talker | Weekly | News and politics | 1876 | 1 50 |
| Mauston | Mauston Star | do | do | 1856 | 1 50 |
| New Lisbon | Juneau County Argus | do | do | 1857 | 2 00 |
| Wonewoc | Wonewoc Reporter | do | do | 1876 | 1 25 |
| KENOSHA CO.—*Population:* 13,550. | | | | | |
| Kenosha | Kenosha Telegraph | Weekly | News and politics | 1840 | 1 50 |
| | Kenosha Union | do | do | 1865 | 2 00 |
| | Kenosha Democrat | do | do | 1879 | 1 00 |
| KEWAUNEE CO.—*Population:* 15,807. | | | | | |
| Ahnapee | Ahnapee Record | Weekly | News and politics | 1873 | 1 50 |
| Kewaunee | Kewaunee Enterprise | do | do | 1859 | 1 50 |
| LA CROSSE CO.—*Population:* 27,073. | | | | | |
| La Crosse | Faedrelandet og Emigranten | Weekly | News and politics (*Norwegian*) | 1851 | 2 20 |
| | La Crosse Chronicle | Daily (*morning*) | News and politics | 1852 | 10 00 |
| | La Crosse Chronicle | Weekly | do | 1852 | 2 00 |
| | La Crosse Republican and Leader | Daily (*evening*) | do | 1854 | 10 00 |
| | La Crosse Republican and Leader | Weekly | do | 1854 | 1 50 |
| | Nord Stern | do | News and politics (*German*) | 1856 | 2 00 |
| | Pomeroy's Democrat (*d*) | do | News and politics | 1865 | 2 00 |
| | Democrat (*e*) | Daily (*morning*) | do | 1869 | |
| | Northwestern Miller | Weekly | Trade | 1880 | 2 00 |
| LA FAYETTE CO.—*Population:* 21,279. | | | | | |
| Blanchard | Phonograph (*f*) | Weekly | News and politics | 1878 | |
| Darlington | Darlington Republican | do | do | 1860 | 1 50 |
| | La Fayette County Democrat | do | do | 1865 | 2 00 |
| LANGLADE CO.—*Population:* 685. | | | | | |
| Antigo | Langlade County Republican | Weekly | News and politics | 1880 | 1 50 |
| LINCOLN CO.—*Population:* 2,011. | | | | | |
| Jenny | Lincoln County Advocate | Weekly | News and politics | 1875 | 2 00 |
| | Northern Wisconsin News | do | do | 1878 | 2 00 |
| MANITOWOC CO.—*Population:* 37,505. | | | | | |
| Manitowoc | Manitowoc Tribune | Weekly | News and politics | 1853 | 2 00 |
| | Der Nord-Westen | do | News and politics (*German*) | 1855 | 2 50 |
| | Der Nord-Westen Sonntags-Blatt (*g*) | Sunday | News and politics (*German*) | 1855 | |
| | Manitowoc Pilot | Weekly | News and politics | 1858 | 2 00 |
| Two Rivers | Manitowoc County Chronicle | do | do | 1873 | 2 00 |
| MARATHON CO.—*Population:* 17,121. | | | | | |
| Wausau | Central Wisconsin | Weekly | News and politics | 1858 | 2 00 |
| | Wisconsin River Pilot | do | do | 1865 | 2 00 |
| | Wausau Wochenblatt | do | News and politics (*German*) | 1870 | 2 00 |
| | Torch of Liberty | do | News and politics | 1877 | 1 50 |
| | Der Waechter am Wisconsin (*h*) | do | News and politics (*German*) | 1878 | 1 50 |
| MARINETTE CO.—*Population:* 8,929. | | | | | |
| Marinette | Marinette and Peshtigo Eagle | Weekly | News and politics | 1871 | 2 00 |

*a* Suspended December, 1879.
*b* Suspended.
*c* Suspended September, 1880.
*d* Suspended April, 1880.
*e* Suspended February, 1880.
*f* Suspended July, 1880.
*g* An edition of "Der Nord Westen".
*h* Suspended November, 1880.

## WISCONSIN—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| **Marquette co.**—*Population:* 8,908. | | | | | |
| Montello | Montello Express | Weekly | News and politics | 1859 | $1 50 |
| Westfield | Central Union | do | do | 1877 | 1 25 |
| **Milwaukee co.**—*Population:* 138,537. | | | | | |
| Bay View | National Bureau | Weekly | News and politics | 1879 | 2 00 |
| Milwaukee | Evening Wisconsin | Daily (*evening*) | do | 1836 | 10 00 |
| | Milwaukee Sentinel | Daily (*morning*) | do | 1838 | 12 00 |
| | Milwaukee Sentinel | Sunday | do | 1838 | 1 00 |
| | Milwaukee Sentinel | Tri-weekly | do | 1838 | 5 50 |
| | Milwaukee Republican and News | Daily (*morning*) | do | 1845 | 10 00 |
| | Milwaukee Republican and News | Weekly | do | 1845 | 1 00 |
| | Milwaukee Republican and News | Tri-weekly | do | 1845 | 5 00 |
| | Der Seebote | Daily (*evening*) | News and politics (*German*) | 1851 | 9 00 |
| | Der Seebote | Weekly | News and politics (*German*) | 1851 | 2 50 |
| | Herold | Daily (*morning*) | News and politics (*German*) | 1854 | 9 00 |
| | Herold | Sunday | News and politics (*German*) | 1854 | 2 00 |
| | Journal of Commerce | Weekly | Trade | 1864 | 2 50 |
| | Christian Statesman | do | Religious (*Evangelical*) | 1869 | 1 00 |
| | Acker und Gartenbau Zeitung | Semi-monthly | Agricultural (*German*) | 1870 | 1 25 |
| | Erziehungs Blaetter | Monthly | Educational (*German*) | 1870 | 2 12 |
| | Young Churchman | do | Sunday school | 1870 | 25 |
| | Fortschritt der Zeit | Semi-monthly | Science (*German*) | 1872 | 1 25 |
| | Columbia | Weekly | News and politics (*German*) | 1873 | 2 50 |
| | Germania | do | News and politics (*German*) | 1873 | 2 00 |
| | Hausfreund | do | News and politics (*German*) | 1873 | 1 00 |
| | Freidenker | do | Miscellaneous (*German*) | 1873 | 2 50 |
| | Peck's Sun | do | News and politics | 1874 | 2 00 |
| | Catholic School Record | Monthly | Religious (*Catholic*) | 1875 | 1 00 |
| | Western Church | Weekly | Religious (*Protestant Episcopal*) | 1876 | 2 50 |
| | Der Hermanns Sohn | Monthly | Secret society (*German*) | 1876 | 2 00 |
| | United States Miller | do | Trade | 1876 | 1 00 |
| | Kindergarten Messenger and New Education | do | Educational | 1877 | 1 00 |
| | Milwaukee Sunday Telegraph | Sunday | News and politics | 1878 | 2 00 |
| | Im Familien-Kreise | Bi-weekly | Literary (*German*) | 1878 | 1 25 |
| | Au | Sunday | Comic (*German*) | 1878 | 4 00 |
| | Catholic Citizen | Weekly | Religious (*Catholic*) | 1878 | 2 00 |
| | Unser Blatt | Monthly | Secret society (*German*) | 1878 | 75 |
| | Northwestern Trade Bulletin | Weekly | Trade | 1879 | 2 00 |
| | Der Ansiedler in Wisconsin | Semi-monthly | News and politics (*German*) | 1879 | 50 |
| | Hospodar Ameriky | do | Agricultural (*Bohemian*) | 1879 | 1 50 |
| | Farmers' Monthly | Monthly | Agricultural | 1879 | 75 |
| | Milwaukee Gazette (*a*) | Weekly | News and politics | 1879 | 1 50 |
| | State Journal and South Side Advocate (*b*) | do | do | 1879 | 2 00 |
| | Evening Signal (*c*) | Daily (*evening*) | do | 1879 | 6 00 |
| | Der Zeitgeist | Bi-weekly | Religious (*Judaism; German*) | 1880 | 2 50 |
| | Western Traveler | Monthly | Trade | 1880 | 50 |
| | Wisconsin A. O. U. W. Advocate | do | Secret society | 1880 | 75 |
| | Freie Presse | Daily (*morning*) | News and politics (*German*) | 1880 | 10 00 |
| | Freie Presse | Sunday | News and politics (*German*) | 1880 | 2 50 |
| | Folkebladet | Weekly | News and politics (*Scandinavian*) | 1878 | 2 00 |
| | Monthly Musical Review | Monthly | Musical | ........ | 75 |
| **Monroe co.**—*Population:* 21,607. | | | | | |
| Sparta | Sparta Herald | Weekly | News and politics | 1855 | 2 00 |
| | Monroe County Democrat | do | do | 1871 | 2 00 |
| | Wisconsin Greenbacker (*d*) | do | do | 1879 | ........ |
| Tomah | Tomah Journal | do | do | 1867 | 1 50 |
| **Oconto co.**—*Population:* 9,848. | | | | | |
| Oconto | Oconto Lumberman | Weekly | News and politics | 1864 | 2 00 |
| | Oconto County Reporter | do | do | 1871 | 1 50 |
| **Outagamie co.**—*Population:* 28,716. | | | | | |
| Appleton | Appleton Crescent | Weekly | News and politics | 1853 | 2 00 |
| | Appleton Post | do | do | 1859 | 1 50 |
| | Appleton Volksfreund | do | News and politics (*German*) | 1870 | 2 00 |
| | Collegian and Neoterian | Monthly | Collegiate | 1878 | 1 00 |
| | People's Champion (*e*) | Weekly | News and politics | 1878 | 1 00 |
| **Ozaukee co.**—*Population:* 15,461. | | | | | |
| Cedarburg | Cedarburg Enterprise | Weekly | News and politics | 1879 | 1 50 |
| Port Washington | Ozaukee County Advertiser | do | do | 1854 | 2 00 |
| | Port Washington Zeitung | do | News and politics (*German*) | 1855 | 2 00 |
| | Weekly Star | do | News and politics | 1879 | 1 50 |
| **Pepin co.**—*Population:* 6,226. | | | | | |
| Durand | Pepin County Courier | Weekly | News and politics | 1877 | 2 00 |
| **Pierce co.**—*Population:* 17,744. | | | | | |
| Ellsworth | Pierce County Herald | Weekly | News and politics | 1868 | 1 50 |
| Prescott | Pierce County Plaindealer | do | do | 1873 | 1 50 |
| River Falls | River Falls Journal | do | do | 1856 | 1 50 |
| | River Falls Press | do | do | 1874 | 1 00 |
| **Polk co.**—*Population:* 10,018. | | | | | |
| Clear Lake | North Wisconsin News | Weekly | News and politics | 1878 | 1 50 |
| Osceola | Polk County Press | do | do | 1860 | 2 00 |
| **Portage co.**—*Population:* 17,731. | | | | | |
| Plover | Plover Times | Weekly | News and politics | 1856 | 2 00 |
| Stevens Point | Wisconsin Pinery | do | do | 1853 | 2 00 |
| | Hungerford Real Estate Journal | Monthly | Miscellaneous | 1877 | 1 00 |
| | Portage County Gazette | Weekly | News and politics | 1878 | 2 00 |
| | Stevens Point Journal | do | do | 1879 | 2 00 |
| | Stevens Point Democrat | do | do | 1880 | 2 00 |
| **Racine co.**—*Population:* 30,922. | | | | | |
| Burlington | Burlington Standard | Weekly | News and politics | 1862 | 2 00 |
| | Burlington Democrat (*f*) | do | do | 1879 | 2 00 |
| Racine | Racine Advocate | do | do | 1842 | 2 00 |
| | Racine Journal | do | do | 1856 | 2 00 |

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*a* Suspended July, 1880.
*b* Suspended April, 1880.
*c* Changed to "Chronicle" June, 1880.
*d* Suspended September, 1879.
*e* Suspended 1880.
*f* Changed to "Free Press", which suspended in December, 1880.

## WISCONSIN—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| RACINE CO.—Continued. | | | | | |
| Racine—Continued | Racine Slavie | Weekly | News and politics (*Bohemian*) | 1861 | $3 00 |
| | College Mercury | Semi-monthly | Collegiate | 1867 | 2 00 |
| | Racine Argus (*a*) | Weekly | News and politics | 1868 | 1 75 |
| | Folkets Avis | do | News and politics (*Danish*) | 1876 | 1 50 |
| | Racine News | Daily (*evening*) | News and politics | 1878 | 4 50 |
| Union Grove | Union Grove Enterprise | Weekly | do | 1877 | 1 50 |
| Waterford | Waterford Post | do | do | 1877 | 1 50 |
| RICHLAND CO.—*Population:* 18,174. | | | | | |
| Excelsior | Excelsior Press (*b*) | Weekly | News and politics | 1879 | ....... |
| Richland Center | Richland County Republican | do | do | 1855 | 1 50 |
| | Richland Center Observer | do | do | 1856 | 1 50 |
| ROCK CO.—*Population:* 38,823. | | | | | |
| Beloit | Beloit Free Press | Weekly | News and politics | 1848 | 2 00 |
| | Beloit Round Table | Bi-weekly | Collegiate | 1853 | 2 00 |
| | Beloit Graphic (*c*) | Weekly | News and politics | 1877 | 1 50 |
| | Beloit Outlook | do | do | 1880 | 2 00 |
| Clinton | Clinton Herald | do | do | ....... | 1 50 |
| Edgerton | Wisconsin Tobacco Reporter | do | do | 1874 | 1 50 |
| Evansville | Evansville Review | do | do | 1867 | 1 50 |
| Janesville | Janesville Gazette | do | do | 1845 | 1 50 |
| | Janesville Gazette | Semi-weekly | do | 1845 | 3 00 |
| | Janesville Gazette | Daily (*evening*) | do | 1856 | 7 00 |
| | Janesville Recorder | Daily (*morning*) | do | 1868 | 5 00 |
| | Rock County Recorder | Weekly | do | 1868 | 1 50 |
| | City Times | Daily (*evening*) | do | 1869 | 3 00 |
| | City Times | Weekly | do | 1869 | 1 25 |
| | Wisconsin Express (*d*) | do | do | 1879 | ....... |
| Milton | College Journal | Monthly | Collegiate | 1878 | 1 00 |
| | Temperance Herald | do | Temperance | 1879 | 75 |
| | Milton Register (*e*) | Weekly | News and politics | 1879 | 1 25 |
| | Milton Express | do | do | 1879 | 1 25 |
| SAINT CROIX CO.—*Population:* 18,956. | | | | | |
| Baldwin | Saint Croix Independent | Weekly | News and politics | 1873 | 1 50 |
| Hudson | Star and Times | do | do | 1855 | 2 00 |
| | True Republican | do | do | 1870 | 2 00 |
| New Richmond | Saint Croix Republican | do | do | 1869 | 1 50 |
| | New Richmond Democrat | do | do | 1878 | 1 50 |
| | New Richmond Greenbacker (*f*) | do | do | 1879 | ....... |
| SAUK CO.—*Population:* 28,729. | | | | | |
| Baraboo | Sauk County Republican (*g*) | Weekly | News and politics | 1879 | 1 50 |
| | Sauk County Democrat | do | do | 1880 | 1 50 |
| Prairie du Sac | Sauk County News | do | do | 1876 | 1 00 |
| Reedsburg | Reedsburg Free Press | do | do | 1870 | 1 50 |
| | Der Sauk County Herold | do | News and politics (*German*) | 1876 | 2 00 |
| Sauk City | Pionier am Wisconsin | do | News and politics (*German*) | 1852 | 2 00 |
| Spring Green | The Dollar Times | do | News and politics | 1877 | 1 00 |
| SHAWANO CO.—*Population:* 10,371. | | | | | |
| Shawano | Shawano County Journal | Weekly | News and politics | 1859 | 1 50 |
| SHEBOYGAN CO.—*Population:* 34,206. | | | | | |
| Plymouth | Plymouth Reporter | Weekly | News and politics | 1872 | 1 50 |
| | Plymouth Sun | do | do | 1879 | 1 25 |
| Sheboygan | Sheboygan Times | do | do | 1854 | 2 00 |
| | Sheboygan Zeitung | do | News and politics (*German*) | ....... | 2 00 |
| | National Demokrat | do | News and politics (*German*) | 1857 | 2 00 |
| | Sheboygan Herald | do | News and politics | 1867 | 2 00 |
| | Sheboygan Tribun | Semi-weekly | News and politics (*German*) | 1874 | 2 00 |
| Sheboygan Falls | Sheboygan County News | Weekly | News and politics | 1876 | 2 00 |
| TAYLOR CO.—*Population:* 2,311. | | | | | |
| Medford | Taylor County Star and News | Weekly | News and politics | 1876 | 2 00 |
| | Taylor County News | do | do | 1878 | 1 00 |
| TREMPEALEAU CO.—*Population:* 17,189. | | | | | |
| Arcadia | Republican and Leader | Weekly | News and politics | 1873 | 1 50 |
| | Trempealeau County Democrat (*a*) | do | do | 1879 | 1 20 |
| Galesville | Galesville Independent | do | do | 1874 | 1 50 |
| Independence | Independence News | do | do | 1878 | 1 50 |
| | Trempealeau Free Press (*h*) | do | do | ....... | ....... |
| Whitehall | Whitehall Times and Trempealeau County Messenger. | do | do | 1860 | 1 50 |
| VERNON CO.—*Population:* 23,235. | | | | | |
| Viroqua | Vernon County Censor | Weekly | News and politics | 1856 | 1 00 |
| Wheatland | Wheatland Republican (*i*) | do | do | 1879 | 1 00 |
| WALWORTH CO.—*Population:* 26,249. | | | | | |
| Delavan | Delavan Republican | Weekly | News and politics | 1855 | 2 00 |
| | Delavan Democrat | do | do | 1863 | 2 00 |
| | Delavan Enterprise | do | do | 1878 | 1 50 |
| East Troy | East Troy Gazette | do | do | 1879 | 1 00 |
| Elkhorn | Walworth County Independent | do | do | 1853 | 2 00 |
| Geneva | Lake Geneva Herald | do | do | 1872 | 2 00 |
| | Lake Geneva Cisco (*j*) | do | do | 1879 | 50 |
| | Lake Geneva News (*k*) | do | do | 1879 | 1 50 |
| Sharon | Sharon Reporter | do | do | 1878 | 1 50 |
| Whitewater | Whitewater Register | do | do | 1857 | 2 00 |
| | Whitewater Chronicle | do | do | 1879 | 1 25 |
| WASHINGTON CO.—*Population:* 23,442. | | | | | |
| Hartford | Washington County Republican | Weekly | News and politics | 1872 | 1 50 |
| West Bend | West Bend Democrat | do | do | 1861 | 1 50 |
| WAUKESHA CO.—*Population:* 28,957. | | | | | |
| Oconomowoc | Oconomowoc Local | Weekly | News and politics | 1874 | 1 50 |
| | Wisconsin Free Press | do | do | 1875 | 2 00 |
| Pewaukee | Pewaukee Standard (*h*) | do | do | 1877 | 1 50 |

*a* Suspended November, 1880.
*b* Suspended 1880.
*c* Consolidated with "Outlook" July, 1880.
*d* Suspended January, 1880.
*e* Suspended August, 1879.
*f* Consolidated with the "New Richmond Democrat", 1880.
*g* Changed to "Bulletin" October, 1880.
*h* Suspended August, 1879.
*i* Suspended May, 1880.
*j* Published from June to September.
*k* Published daily during summer.

## WISCONSIN—Continued.

| Place of publication. | Name of periodical. | How often published. | Character. | When established. | Price per year. |
|---|---|---|---|---|---|
| WAUKESKA CO.—Continued. | | | | | |
| Waukesha | Waukesha Freeman | Weekly | News and politics | 1859 | $1 50 |
| | Waukesha County Democrat | do | do | 1852 | 2 00 |
| WAUPACA CO.—*Population:* 20,955. | | | | | |
| New London | New London Times | Weekly | News and politics | 1870 | 1 50 |
| Waupaca | Waupaca County Republican | do | do | 1853 | 1 50 |
| | Waupaca Post | do | do | 1878 | 1 50 |
| Weyauwega | Weyauwega Chronicle | do | do | 1877 | 1 50 |
| | Waupaca County Democrat (*a*) | do | do | | |
| WAUSHARA CO.—*Population:* 12,687. | | | | | |
| Plainfield | Plainfield Times | Weekly | News and politics | 1877 | 1 50 |
| Wautoma | Waushara Argus | do | do | 1859 | 1 50 |
| WINNEBAGO CO.—*Population:* 42,740. | | | | | |
| Menasha | Menasha Press | Weekly | News and politics | 1870 | 2 00 |
| Neenah | Neenah Herald (*b*) | do | do | 1879 | |
| | Neenah City Times | do | do | 1863 | 2 00 |
| | Neenah Gazette | do | do | 1870 | 1 50 |
| | Neenah Bulletin | Semi-monthly | Secret society | 1875 | 50 |
| Omro | Omro Journal | Weekly | News and politics | 1865 | 1 75 |
| Oshkosh | { Northwestern | Daily (*evening*) | do | 1868 | 9 00 |
| | { Northwestern | Weekly | do | 1849 | 2 00 |
| | Oshkosh Times | do | do | 1866 | 2 00 |
| | Wisconsin Telegraph | do | News and politics (*German*) | 1867 | 2 00 |
| | Early Dawn (*c*) | do | Religious | 1875 | 1 50 |
| | Wisconsin Standard | do | News and politics | 1877 | 1 50 |
| | Oshkosh Reflector (*d*) | do | do | | |
| WOOD CO.—*Population:* 8,981. | | | | | |
| Centralia | Centralia Enterprise | Weekly | News and politics | 1879 | 1 50 |
| Grand Rapids | Wood County Reporter | do | do | 1857 | 2 00 |
| | Grand Rapids Tribune | do | do | 1873 | 2 00 |
| Marshfield | Marshfield Times and Wood County Herold | do | News and politics (*German*) | 1879 | 1 50 |

## WYOMING TERRITORY.

| | | | | | |
|---|---|---|---|---|---|
| ALBANY CO.—*Population:* 4,626. | | | | | |
| Laramie City | Laramie Sentinel | Weekly | News and politics | 1869 | $3 00 |
| | Laramie Times | Daily (*evening*) | do | 1879 | 10 00 |
| CARBON CO.—*Population:* 3,438. | | | | | |
| Rawlins | Carbon County Journal | Weekly | News and politics | 1879 | 3 00 |
| | Carbon County News (*e*) | do | do | 1878 | 3 00 |
| LARAMIE CO.—*Population:* 6,409. | | | | | |
| Cheyenne | { Cheyenne Leader | Daily (*morning*) | News and politics | 1867 | 10 00 |
| | { Cheyenne Leader | Weekly | do | 1867 | 2 50 |
| | { Cheyenne Sun | Daily (*morning*) | do | 1876 | 10 00 |
| | { Cheyenne Sun | Weekly | do | 1876 | 2 50 |
| SWEETWATER CO.—*Population:* 2,561. | | | | | |
| Green River City | Rocky Mountain Courier | Weekly | News and politics | 1878 | 3 00 |
| UINTA CO.—*Population:* 2,879. | | | | | |
| Evanston | The Uinta Chieftain | Weekly | News and politics | 1879 | 3 00 |
| | The Evanston Age (*d*) | do | do | 1874 | 3 00 |

*a* Suspended October, 1879.
*b* Consolidated with "Gazette" March, 1880.
*c* Suspended April, 1880.
*d* Suspended May, 1880.
*e* Suspended September, 1879.

# APPENDIX C.

# CHRONOLOGICAL HISTORY

OF THE

# NEWSPAPER PRESS OF THE UNITED STATES.

# CHRONOLOGICAL HISTORY OF THE NEWSPAPER PRESS OF THE UNITED STATES.

It is not pretended that the following chronology of the early history of the newspaper press in the several states is complete, but simply that it approximates completeness more nearly than any previous publication, and therefore forms the starting point for a comprehensive chronology of the press. Not even a skeleton chronology is here supplied of the press in the states of Colorado, Florida, Mississippi, Nebraska, Nevada, Oregon, or West Virginia; and in several other states, notably those of New England, the dates are conspicuously scant and unsatisfactory. At the same time, the student of these pages will observe that in the accompanying catalogue of the American periodical press as it existed in the census year a great number of additional dates are given which it was not deemed necessary to duplicate in this chronology, but which wholly supply its deficiencies so far as they relate to publications which continued to be in existence in 1880. The catalogue and the chronology must therefore be taken together. Efforts were made in each of the states above named to obtain the outline history of the newspaper press, but without success. Undoubtedly the data exist for supplying this deficiency, in part at least. The importance of the information, as constituting the necessary basis of the permanent history of the American press, will not be disputed; and the special agent making this report will be glad to receive at his home in Utica, New York, any communications supplying missing links in this chronology, or correcting errors that may appear herein.

## ALABAMA.

Area, 51,540 square miles; population, 1,262,505; 66 counties—newspapers published in 55. The total number of newspapers and periodicals published in 1840 was 28; in 1850, 60; 1860, 96; 1870, 89; 1880, 125. The publications during 1880 were divided, according to periods of issue, as follows: Dailies, 6; weeklies, 109; tri-weeklies, 1; monthlies, 7; semi-monthlies, 2. In each of 37 towns one paper was published; in 20, two; in 5, three; in 2, four; and in 4, five or more.

### EARLY HISTORY.

1812.—Printing was introduced at Huntsville. The following comprise a portion of the early newspapers. (*a*) No records have been preserved, and in consequence but little information can be obtained:

1812.—The *Madison Gazette*, established at Huntsville.

1814.—The *Halcyon*, at Saint Stephens.

1814, February.— —————————, at Mobile, by George Childs (French and English).

1815.—The *Advocate*, at Huntsville. Still published.

1816, November.—The *Mobile Gazette and General Advertiser*, at Mobile.

1818.—The *Tuscaloosa Republican*, at Tuscaloosa, by T. M. Davenport.

1819.—The *Gazette*, at Florence.

1820.—The *Clarion*, at Claiborne.

1820.—The *Free Press*, at Cahaba.

1820.—The *Alabama Watchman*, at Cahaba.

1820.—The *Republic*, at Montgomery, by J. Bottelle.

1821.—The *Register*, at Mobile.

1827.—The *Advertiser*, at Moulton.

1842.—The *Ledger*, daily, by John Forsyth.

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*a* Prepared by Walter Guild, secretary State Historical Society.

## ARKANSAS.

Area, 53,045 square miles; population, 802,525; 74 counties—newspapers published in 61. The total number of newspapers and periodicals in 1840 was 9; in 1850, 9; 1860, 37; 1870, 56; 1880, 117. The publications during 1880 were divided, according to periods of issue, as follows: Dailies, 6; weeklies, 104; semi-weeklies, 1; monthlies, 2; semi-monthlies, 4. In each of 51 towns one paper was published; in 15, two; in 3, three; in 3, four; and in 2, five or more.

### EARLY HISTORY.

William E. Woodruff, born on Long Island, went to Arkansas in 1819, the same year in which it was erected into a territory, and settled at Arkansas Post, then the site of the territorial government. On November 20, of that year, he issued here the first number of the Arkansas *Gazette*, with an edition of less than one hundred. This paper was the first printed in Arkansas, the fifth started west of the Mississippi river and the oldest one published continuously under the same name. There were then two newspapers at Saint Louis, one at Cape Girardeau, one at Natchitoches, Louisiana, and one for a short time at Nacogdoches, Texas. The Arkansas *Gazette*, the *Western Methodist*, also of Little Rock, the Van Buren *Press*, the Des Arc *Citizen*, and the Jacksonport *Herald* are the only Arkansas newspapers enumerated in the accompanying catalogue which claim an origin previous to the war. That event wiped out of existence the great body of the newspapers in this as well as other southern states, and the journals established subsequently are as a rule not older than the decade.

## CALIFORNIA.

Area, 155,980 square miles; population, 864,694; 52 counties—newspapers published in all. The total number of newspapers and periodicals published in 1850 was 7; in 1860, 121; 1870, 201; 1880, 361. The publications during 1880 were divided, according to periods of issue, as follows: Dailies, 58; weeklies, 250; semi-weeklies, 11; tri-weeklies, 2; monthlies, 32; semi-monthlies, 6; quarterlies, 2. In each of 56 towns one paper was published; in 29, two; in 5, three; in 7, four; and in 12, five or more.

### EARLY HISTORY.

1846.—Printing was introduced at Monterey. A few of the earlier newspapers are enumerated as follows:

1846, August 15.—The *Californian*, established at Monterey, by Calton & Semple. Printed in quarto form, two columns to a page.

1847, January 9.—The *Star*, at San Francisco, by Samuel Brannan. January 3, 1849, consolidated with the *Monterey Californian* and called the *Alta California*. Daily established in 1850. Still published.

1850.—The *Sacramento Tribune*, at Sacramento. Published a short time.

1850.—The *Daily Index*, at Sacramento, by Pickering & Lawrence. Published a short time.

1850.—The *Placer Times*, at Sacramento.

1851, April 21.—The *Nevada Journal*, at Nevada City, by W. B. Ewer. Suspended in 1861, but revived soon after and published a year and a half.

1853, September.—*Young America*, at Nevada City. Soon after changed to the *Nevada Democrat*. Suspended in 1863.

1853, September.—The *Telegraph*, at Grass Valley, by Oliver & Moore. In 1861 changed to the *Grass Valley National*. Suspended in 1870.

1865, January 16.—The *Dramatic Chronicle*, at San Francisco, by Charles de Young, changed to the *Chronicle* in 1868. Still published.

## CONNECTICUT.

Area, 4,845 square miles; population, 622,700; 8 counties—newspapers published in all. The total number of newspapers and periodicals published in 1810 was 11; in 1818, 13; 1840, 33; 1850, 46; 1860, 55; 1870, 71; 1880, 139. The publications during 1880 were divided, according to periods of issue, as follows: Dailies, 17; weeklies, 99; semi-weeklies, 2; monthlies, 15; semi-monthlies, 2; tri-monthlies, 1; bi-monthlies, 1; quarterlies, 2. In each of 30 towns one paper was published; in 9, two; in 3, three; in 4, four; and in 5, five or more.

### EARLY HISTORY.

1709.—Printing was introduced at New London. The following papers are among those first established: (*a*)

1755, January 1.—The *Connecticut Gazette*, established at New Haven, by James Parker & Co.; half sheet foolscap, 8½ by 14 inches. Publication suspended February 19, 1768.

1758, August 8.—The *New London Summary*, at New London, by Timothy Green, jr.; small half sheet. Publication suspended in 1763.

1763, November 1.—The *New London Gazette*, at New London, by Timothy Green; foolscap sheet, 14 by 17 inches. In 1773 changed to the *Connecticut Gazette*. Publication suspended in 1844.

1764, December.—The *Connecticut Courant*, at Hartford, by Thomas Green; cap sheet, 14 by 17 inches. Still published daily and weekly.

1767, October.—The *Connecticut Journal and New Haven Post Boy*, by T. & S. Green; cap sheet, 14 by 17 inches. Latter part of title afterward dropped. Publication suspended in 1835.

1773, October.—The *Norwich Packet*, at Norwich, by Robertson & Trumbull; crown sheet, 15 by 19 inches. Publication suspended in 1804.

1784.—The *Connecticut Gazette*, at New Haven. Published two years.

1784.—The *Litchfield Monitor*, at Litchfield, by Thomas Collier. Succeeded in 1804 by the *Litchfield Gazette*, by Hosmer & Goodwin.

1790.—The *Connecticut Gazette*, at New Haven. Published one year.

1796.—The *Federal Gazetteer*, at New Haven.

1809.—The *Connecticut Mirror*, at Hartford.

The following papers were published on the site of the *Daily Courant*, printed at Hartford:

1831.—The *Hartford Courier*, at Hartford. Succeeded in 1856 by the *National American*.

1835.—The *Patriot and Democrat*. In 1840 merged with the *State Eagle* and called the *Patriot and Eagle*. Suspended in 1842.

1836.—The *Connecticut Observer*. Succeeded in 1841 by the *Religious Herald*. Still published.

1836.—The *Christian Freeman*. Soon merged in the *Charter Oak*. Afterward merged in the *Republican*, and this in 1856 was absorbed in the *Press*, daily and weekly. In 1867 consolidated with the *Courant*.

1839.—The *Northern Watchman*. In 1839 merged with the *Congregationalist*, and this, in 1842, was sold to the *Boston Puritan*.

1843.—The *Evening Journal*, daily. In 1845 merged with the *Courant*.

1845.—The *Nonpareil* (literary). Suspended in 1847.

1846.—The *New England Weekly Review*. In 1847 changed to the *Connecticut Whig*. In 1849 merged with the *Courant*.

1846.—The *Fountain* (temperance). Suspended in 1855.

1850.—The *Advent Watchman*. Suspended about 1856.

1857.—The *Calendar* (Episcopal). In 1865 changed to the *Churchman* and removed to New York, where it is still published.

## DELAWARE.

Area, 1,960 square miles; population, 146,608; 3 counties—newspapers published in all. The total number of newspapers and periodicals published in 1810 was 2; in 1840, 6; 1850, 10; 1860, 14; 1870, 17; 1880, 26. The publications during 1880 were divided, according to periods of issue, as follows: Dailies, 5; weeklies, 20; monthlies, 1. In each of 6 towns one paper was published; in 3, two; and in 1, five or more.

### EARLY HISTORY.

1762.—Printing was introduced at Wilmington.

1762.—The *Wilmington Courant*, established at Wilmington, by James Adams. Published six months.

1784.—The *Wilmington Gazette*, established as a weekly. Is now published daily and weekly.

1787.—The *Wilmington Courant*, at Wilmington, by James Adams. Published two or three years.

1838.—The *Delaware Register* (monthly), at Dover, by William Huffinton.

## DISTRICT OF COLUMBIA.

Area, 60 square miles; population, 177,624. The total number of newspapers and periodicals published in 1810 was 6; in 1840, 14; 1850, 18; 1860, 13; 1870, 22; 1880, 44. The publications during 1880 were divided, according to periods of issue, as follows: Dailies, 5; weeklies, 23; monthlies, 15; quarterlies, 1.

### EARLY HISTORY.

1796, June 11.—The *Washington Gazette*, established at Washington, by Benjamin Moore; semi-weekly.

1800.—The *Washington Federalist*.

1800, October 31.—The *National Intelligencer and Washington Adver-*

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*a* Compiled from an address by J. F. Babcock, of New Haven, delivered at Middletown June 20, 1855.

## DISTRICT OF COLUMBIA—Continued.

*tiser*, by Samuel H. Smith, tri-weekly, as the organ of Jefferson's administration. Joseph Gales, jr., became one of the publishers in 1810, and in 1812 William W. Seaton joined the firm, which was known as Gales & Seaton. Suspended publication in 1866.

1822.—The *National Journal*, by Thomas L. McKinney; in 1825 it was owned and edited by Peter Force.

1826.—The *United States Telegraph*, by Duff Green, as the organ of President Jackson's administration.

1830, December.—The *Globe*, by Francis P. Blair, superseded the *Telegraph* as the organ of the administration of Jackson. In 1845 its appurtenances passed to the *Union*, but the *Globe*, thereafter known as the *Congressional Globe*, became the publisher of the official debates, under a contract awarded to Blair & Rives in 1846. Now the *Congressional Record*, published by Congress.

1834.—The *Washington Mirror*. Merged in the *Telegraph* in 1836.

1836.—The *Reformation*, by Duff Green. Succeeded by the *Chronicle* in 1838.

1841.—The *Independent*, by Edward N. Johnston, Joseph Segar, and J. H. Pleasants.

1842.—The *Madisonian*, edited first by Thomas Allen, then by John Jones; the organ of President Tyler.

1845.—The *Union*, by Thomas Ritchie and John P. Heiss.

There were five papers published at Washington in this year: the *Union*, the *Constitution*, the *United States Journal*, the *Globe*, and the *National Intelligencer*.

1846.—The *Daily Times*, by H. H. Robinson, succeeding the *United States Journal*.

1847.—The *National Era*, by Dr. Gamaliel Bailey, as the organ of the anti-Slavery party.

1848.—The *Republic*.

1853.—The *Star*, by Charles W. Denison, afterward owned and edited by W. D. Wallach; now published by the *Star* Publishing Company.

## GEORGIA.

Area, 58,980 square miles; population, 1,542,180; 137 counties—newspapers published in 100. The total number of newspapers and periodicals published in 1810 was 13; in 1840, 34; 1850, 51; 1860, 105; 1870, 110; 1880, 200. The publications during 1880 were divided, according to periods of issue, as follows: Dailies, 16; weeklies, 163; semi-weeklies, 3; tri-weeklies, 4; monthlies, 11; semi-monthlies, 3. In each of 75 towns one paper was published; in 17, two; in 8, three; in 2, four; and in 6, five or more.

### EARLY HISTORY.

1762.—Printing was introduced at Savannah.

1763, April 17.—The *Georgia Gazette*, established at Savannah, by James Johnston; cap sheet, 14 by 17 inches. Publication suspended after 1802.

1785.—The *Augusta Chronicle*, at Augusta, by J. E. Smith. Afterward consolidated with the *Constitutionalist* and called the *Chronicle and Constitutionalist*. Still published, daily, tri-weekly, and weekly.

1798.—The *Savannah Republican*, at Savannah, by Lyon & Morse. Suspended after 1829.

1800.—The *Washington Gazette*, at Washington, by Alexander McMillan. In 1801 changed to the *Monitor*, and in 1820 to the *Washington News*.

1809.—The *Georgia Journal*, at Milledgeville, by Seaton Grantland. Afterward removed to Macon and united with the *Messenger* as the *Journal and Messenger*.

1818.—The *Savannah Georgian*, at Savannah, by a society.

1819.—The *Milledgeville Recorder*. Still published.

1820.—The *Southern Recorder*, at Milledgeville, by Grantland & Orme. Now published as the *Union and Recorder*.

1822.—The *Patriot*. ———. In 1827 united with the *Statesman*, and called the *Statesman and Patriot*, by E. H. Burrett.

1823, March 18.—The *Georgia Messenger*, at Macon, by Matthew Robertson. Afterward consolidated with the *Telegraph*, and called the *Telegraph and Messenger*. Still published, daily, semi-weekly, and weekly. (The date of the establishment of the *Messenger* is given by the publishers as 1826.)

1823, July.—The *Constitutionalist*, at Augusta, by William J. Bruce. Afterward consolidated with the *Chronicle*.

1824.—The *Columbian Sentinel*, at Athens, by P. Robinson. In 1827 changed to the *Athenian*.

1825.—The *Georgia Statesman*, at ———. Consolidated with the *Patriot* in 1827.

1826.—The *Hancock Advertiser*, at Hancock, by J. P. Norton.

1826.—The *Macon Telegraph*, at Macon, by M. Bartlett. Afterward consolidated with the *Messenger*.

1826, May.—The *Georgia Courier*, at ———, by Brantly & Clarke.

1827.—The *Columbus Enquirer*, at Columbus, by M. B. Lamar. Now published as the *Enquirer-Sun*, daily and weekly.

1827.—The *Jackson Republican*, at McDonough, by ——— Minor.

1828.—The *Rural Cabinet*, at ———, by P. Robinson.

1828.—The *Savannah Mercury*, at Savannah, by C. E. Bartlett.

1829.—The *Darien Phœnix*, at Darien.

## ILLINOIS.

Area, 56,000 square miles; population, 3,077,871; 102 counties—newspapers published in all. The total number of newspapers and periodicals published in 1840 was 43; in 1850, 107; 1860, 286; 1870, 505; 1880, 1,017. The publications during 1880 were divided, according to periods of issue, as follows: Dailies, 74; weeklies, 758; semi-weeklies, 17; tri-weeklies, 6; bi-weeklies, 3; monthlies, 118; semi-monthlies, 18; tri-monthlies, 1; quarterlies, 21; semi-annuals, 1. In each of 170 towns one paper was published; in 93, two; in 37, three; in 12, four; and in 28, five or more.

### EARLY HISTORY.

1815.—Printing was introduced at Kaskaskia. The following is a list of early publications by counties: (*a*)

#### ADAMS COUNTY.

1835.—The *Quincy Argus and Bounty Land Register*, established at Quincy, by John H. Pettit & Co. Now issued as the weekly edition of the *Daily Herald*.

#### BUREAU COUNTY.

1848.—The *Bureau Advocate*, at Princeton.

1855.—The *Bureau County Democrat*, at Princeton, by C. N. Pine.

1855.—The *Princeton Post*, at Princeton, by Charles Faxon.

#### COOK COUNTY.

1833, November 26.—The *Chicago Democrat*, at Chicago, by John Calhoun. Merged in the *Tribune* in 1861.

1836, October 11.—The *Commercial Advertiser*, at Chicago, by Hooper Warren. Published one year.

1841, January 1.—The *Union Agriculturist and Prairie Farmer*, at Chicago. Afterward changed to the *Prairie Farmer*. Still published.

#### FAYETTE COUNTY.

1820.—The *Illinois Intelligencer*, removed from Kaskaskia. In 1832 changed to the *Vandalia Whig and Illinois Intelligencer*. Suspended in 1839.

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[a] Compiled from an address delivered before the Franklin Society, at Chicago, January 20, 1870, by Henry B. Boss.

## ILLINOIS—Continued.

1830, December.—The *Illinois Magazine*, at Vandalia.

1832, December.—The *Illinois Advocate*, removed from Edwardsville to Vandalia, by J. Y. Sawyer. Suspended April 4, 1836.

1836.—The *Vandalia Free Press*, at Vandalia, by William Hodge. Published several years.

### FRANKLIN COUNTY.

1849, December.—The *Benton Standard*, at Benton, by Ira Van Nortwick. Removed to Du Quoin in 1858.

1860.—The *Benton Democrat*, at Benton, by A. & G. Sellers.

### FULTON COUNTY.

1838, January.—The *Canton Herald*, at Canton, by P. Stone.

### GALLATIN COUNTY.

1818.—The *Illinois Emigrant*, at Shawneetown, by Eddy & Kimmel. Afterward changed to the *Illinois Gazette*.

### HANCOCK COUNTY.

1836, June.—The *Carthagenian*, at Carthage, by an association. Suspended in 1837.

1839.—The *Times and Seasons*, monthly (Mormon), at Nauvoo, by Smith & Robinson.

1840.—The *Western World*, at Warsaw, by David N. White. In 1841 changed to the *Warsaw Signal*, and in 1850 to the *Warsaw Commercial Journal*. Suspended in 1853.

1842.—The *Wasp* (Mormon), at Nauvoo, by W. Smith. Afterward changed to the *Nauvoo Neighbor*, and in 1846 to the *Hancock Eagle*. Soon after suspended.

1844.—The *New Citizen* (anti-Mormon), at Nauvoo. Afterward changed to the *Hancock Patriot*. Suspended in 1850.

1851.—The *Warsaw Weekly Express*, at Warsaw, by T. Gregg. Suspended in 1854.

1853.—The *Hancock Democrat*, at La Harpe. Soon after removed to Carthage and called the *Carthage Republican*. Still published.

1855.—The *Warsaw Weekly Bulletin*, at Warsaw, by Davison & Howe. Still published.

1856.—The *Augusta Times*, at Augusta, by L. S. Grove. Published about one year.

1857.—The *Plymouth Locomotive*, at Plymouth, by a company. Suspended in 1858.

Of twenty-four publications established in Hancock county between 1836 and 1860 only two were published at the latter date.

### JERSEY COUNTY.

1837.—The *Backwoodsman*, at Grafton, by John Russell.

### JO DAVIESS COUNTY.

1828, July 4.—The *Miners' Journal*, at Galena, by James Jones. Suspended in 1832.

1829.—The *Galena Advertiser and Upper Mississippi Herald*, at Galena, by Hooper Warren. Afterward changed to the *Galena Gazette*. Still published, daily and weekly.

1832.—The *Galenian*, at Galena, by Dr. Philleo.

1856, January.—The *Galena Courier*, at Galena, by Seal & Crouch, daily, tri-weekly, and weekly.

### KANE COUNTY.

1845–'46, winter of.—The *Fox River Advocate*, at Geneva, by Thomas & Hough. Published a few months.

1846.—The *Prairie Messenger*, at Saint Charles. Suspended in 1847.

1847.—The *Western Mercury*, at Geneva, Wilson & Cockroft. Suspended in 1851.

### KNOX COUNTY.

1848.—The *Knox Intelligencer*, at Galesburg, by Charles R. Fisk.

1849.—The *Northwestern Gazetteer*, at Galesburg, by Southwick Davis.

### LA SALLE COUNTY.

The *Genius of Liberty*, at Lowell, by Warren & Eastman.

### MADISON COUNTY.

1819, May.—The *Edwardsville Spectator*, at Edwardsville, by H. Warren. Published several years.

1822, September 14.—The *Star of the West*, at Edwardsville, by Miller & Stine. In 1823 changed to the *Illinois Republican*. Suspended in August, 1824.

1828.—The *Illinois Corrector*, at Edwardsville, by R. K. Fleming.

1830, April 3.—The *Crisis*, at Edwardsville, by S. S. Brooks. Afterward changed to the *Illinois Advocate*. Suspended in 1832.

1832, January.—The *Alton Spectator*, at Alton, by Edward Breath.

1836.—The *Illinois Temperance Herald*, at Alton, by A. W. Corey, monthly. Published several years.

1836.—The *Western Pioneer and Baptist Standard Bearer*, removed from Rock Spring, Saint Clair County, to Upper Alton, by A. Smith & Co. Afterward changed to the *Western Pioneer*.

1836.—The *Observer* (religious), removed from Saint Louis to Alton, by Rev. E. P. Lovejoy. The press was destroyed three times by the upholders of slavery. A mêlée occurred on receipt of the fourth in November, 1837, in which Mr. Lovejoy was killed.

1836, January 15.—The *Alton Telegraph*, at Alton, by Treadway & Parks. In 1855 merged with the *Courier*. Revived in 1861. Still published, daily and weekly.

1839.—The *Western Weekly Mirror*, at Edwardsville, by James Ruggles.

1840, March.—The *Sovereign People*, at Edwardsville, by James Ruggles.

1852.—The *Alton Presbytery Reporter*, by A. T. Norton, monthly. In 1860 removed to Chicago.

1852, May.—The *Alton Courier*, at Alton, by Brown, Fitch & Gamble, daily, tri-weekly, and weekly. In 1855 united with the *Telegraph*. Suspended in 1861.

1853.—The *Madison Enquirer*, at Edwardsville, by Theodore Terry.

1855, July 13.—The *Alton National Democrat*, at Alton, by George M. Thompson. Suspended in 1860.

1856, June 26.—The *Madison Advertiser*, at Edwardsville, by James R. Brown.

1858, January 1.—The *Daily Evening Democrat*.

1861.—The *Madison Weekly Press*, at Edwardsville, by Theodore Terry.

1861.—The *Ladies' Pearl*, at Alton, by Logan & Brown, monthly.

### MARSHALL COUNTY.

1838.—The *Illinois Herald*, by A. N. Ford. Afterward published as the *Illinois Gazette*.

1852, December 23.—The *Marshall County Courier*, at Henry, by R. H. Ruggles. Changed to the *Henry Courier* in 1854. Now published as the *Henry Republican*.

1861.—The *Lacon Intelligencer*, at Lacon.

### MONTGOMERY COUNTY.

1839.—The *Prairie Beacon*, at Hillsboro', by Charles Clapp.

### MORGAN COUNTY.

1835.—*Liberty's Sentinel*, at Jacksonville, by J. B. Fulks.

### OGLE COUNTY.

1842, January 1.—The *Rock River Register*, at Mount Morris, by Jonathan Knodle. In September removed to Grand Detour. Suspended in 1843.

1844, November.—The *Illinois Tribune*, at Grand Detour, by J. W. Sweetland.

1848, April 14.—The *Ogle County Banner*, by R. P. Redfield. Suspended in 1860.

## ILLINOIS—Continued.

1850, April.—The *Mount Morris Gazette*, at Mount Morris, by J. F. Grosh.

1851, May.—The *Ogle County Gazette*, at Oregon, by R. C. Burchell. In 1852 changed to the *Ogle County Reporter*. Still published.

1855.—The *Northwestern Republican*, at Mount Morris, by Atwood & Williams. In 1856 changed to the *Independent Watchman*, and published several years.

1858, October.—The *Lane Leader*, at Lane (now Rochelle), by J. R. Howlett.

### PEORIA COUNTY.

1834, March 19.—The *Illinois Champion*, at Peoria, by Buxton & Wolford. In 1837 merged in the *Peoria Register*.

1837.—The *Peoria Register and Northwestern Gazetteer*, at Peoria, by S. H. Davis.

1840, February.—The *Democratic Press*, at Peoria, by John S. Zeiber. Suspended in 1857.

### RANDOLPH COUNTY.

1815.—The *Illinois Intelligencer* (first in the state), at Kaskaskia, by Mathew Duncan. In 1820 removed to Vandalia.

1823.—The *Kaskaskia Republican*, at Kaskaskia.

1823, January.—The *Republican Advocate*, at Kaskaskia, by R. K. Fleming.

1832.—The *Randolph Free Press*, at Kaskaskia, by R. K. Fleming.

### SAINT CLAIR COUNTY.

1828.—The *Western News*, at Belleville, by Dr. J. Green.

1829, April 24.—The *Pioneer of the Valley of the Mississippi*, at Rock Spring, by Thomas P. Green. Afterward changed to the *Western Pioneer*. In 1831 united with the *Western Baptist* (established about 1829) and called the *Pioneer and Western Baptist*. In 1835 changed to the *Pioneer*. Removed to Alton in 1836.

1837.—The *Representative and Belleville News*, at Belleville, by E. S. Cropley.

1842, March 5.—The *American Bottom Reporter*, at Illinoistown, by Vital, Jarrott & Co.

### SANGAMON COUNTY.

1827, February 27.—The *Sangamo Spectator*, at Springfield, by H. Warren.

1829.—The *Illinois Courier*, at Springfield, by Mr. Meredith.

1831.—The *Sangamo Journal*, at Springfield, by S. W. & J. Francis. Now published as the *Illinois State Journal*, daily and weekly.

1839.—The *Illinois State Register*, removed from Vandalia to Springfield. Now published daily and weekly.

### STEPHENSON COUNTY.

1847, November 7.—The *Prairie Democrat*, at Freeport, by S. D. Carpenter. Succeeded in 1853 by the *Freeport Bulletin*. Still published, daily and weekly.

1848, October.—The *Freeport Journal*, at Freeport, by Grattan & McFadden. The *Daily Bulletin* published 1856–'58. Weekly still published.

### UNION COUNTY.

1849, September 13.—The *Jonesboro' Gazette and Southern Illinois Reflector*, at Jonesboro', by Finley & Evans. Still published.

1860, April.—The *Union County Record*, at Anna, by W. H. Mitchell. Published several months.

1860, August 22.—The *Union Democrat*, at Jonesboro', by A. H. Marschalk. Removed to Anna the following November.

### WINNEBAGO COUNTY.

1840, May 5.—The *Rock River Express*, at Rockford, by B. J. Gray. Published one year.

1840, August.—The *Rockford Star*, at Rockford, by P. Knappen. Suspended in 1841.

1841, July 22.—The *Rockford Pilot*, at Rockford, by J. A. Brown. Suspended in 1842.

1843, February.—The *Winnebago Forum*, at Rockford, by J. A. Wight. Afterward changed to the *Rockford Forum*, and again in 1854 to the *Rockford Republican*. Merged in the *Register* in 1862.

1848, October.—The *Rockford Free Press*, at Rockford, by H. W. De Puy. Suspended in 1850.

1852, June.—The *Rock River Democrat*, at Rockford, by Benjamin Holt. Consolidated with the *Register* in 1865.

1854.—The *Spirit Advocate* (spiritual), at Rockford, monthly. Suspended in 1855.

1855, February.—The *Rockford Register*, at Rockford, by E. C. Daugherty. Still published.

1857, May 27.—The *Rockton Gazette*, at Rockton, by H. W. Phelps. Removed to Burlington, Wisconsin, in April, 1859.

1858, October.—The *Rockford Standard*, at Rockford, by Springsteen & Parks. The *Daily News* published in connection with it one year from the spring of 1859. Daily resumed, and name changed to the *Daily and Weekly News* in the fall of 1860. Merged in the *Register* in 1861.

1859, May 7.—The *Pecatonica Independent* established at Pecatonica, by J. E. Duncan.

1859, September.—The *Rock River Mirror*, at Rockford, by Allen Gibson.

1877.—The *Daily Register*, at Rockford. Still published.

## INDIANA.

Area, 35,910 square miles; population, 1,978,301; 92 counties—newspapers published in all. The total number of newspapers and periodicals published in 1810 was 1; in 1840, 73; 1850, 107; 1860, 186; 1870, 293; 1880, 467. The publications during 1880 were divided, according to periods of issue, as follows: Dailies, 40; weeklies, 390; semi-weeklies, 1; tri-weeklies, 3; bi-weeklies, 1; monthlies, 27; semi-monthlies, 5. In each of 88 towns one paper was published; in 43, two; in 26, three; in 16, four; and in 16, five or more.

### EARLY HISTORY.

1804.—Printing was introduced at Vincennes. The following is a list of the early publications in the state by counties: (*a*)

### ADAMS COUNTY.

The *Annalist*, established at Decatur. (Date of establishment and name of publisher unknown.)

### ALLEN COUNTY.

1833.—The *Fort Wayne Sentinel*, at Fort Wayne, by Thomas Tigar and S. V. B. Noel.

### BARTHOLOMEW COUNTY.

1831.—*Columbus Chronicle*, at Columbus, by Lawson L. Dunkin.

### BENTON COUNTY.

1855.—The *Oxford Evening Mail*, at Oxford, by J. W. Jackson.

1871.—The *Benton County Herald*, at Fowler, by D. McA. Williams. The *Boswell Leader*, at Boswell, by C. Gault.

### BOONE COUNTY.

1852.—The *Lebanon Pioneer*, at Lebanon, by A. C. Jackson.

### BROWN COUNTY.

The *Jacksonian*, at Nashville. (Date and name of publisher unknown.)

### CARROLL COUNTY.

1845.—The *Delphi Oracle*, at Delphi, by Robert C. Green.

### CASS COUNTY.

1829, August.—The *Pottawattomie and Miami Times*, at Logansport, by John Scott.

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*a* Prepared by W. H. H. Terrell, secretary of the State Historical Society.

## INDIANA—Continued.

### CLARK COUNTY.

Papers published at Charlestown and Jeffersonville, but dates and names of publishers unknown.

### CLAY COUNTY.

1851.—The *Eel River Propeller*, at Bowling Green, by Samuel Christy.
1855.—The *Weekly News*, at Brazil, by J. M. Oliver.

### CLINTON COUNTY.

1839.—The *Frankfort Argus*, at Frankfort, by Caterlin & Piles.

### CRAWFORD COUNTY.

The *Crawford County Democrat and Crawford County Republican*, at Leavenworth. (Date of establishment and publishers' names unknown.)

### DAVIESS COUNTY.

1839.—"*The* 8 *by* 10," at Washington, by William Berry.
1840.—The *Democrat*, at Washington, by W. Young.
1840.—The *Harrisonian*, at Washington, by Samuel H. Smith.

### DEARBORN COUNTY.

1871.—The *Dearborn Gazette*, at Lawrenceburg, by W. Brown.

### DECATUR COUNTY.

1831.—The *Greensburg Chronicle*, at Greensburg, by Elijah Mitchell.

### DE KALB COUNTY.

The *Waterloo Press*, the *Republican*, at Auburn, the *Courier*, at Auburn, the *News*, at Garrett. (Dates and publishers unknown.)

### DELAWARE COUNTY.

1840.—The *Muncietonian*, at Muncie. (Publisher unknown.)

### DUBOIS COUNTY.

1848.—The *Signal* (German), at Huntingburg. (Publisher unknown.)
1868.—*Jasper Courier*, at Jasper, by Clemens Doane.

### ELKHART COUNTY.

1837.—The *Goshen Democrat*, at Goshen, by Brown & Bassett.
1859.—*Elkhart Review*, at Elkhart, by Weller & Chase.

### FAYETTE COUNTY.

1826.—The *Connersville Observer*, at Connersville, by Rench & Sample.

### FLOYD COUNTY.

A newspaper was published at New Albany at an early day. (No report of its date or publisher.)

### FOUNTAIN COUNTY.

1836.—The *Western Constellation*, at Covington, by Commingore & Snyder.
1852.—The *Attica Ledger*, at Attica, by J. A. Rice.
1873.—The *People's Paper*, at Veedersburg, by J. H. Spence; removed to Attica.

### FRANKLIN COUNTY.

1819.—The *Brookville Enquirer and Indiana Gazetteer*, at Brookville, by John A. Scott & Co.

### FULTON COUNTY.

1850.—The *Star*, at Rochester, by John Q. Howell.

### GRANT COUNTY.

1842, June 4.—The *Democratic Herald*, at Marion, Jer. Harry, publisher, John Gilbert, editor.
1854.—The *Mississinewa Gazette*, at Marion, by D. W. Jones.
1860.—The *Jonesboro' News*, at Jonesboro', by the Jonesboro' News Club.

### GREENE COUNTY.

1855.—The *Greene County Times*, at Bloomfield, by E. Rose.
1873.—The *Worthington Sun*, at Worthington, by W. H. Osborn.
1875.—The *Owensburg Observer*, at Owensburg, by Mr. Sleeth.

### HAMILTON COUNTY.

1832.—The *Little Western*, at Noblesville, by Henry Emmons.

### HANCOCK COUNTY.

The *Greenfield Reveille*, at Greenfield, by James and Jonathan Hunt. (Date unknown.)

### HARRISON COUNTY.

1814.—The *Corydon Gazette*, at Corydon.

### HENDRICKS COUNTY.

1845.—The *Danville Advertiser*, at Danville, by Dr. H. G. Todd.

### HENRY COUNTY.

1831.—The *Knightstown Sun*, at Knightstown, by Mr. Grant.
1841.—The *Indiana Courier*, at New Castle, by J. W. Grubbs.
1874.—The *Spiceland Reporter*, at Spiceland, by F. Ratcliff.

### HOWARD COUNTY.

1848.—The *Pioneer*, at New London, by Dr. R. M. Wickersham.
1850.—The *Howard Tribune*, at Kokomo, by James Beard.

### HUNTINGTON COUNTY.

1846.—The *Republican Bugle*, at Huntington, by Mr. Smith.

### JACKSON COUNTY.

Papers published at Brownstown and Seymour. A paper was published at Rockford about 1850 by Dr. J. R. Monroe; now published at Seymour.

### JASPER COUNTY.

1854.—The *Jasper Banner*, at Rensselaer, by John McCarthy.

### JAY COUNTY.

1852.—The *Portland Journal*, at Portland, by James M. Bromagen.

### JEFFERSON COUNTY.

1815.—The *Republican Banner*, at Madison, by William Hendricks.

### JENNINGS COUNTY.

1836.—The *Vernon Visitor*, by Randall & Comer.
1836.—The *Plain Dealer*, at North Vernon.

### JOHNSON COUNTY.

1845.—The *Franklin Jeffersonian*, at Franklin, by H. C. Allison.
1874.—The *Edinburg Courier*, at Edinburg, by Brown & Bro.

### KNOX COUNTY.

1804, April.—The *Indiana Gazette*, at Vincennes, by Elihu Stout. Burned in 1806.
1806.—The *Western Sun*, at Vincennes, by Elihu Stout. Now issued daily and weekly.
1819.—The *Vincennes Gazette*, at Vincennes.

### KOSCIUSKO COUNTY.

1845.—The *Kosciusko Republican*, at Monoquet, by Charles L. Murray.
The *Warsaw Democrat*, at Warsaw, by D. R. Pershing and Dr. S. B. Critchfield. (Date unknown.)
The *Pierceton Reveille*, at Pierceton. (Date and publisher unknown.)

### LAKE COUNTY.

1834.—The *Western Ranger*, at Crown Point, by Solon Robinson.

### LA PORTE COUNTY.

1835, June.—The *Michigan City Gazette*, at Michigan City, by James S. Castle.
1838, June.—The *La Porte County Whig and Porter, Lake, and Marshall Counties Advertiser*, at La Porte, by Stuart & Clisbe.
1851.—The *Westville Free Press*, at Westville, by L. P. Williams.

### LAWRENCE COUNTY.

1834.—The *Western Spy*, at Bedford, by O. H. Allen.

### MADISON COUNTY.

1834.—The *Western Telegraph*, at Anderson, by C. D. Henderson.

## INDIANA—Continued.

### MARION COUNTY.

1822, January 28.—The *Indianapolis Gazette*, at Indianapolis, by George Smith and Samuel Bolton.

### MARSHALL COUNTY.

1851, June.—The *Plymouth Pilot*, at Plymouth, by John Q. Howell.

### MARTIN COUNTY.

1859.—The *Comet*, at Dover Hill, by Mr. Hinkle.

### MIAMI COUNTY.

1837, July 22.—The *Peru Forester*, at Peru, by Samuel Pike.

### MONROE COUNTY.

1825.—The *Indiana Gazette and Literary Advocate*, at Bloomington, by Jesse Brandon.

### MONTGOMERY COUNTY.

1832.—The *Crawfordsville Record*, at Crawfordsville, by Wade & Bryant.

### MORGAN COUNTY.

The *Morgan County Gazette*. (Date of establishment and publisher unknown.)

### NEWTON COUNTY.

1860, September.—The *Newton Chronotype*, at Kentland, by Cowen & Schoonover.
1875.—The *Goodland Reporter*, at Goodland, by C. H. Miller.

### NOBLE COUNTY.

The *New Era*, at Albion, by S. C. Alvord; the *Standard*, at Kendallville; the *National Banner*, at Rome City. (Dates of establishment and publishers unknown.)

### OHIO COUNTY.

The *Rising Sun Recorder* and the *Saturday News*, at Rising Sun. (Dates of establishment and publishers unknown.)

### ORANGE COUNTY.

1831.—The *Paoli Times*, at Paoli, by Dr. William A. Bowles.

### OWEN COUNTY.

1843.—The *Comet*, at Spencer, by I. F. Lytle.
1843.—The *Spencer Chronicle*, at Spencer, by Joseph Reed.

### PARKE COUNTY.

The *Rockville Republican*, at Rockville, by Marts & Clark. (Date unknown.)

### PERRY COUNTY.

The *Cannelton Reporter*, at Cannelton, by Hunt & Mason; the *Tell City Commercial*, at Tell City, by W. P. Knight. (Dates of establishment unknown).

### PIKE COUNTY.

1854.—The *Patriarch*, at Petersburg, by John Evans.

### PORTER COUNTY.

1843.—The *Porter County Republican*, at Valparaiso, by James S. Castle.

### POSEY COUNTY.

1825.—The *New Harmony Gazette*, at New Harmony, by Robert Dale Owen.

### PULASKI COUNTY.

1854.—The *Winamac Democrat*, at Winamac, by B. F. Thomas.

### PUTNAM COUNTY.

1830.—The *Hoosier*, at Greencastle, by Mr. Childs.

### RANDOLPH COUNTY.

The *Winchester Herald* and the *Winchester Journal*, at Winchester.

### RIPLEY COUNTY.

1835.—The *Intelligencer*, at Versailles, by B. B. Root.
1867.—The *Osgood Times*, at Osgood, by James McDonald.

### RUSH COUNTY.

1832.—The *Indiana Herald and Gazetteer*, at Rushville.

### SAINT JOSEPH COUNTY.

1831.—The *Northwestern Pioneer*, at South Bend, by John D. and Joseph H. Defrees.

### SCOTT COUNTY.

The *Western Eagle*, at Lexington, by Jacob Rhoads. (Date of establishment unknown.)

### SHELBY COUNTY.

1832.—The *Shelbyville Argus*, at Shelbyville, by William H. Haslet.

### SPENCER COUNTY.

The *Rockport Democrat*, by R. S. Hicks, and the *Rockport Gazette*, by T. J. Langdon. (Dates of establishment unknown.)

### STARKE COUNTY.

1861, May.—The *Starke County Press*, at Knox, by Joseph A. Berry.

### STEUBEN COUNTY.

1848.—The *Indiana Review*, at Angola, by W. Martin.

### SULLIVAN COUNTY.

The *Sullivan Union* and the *Sullivan Democrat*, at Sullivan.

### SWITZERLAND COUNTY.

The *Vevay Reveille*, at Vevay.

### TIPPECANOE COUNTY.

The *La Fayette Journal*, by John B. Seaman. (Date of establishment unknown.)

### TIPTON COUNTY.

1855.—The *Tipton County Democrat*, at Tipton, by A. M. Vickrey.

### UNION COUNTY.

The *Liberty Herald*, at Liberty, by John W. Short. (Date of establishment unknown.)

### VERMILLION COUNTY.

1838.—The *Perryville Banner*, at Perryville, by John R. Jones.
1840.—The *Eugene News Letter*, at Eugene, by R. M. Waterman.
1852.—The *Olive Branch*, at Newport, by James Hood and Andrew J. Adams.
1874.—The *Clinton Exponent*, at Clinton, by S. B. Blackledge.

### VIGO COUNTY.

1823, July 21.—The *Western Register and Terre Haute Advertiser*, at Terre Haute, by John W. Osborn.

### WABASH COUNTY.

1846.—The *Upper Wabash Argus*, at Wabash, by Moses Scott.
1866.—The *North Manchester Republican*, at North Manchester, by M. E. Pleas.

### WARREN COUNTY.

1844.—The *Wabash Commercial*, at Independence, by Enos Canutt; afterward removed to Williamsport.
1870.—The *Advance*, at West Lebanon, by S. P. Conner.

### WASHINGTON COUNTY.

The *Salem Democrat*; the *Salem Whig*.

## INDIANA—Continued.

### WAYNE COUNTY.

1821.—The *Weekly Intelligencer*, at Richmond, by Elijah Lacy. Papers were also established at Cambridge City and Centreville.

### WELLS COUNTY.

1847.—The *Republican Bugle*, at Bluffton, by T. Smith.

### WHITE COUNTY.

1848.—The *Prairie Chieftain*, at Monticello, by Jonas Reed.

1870.—The *Brookston Reporter*, at Brookston, by D. S. & F. D. French.

### WHITLEY COUNTY.

1854.—The *Pioneer*, at Columbia City, by J. A. Berry.

## IOWA.

Area, 55,475 square miles; population, 1,624,615; 99 counties—newspapers published in all. The total number of newspapers and periodicals published in 1840 was 4; in 1850, 29; 1860, 130; 1870, 233; 1880, 569. The publications during 1880 were divided, according to periods of issue, as follows: Dailies, 30; weeklies, 500; semi-weeklies, 3; tri-weeklies, 1; bi-weeklies, 2; monthlies, 31; semi-monthlies, 1; quarterlies, 1. In each of 140 towns one paper was published; in 61, two; in 33, three; in 10 four; and in 21, five or more.

### EARLY HISTORY.

1836, May 11.—Printing was introduced at Dubuque. The publications prior to 1842 were as follows: (*a*)

1836, May 11.—The *Dubuque Visitor*, established at Dubuque Lead Mines, Wisconsin territory, by John King. Now published as the *Dubuque Herald*.

1837, June 3.—The *Iowa News*, at Dubuque, by Russell & Coriell.

1837, July 8.—The *Western Adventurer*, at Montrose, by Thomas Gregg.

1837, July 8.—The *Wisconsin Territorial Gazette*, at Burlington, by Clark & Jacobs. Now published as the *Burlington Gazette*.

1837, September.—The *Western Emigrant and Historian*, at Montrose, by Thomas Gregg; monthly, 16 pages. But three numbers were issued.

1838, March 24.—The *Fort Madison Patriot*, at Fort Madison, by James E. Edwards. Removed to Burlington, November 27, 1838, and called the *Burlington Patriot*. Now published as the *Burlington Hawkeye*.

1838, August 4.—The *Iowa Sun*, at Davenport, by Andrew Logan. Now published as the *Davenport Democrat*.

1840, October 23.—The *Iowa Standard*, at Bloomington (now Muscatine), by William Crum.

1840, October 27.—The *Bloomington Herald*, at Bloomington (now Muscatine), by Thomas Hughes.

1841, May 23.—The *Fort Madison Courier*, at Fort Madison, by R. W. Albright.

1841, June 10.—The *Iowa City Standard*, at Iowa City, by William Crum. Now published as the *Iowa City Republican*.

1841, July.—The *Miner's Express*, at Dubuque, by Avery Thomas.

1841, July 30.—The *Iowa City Argus*, at Iowa City, by Nathan Jackson.

1841, August 26.—The *Davenport Gazette*, at Davenport, by Alfred Saunders. The first steam press in Iowa was used in this office in 1855. The daily (first in the state) was established October 16, 1854. Still published.

1841, December 3.—The *Iowa Capital Reporter*, at Iowa City, by Hughes & Van Antwerp. Now published as the *Iowa State Press*.

*a* Compiled by John Springer, of Iowa City.

## KANSAS.

Area, 81,700 square miles; population, 996,096; 104 counties—newspapers published in 83. The total number of newspapers and periodicals published in 1860 was 27; in 1870, 97; 1880, 347. The publications during 1880 were divided, according to periods of issue, as follows: Dailies, 20; weeklies, 310; semi-weeklies, 1; monthlies, 15; semi-monthlies, 1. In each of 101 towns one paper was published; in 45, two; in 16, three; in 7, four; and in 10, five or more.

### EARLY HISTORY. (*a*)

1834.—Printing introduced. (*b*)

Newspapers established in each county, as follows:

### ALLEN COUNTY.

1864, November 16.—The *Humboldt Herald*, at Humboldt, by Joseph Bond. Published less than a year.

1866, April 18.—The *Humboldt Union*, at Humboldt, by W. T. McElroy. Still published.

1867, January 5.—The *Allen County Courant*, at Iola, by W. H. Johnson. In 1868 changed to the *Neosho Valley Register*, in August, 1870, to the *Kansas State Register*, and in December, 1870, again changed to the *Neosho Valley Register*. In 1875 changed to the *Iola Register*. Still published.

1870, October 27.—The *Southern Kansas Statesman*, at Humboldt, by Berry & Campbell. Suspended in May, 1872.

1873, November.—The *Rural Kansan*, at Humboldt, by D. B. Emmert; monthly. Published one year.

1877, October 11.—The *Inter-State*, at Humboldt, by Dunn & Baker. Still published.

### ANDERSON COUNTY.

1865, January.—The *Garnett Plaindealer*, at Garnett, by I. E. Olney. Still published.

1868, October.—The *Anderson County Expositor*, at Garnett, by W. H. Johnson. Published a short time.

1873, January.—The *Journal*, at Garnett, by G. W. Cooper. Still published.

### ATCHISON COUNTY.

1855, February 3.—The *Squatter Sovereign*, at Atchison, by Kelly & Stringfellow. In 1858 changed to the *Atchison Champion*. Daily edition established in 1865. Still published, daily and weekly.

1857, July.—The *Kansas Zeitung*, at Atchison, by Dr. Charles F. Kob. In 1859 removed to Leavenworth.

1857, September 12.—The *Sumner Gazette*, at Sumner, by Cone Brothers. Suspended August 27, 1859.

1859.—The *Western Spy*, at Sumner, by Baxter & McBride. Published a short time.

1859, June 4.—The *Union*, at Atchison, by D. O. Chase. Suspended in 1864.

1861, June 20.—The *Atchison Bulletin*, at Atchison, by Driggs, Faris, & Moore. Suspended in 1862.

1862, November 29.—The *Democratic Standard*, at Atchison, by W. J. Marion. Published three months.

1864, May 5.—The *Atchison Free Press*, at Atchison, by F. G. Adams; daily. In 1868 united with the *Champion*.

1867, October 25.—The *Atchison Patriot*, at Atchison, by Nelson Adams; daily and weekly. Still published.

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*a* Compiled from the *First Biennial Report of the State Board of Agriculture*, 1878.

*b* In 1834, or twenty years before the organization of the territory of Kansas, Rev. Joseph Meeker, missionary to the Ottawa and other Indian tribes, brought an old-fashioned press and printing material to the old mission farm of the Baptists, five miles east of the present site of Ottawa, Franklin county. Mr. Meeker published a small missionary paper in the English and Cherokee languages. He also wrote and published several Sunday school books in the Indian tongue, a book of the code of laws of the Ottawas, a hymn book, and several school books.

## KANSAS—Continued.

**1868, January 1.**—*Die Fackel*, removed from Wyandotte to Atchison, by H. W. Kastor. In January, 1869, removed to Saint Joseph, Missouri.

**1873, April 27.**—The *Globe*, at Atchison, by a stock company; daily and weekly. Suspended December 14, 1873.

**1874, February 14.**—The *Courier* (German), at Atchison, by Edward Fleischer. Still published.

1877, December 8.—The *Little Globe*, at Atchison, by Howe & Co.; daily. Now published weekly.

1878, March 1.—The *Atchison Banner*, at Atchison, by C. F. Kurth & Co.

### BARTON COUNTY.

1873.—The *Barton County Progress*, at Great Bend, by H. P. Shults. Published one year.

1874.—The *Great Bend Register*, at Great Bend, by a company. Still published.

1876.—The *Inland Tribune*, at Great Bend, by C. P. Townsley. Still published.

1877, July.—The *Arkansas Valley Democrat*, at Great Bend, by a company. Still published.

### BOURBON COUNTY.

1855, August.—The *Southern Kansas*, at Fort Scott.

1857.—The *Fort Scott Democrat*, at Fort Scott, by J. E. Jones.

1862.—The *Western Volunteer*, at Fort Scott, by E. K. Smith. Soon after changed to the *Fort Scott Bulletin*. In 1863 consolidated with the *Monitor*.

1862, July 15.—The *Monitor*, at Marmaton, by D. B. Emmert. In 1863 removed to Fort Scott, and consolidated with the *Bulletin* as the *Union Monitor*. The *Daily Monitor* established in 1864. Still published, daily and weekly.

1866.—The *Fort Scott Press*, at Fort Scott, by Hayward Brothers. Subsequently removed to Girard and called the *Girard Press*. Still published.

1869.—The *Fort Scott Evening Post*, at Fort Scott, by Edward Schiller. Published a short time.

1870.—The *Fort Scott Telegram*, at Fort Scott, by William Coffrey. Suspended in 1871.

1870.—The *Fort Scott Democrat*, at Fort Scott, by Goode Brothers. In 1873 changed to the *Pioneer*; in February, 1875, united with the *Border Sentinel* and called the *Pioneer and Sentinel*; in September, 1875, changed to the *Herald*. Still published.

1875.—The *Emigrant's Guide*, at Fort Scott, by C. Rollin Camp; monthly.

1875.—The *Rays of the Cross* (Baptist), at Fort Scott, by Judson Slade. Published two years.

1877, October.—The *Bourbon County Democrat*, at Fort Scott, by John Forbes.

1877.—The *New Century* (temperance), at Fort Scott, by Rev. J. Paulson.

1877.—The *Colored Citizen*, at Fort Scott, by Eagleson Brothers. In 1878 removed to Topeka.

### BROWN COUNTY.

1861.—The *Brown County Union*, at Hiawatha, by Dr. P. G. Parker. Published less than a year.

1864, August 20.—The *Union Sentinel*, at Hiawatha, by H. P. Stebbins. October 1, 1870, consolidated with the *Dispatch*.

1870, April 30.—The *Hiawatha Dispatch*, at Hiawatha, by A. N. Ruley. Still published.

1874, June.—The *Brown County Advocate*, at Hiawatha, by Davis & Watson. In October, 1875, changed to the *Kansas Herald*. Still published.

### BUTLER COUNTY.

1870, March 4.—The *Walnut Valley Times*, at El Dorado, by T. B. Murdock. Still published.

1870.—The *Crescent*, at Augusta, by Putnam & Perry. Afterward changed to the *Augusta Republican*. Subsequently removed to McPherson county.

1873.—The *Southern Kansas Gazette*, at Augusta, by C. H. & J. A. Kurtz. Still published.

1877, February.—The *El Dorado Press*, at El Dorado, by J. M. Satterthwaite. Still published.

### CHASE COUNTY.

1859, May 30.—The *Kansas Press*, at Cottonwood Falls, by S. N. Wood. In October, 1859, removed to Council Grove, Morris county.

186-.—The *Kansas Central Index*, at Cottonwood Falls, by Beck, Follett & McClure. Removed to Wichita in January, 1871.

1866.—The *Chase County Banner*, at Cottonwood Falls, by S. N. Wood. Suspended in April, 1870.

1871, February 6.—The *Chase County Leader*, at Cottonwood Falls, by W. A. Morgan. Still published.

1874, October 26.—The *Chase County Courant*, at Cottonwood Falls, by Martin & Timmons. Still published.

### CHAUTAUQUA COUNTY.

1874, June.—The *Wide Awake*, at Sedan, by Joseph Mount. Suspended in September, 1875.

1875, August.—The *Chautauqua Journal*, at Sedan, by Kelly & Turner. Still published.

1875, November.—The *Chautauqua News*, at Peru, by Moore & Son.

1876, October.—The *Cedarvale Blade*, at Cedarvale, by ——— Allison. Suspended in December, 1877.

1878, May 24.—The *Cedarvale Times*, at Cedarvale, by P. H. Albright.

### CHEROKEE COUNTY.

1867, October.—The *Baxter Springs Herald*, at Baxter Springs, by B. R. & N. J. Evans. Suspended in 1868.

1868, October.—The *Cherokee Sentinel*, at Baxter Springs, by Coulter & Holbrook.

1869, October 29.—The *Workingman's Journal*, at Columbus, by a company. In October, 1874, changed to the *Columbus Journal*. Suspended in February, 1875.

1874.—The *Baxter Springs Republican*, at Baxter Springs. In 1877 removed to Columbus and consolidated with the *Courier*.

1874, October.—The *Columbus Courier*, at Columbus, by J. F. Dowell. Still published.

1875.—The *Columbus Avalanche*, at Columbus, by J. N. Lee. Afterward changed to the *Columbus Democrat*. In January, 1877, removed to Webb City, Missouri.

1877.—The *Columbus Vidette*, at Columbus, by G. W. B. Hoffman. In May, 1878, changed to the *Border Star*. Still published.

1877.—The *Galena Miner*, at Galena, by Lee & McDowell. Still published.

1877.—The *Mining Echo*, at Empire City, by Hadley & Murphy. Still published.

### CLAY COUNTY.

1871, August 20.—The *Clay County Independent*, at Clay Center, by Huston & Downer. In 1873 changed to the *Clay County Dispatch*. Still published.

### CLOUD COUNTY.

1870.—The *Republican Valley Empire*, at Clyde, by Henry Buckingham. In 1871 removed to Concordia and called the *Concordia Empire*. Still published.

1871.—The *Watchman*, at Clyde, by Mark J. Kelley. Removed to Concordia in 1875 and called the *Concordia Expositor*. Still published.

### COFFEY COUNTY.

1857.—The *Ottumwa Journal*, at Ottumwa, by Jonathan Lyman. Published a short time.

## KANSAS—Continued.

1859, September.—The *Neosho Valley Register*, at Burlington, by S. S. Prouty. Suspended in July, 1864.

1864, June.—The *Hampden Expositor*, at Hampden, by I. E. Olney. In 1865 removed to Garnett.

1864, September 3.—The *Kansas Patriot*, at Burlington, by S. S. Prouty. In 1870 changed to the *Burlington Patriot*. Still published.

1874.—The *Voice of the People*, at Burlington, by Peter Bell.

1875.—The *Burlington Independent*, at Burlington, by A. H. Smith. Still published.

### COWLEY COUNTY.

1870, August 13.—The *Cowley County Censor*, at Winfield, by A. J. Patrick. In January, 1872, changed to the *Winfield Messenger*. Suspended in December, 1872.

1870, August 24.—The *Arkansas City Traveler*, at Arkansas City, by M. G. Mains. Still published.

1872, September 12.—The *Telegram*, at Tisdale, by W. M. Allison. Soon after removed to Winfield. Still published as the *Cowley County Telegram*.

1873, January 11.—The *Winfield Courier*, at Winfield, by R. S. Waddell & Co. Still published.

1874, November 19.—The *Plow and Anvil*, at Winfield, by J. M. Alexander. In February, 1876, changed to the *Cowley County Democrat*. Suspended in a short time.

### CRAWFORD COUNTY.

1869, November 11.—The *Girard Press*, at Girard, by Warner & Wasser. Still published.

1870, July 28.—The *People's Vindicator*, at Girard, by Crisp & Lindsey. Suspended in November, 1870.

1873, March 12.—The *Girard Pharos*, at Girard, by W. K. Goode. Published at Cherokee from May to September, 1874. Subsequently removed to Columbus.

1875, June 3.—The *Cherokee Index*, at Cherokee, by Mary A. Spring. In September, 1877, removed to Columbus.

1875, August 6.—The *Crawford County News*, at Girard, by Fulton & Covell. Still published.

1876, May 13.—The *Young Cherokee*, at Girard, by Webb & St. Clair. In 1877 removed to Short Creek and called the *Mining Echo*.

1877, October 6.—The *Cherokee* Banner, at Cherokee, by H. H. Webb.

1878, July 4.—The *Temperance Rural*, at Cherokee, by St. Clair & Moore.

1878, July 26.—The *Girard Herald*, at Girard, by J. W. Womack.

### DAVIS COUNTY.

1858, June.—The *Junction City Sentinel*, at Junction City, by B. H. Keyser. In July, 1859, changed to the *Kansas Statesman*. Suspended in September, 1859, but revived as the *Frontier Guide*. In September, 1861, changed to the *Kansas Frontier*. Suspended in March, 1862.

1861, September 12.—The *Smoky Hill and Republican Union*, at Junction City, by G. W. Kingsbury. In 1864 changed to the *Courier*. Suspended, but shortly revived as the *Junction City Union*. Still published.

1868, July 17.—The *Junction City Avalanche*, at Junction City, by A. S. Ruling. Suspended in October, 1868.

1873, August 14.—The *Junction City Tribune*, at Junction City, by Farey & Alvord. Still published.

### DICKINSON COUNTY.

1870, February.—The *Abilene Chronicle*, at Abilene, by V. P. Wilson. In 1873 consolidated with the *Journal*, and called the *Chronicle-Journal*. Now published as the *Dickinson County Chronicle*.

1873, February.—The *Journal*, at Abilene, by W. H. Johnson. In May, 1873, united with the *Chronicle*.

1874, January.—The *Solomon Gazette*, at Solomon City, by Campbell & Fuller. In 1876 removed to Enterprise and in 1878 to Abilene. Now published as the *Abilene Gazette*.

### DONIPHAN COUNTY.

1856.—The *Doniphan Constitutionalist*, at Doniphan, by Thomas J. Key. Suspended in July, 1858.

1857, June.—The *Era*, at Geary City. Suspended in 1858.

1857, June 4.—The *Chief*, at White Cloud, by Sol. Miller. In July, 1872, removed to Troy. Still published by the original proprietor.

1857, July.—The *Elwood Advertiser*, at Elwood, by Fairman & Newman. Suspended in 1859.

1858.—The *Crusader of Freedom*, at Doniphan, by James Redpath. Published a short time.

1858.—The *Palermo Leader*, at Palermo, by Emery & Perham. Published two years.

1858.—The *Elwood Free Press*, at Elwood, by F. & R. Tracy. Suspended in October, 1861.

1858.—The *Troy Democrat*, at Troy, by Joseph Thompson. Published a short time.

1858.—The *Highlander*, at Highland, by Faulkner & Seaver. Published a few months.

1858, July.—The *Iowa Point Enquirer*, at Iowa Point, by T. J. Key. Published a short time.

1859.—The *Dispatch*, at Iowa Point, by Watrous & Biggers. Suspended in 1860.

1860.—The *Doniphan County Dispatch*, at Troy, by J. W. Biggers. Published a short time.

1860.—The *Doniphan Post*, at Doniphan, by G. & W. Rees. Suspended in 1861.

1862.—The *Doniphan County Patriot*, at Troy, by Dr. E. H. Grant. In 1864 merged in the *Investigator*.

1864.—The *Doniphan County Soldier*, at Troy, by S. H. Dodge. Published a few months.

1864, February.—The *Troy Investigator*, at Troy, by a company. Published less than a year.

1865.—The *Troy Reporter*, at Troy, by J. H. Hunt. In April, 1867, removed to Wathena. Suspended in 1877.

1868, November.—The *Doniphan County Republican*, at Troy, by C. G. Bridges. Suspended in June, 1875.

1871, May.—The *Doniphan Democrat*, at Doniphan, by J. J. Ricketts. Published about a year.

1873, August.—The *White Cloud Leader*, at White Cloud, by Yard & Overholt. Published two months.

1877, May.—The *Troy Bulletin*, at Troy, by C. G. Bridges. Still published.

1878, January.—The *Highland Sentinel*, by George F. Hammar.

1878, February.—The *Wathena Advance*, at Wathena, by E. A. Davis. Suspended June 7, 1878.

### DOUGLAS COUNTY.

1854, October 21.—The *Herald of Freedom*, dated Wakarusa, Kansas, but printed in Pennsylvania. Second number published in Lawrence, January 6, 1855. Office destroyed in May, 1854, and paper suspended; revived the following November, and continued until 1859.

1855, January.—The *Kansas Free State*, at Lawrence, by Miller & Elliott. Office destroyed and paper suspended May 21, 1856.

1855, January 5.—The *Kansas Tribune*, at Lawrence, by John Speer. In November, 1855, removed to Topeka. Re-established at Lawrence January 1, 1863. Office destroyed and paper suspended August 21, 1863; revived in November, 1863, as a daily and weekly. Still published.

1855, September 26.—The *Kansas New Era*, at Lecompton, by S. Weaver. In May, 1867, removed to Medina, and afterward to Grasshopper Falls (now Valley Falls). Still published.

1856.—The *Lecompton Union*, at Lecompton, by Jones & Faris. Suspended in 1861.

1857, May 28.—The *Lawrence Republican*, at Lawrence, by Norman Allen. Office destroyed and paper suspended August 21, 1863; revived February 1, 1868. In March, 1869, united with the *State Journal*.

## KANSAS—Continued.

1857, June 25.—The *Freeman's Champion*, at Prairie City, by S. S. Prouty. Afterward suspended; revived and continued until September, 1858.

1858, February 23.—The *National Democrat*, at Lecompton, by S. W. Driggs. Suspended in October, 1860.

1859, January.—The *Congregational Record*, at Lawrence, by a society. Office destroyed in 1862. Afterward published at Kansas City, Missouri. Suspended in December, 1864, and revived in June, 1865, at Leavenworth. In 1866 removed to Topeka. Suspended in May, 1867.

1861, February.—The *Kansas State Journal*, at Lawrence, by Trask & Lowman. The *Daily Journal* established March 3, 1868. Still published, daily and weekly.

1864.—The *Baldwin City Observer*, at Baldwin City, by Warren Mitchell. Published one year; subsequently revived and continued six months.

1866, July 28.—The *North Lawrence Courier*, at North Lawrence, by J. S. Boughton. In September following changed to the *Kaw Valley Courier*. September 14, 1867, changed to the *Clarion*. Suspended in November, 1867.

1870, September 18.—The *Standard*, at Lawrence, by a corporation. Daily established in October, 1871. Still published.

1872, February 3.—The *Spirit of Kansas*, at Lawrence, by Kalloch & Stevens. Still published.

### EDWARDS COUNTY.

1873, September 16.—The *Kinsley Reporter*, at Kinsley. Succeeded March 29, 1877, by the *Edwards County Leader*. Still published.

1877, November 3.—The *Valley Republican*, at Kinsley, by C. L. Hubbs. May 4, 1878, changed to the *Kinsley Graphic*. Still published.

1878, June 1.—The *Kinsley Republican*, at Kinsley, by C. L. Hubbs. Still published.

1878, July 13.—The *Staats Zeitung*, at Kinsley, by Dr. L. Rick.

### ELK COUNTY.

1870.—The *Elk Falls Examiner*, at Elk Falls, by C. L. Goodrich. Published about one year.

1870, September.—The *Howard County Ledger* (established at Longton). Removed to Elk Falls in 1874. Removed to Howard in 1876.

1872.—The *Howard County Messenger*, at Howard City, by Kelly & Turner. In about one year removed to Boston, and continued a few months.

1873.—The *Journal*, at Elk Falls, by Ward & Pyle. Upon the division of Howard county removed to Sedan. Still published.

1874, November.—The *Courant*. Removed from Elk City to Longton, by A. B. Steinberger. At the end of one year removed to Howard.

1875.—The *Beacon*, at Howard City, by A. B. Steinberger. Published several months.

1875.—The *Censorial*, at Howard City, by W. E. Doud. In six months removed to Eureka, Greenwood county.

1877.—The *Kansas Rural*, at Elk Falls, by J. A. Somerby. Published four months.

1877, November 22.—The *Courant and Ledger*, at Howard City, consolidated and called the *Courant-Ledger*. Now published as the *Courant*.

1878, January 22.—The *Weekly Examiner*, at Elk Falls, by C. A. Gitchell. Removed to Howard City the following March. Suspended July 12, 1878.

1878, July 24.—The *Industrial Journal*, at Howard City, by Van Hyatt & Somerby. Still published.

### ELLIS COUNTY.

1867.—The *Railway Advance*, at Hays City, by Joseph Clark & Co. Suspended in 1868.

1873.—The *Hays City Times*, at Hays City, by Allen & Jones. Published a short time.

1874, February.—The *Hays City Sentinel*, at Hays City, by W. H. Johnson. Still published.

1876, April.—The *Ellis County Star*, at Hays City, by J. H. Downing. Still published.

1877, August.—The *Ellis County Standard*, at Ellis, by W. P. Tomlinson.

### ELLSWORTH COUNTY.

1868, April.—The *Ellsworth Advocate*, at Ellsworth, by P. H. Hubbell. Published six months.

1876.—The *Ellsworth Advertiser*, at Ellsworth, by Wilson & Campbell. Published two months.

### FORD COUNTY.

1874.—The *Dodge City Messenger*, at Dodge City, by A. W. Moore. Suspended in 1875.

1876, May.—The *Times*, at Dodge City, by W. C. & L. Shinn. Still published.

1877, December.—The *Ford County Globe*, at Dodge City, by Morphy & Frost. Still published.

1878, May 18.—The *Spearville Enterprise*, at Spearville, by J. J. Burns. August 24, 1878, changed to the *News*. Still published.

### FRANKLIN COUNTY.

1856.—The *Kansas Leader*, at Centropolis, by W. H. Austin. In 1857 removed to Mineola and called the *Mineola Statesman*. Published several months.

1865.—The *Ottawa Home Journal*, at Ottawa, by Kalloch & Evans. In March, 1868, changed to the *Republic*, and in September, 1869, to the *Ottawa Journal*. Suspended January 22, 1876.

1869, December 6.—The *Ottawa Herald*, at Ottawa, by Anderson & Tone. In August, 1872, changed to the *Kansas Liberal*, and in March, 1873, to the *Ottawa Republican*. Still published, daily and weekly.

1871, October 28.—The *Democratic Leader*, at Ottawa, by John Bain. In August, 1872, merged in the *Liberal*.

1873, February 11.—The *Daily Times*, at Ottawa, by W. C. Paul. Suspended October 26, 1873.

1874, June 6.—The *Ottawa Weekly Times*, at Ottawa, by Paul Brothers. Suspended May 5, 1875.

1875, August 5.—The *Ottawa Triumph*, at Ottawa, by E. H. Snow. In April, 1877, changed to the *Ottawa Journal and Triumph*. Still published.

1878, October 12.—The *State Press*, at Ottawa, by M. M. Bleakmore.

### GREENWOOD COUNTY.

1868, July 4.—The *Eureka Herald*, at Eureka, by S. G. Mead. Still published.

1875.—The *Censorial*, at Eureka, by W. E. Doud.

### HARPER COUNTY.

1878, August 22.—The *Anthony Journal*, at Anthony, by J. S. Soulé. Still published.

1878, October 24.—The *Harper County Times*, at Harper, by W. O. Graham. Still published.

### HARVEY COUNTY.

1872, August 22.—The *Newton Kansan*, at Newton, by H. C. Ashbaugh. Still published.

1875, August 11.—The *Harvey County News*, at Newton, by A. W. Moore. Subsequently changed to the *Republican*. Still published.

1876, January 6.—*Zur Heimath* (German), at Halstead, by David Goerz; semi-monthly. Still published.

1878, November 2.—The *Burrton Telephone*, at Burrton, by A. C. Bowman. Still published.

### JACKSON COUNTY.

1858.—The *Cricket*, at Holton, by T. G. Walters. (*a*) Published two months.

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*a* The publisher had neither type nor press, but wrote his articles with pen and ink, and illustrated the political events with colored pencils.

## KANSAS—Continued.

1867, October.—The *Jackson County News*, at Holton, by A. W. Moore. In 1872 changed to *Holton News*. In 1874 merged in the *Express*.

1868, May.—The *Jackson Democrat*, at Holton, by a company, In 1869 changed to the *Holton Leader*, and continued one year.

1872, April 13.—The *Holton Express*. In 1874 united with the *News*, and called the *Express and News*. In 1875 consolidated with *Recorder*.

1872, June 4.—The *Netawaka Chief*, at Netawaka, by George S. Irwin. In 1874 removed to Hiawatha, Brown county.

1875, March 2.—The *Recorder*, at Holton, by Shiner & Laithe. March 26, 1875, united with the *Express*, and called the *Recorder and Express*. In January, 1877, changed to *Recorder*. Still published.

1878, January 16.—The *Holton Signal*, at Holton, by Fairchild & Sargent. Still published.

### JEFFERSON COUNTY.

1858, May.—The *Grasshopper*, by J. A. Cody. Published four months; afterward revived, and called the *Crescent;* continued a few months.

1860.—The *Oskaloosa Independent*, at Oskaloosa, by J. W. Roberts. Still published.

1862.—The *Gazette*, by P. H. Hubbell. In 1864 changed to the *Jeffersonian*. In 1866 removed to Holton.

1867.—The *Jefferson County Democrat*, at Oskaloosa, by Stafford & Nesbitt. Published two months; revived in September, 1867, and continued as the *Statesman* until December, 1868.

1867, March.—The *New Era*, at Medina, by S. Weaver. In 1871 removed to Grasshopper Falls (Valley Falls). Still published.

1870, December 12.—The *Perryville Times*, at Perryville, by H. G. Evans. In 1874 removed to Saint Mary's.

1873, January.—The *Grasshopper*, by Hoover & Huron. In 1874 merged in the *New Era*.

1873, October 9.—The *Oskaloosa Sickle and Sheaf*, at Oskaloosa, by Williams & Wilson. Now published as the *Sickle*.

### JEWELL COUNTY.

1872, March 24.—The *Jewell City Clarion*, at Jewell City, by Day & Jenkins. May 1, 1873, changed to the *Jewell County Diamond*. In April, 1878, united with the *Jewell County Monitor*, removed to Jewell Center, and called the *Monitor-Diamond*. Now published at Jewell City.

1874, May 19.—The *Jewell County Monitor*, at Jewell Center, by Frank Kirk. In April, 1878, united with the *Diamond*.

### JOHNSON COUNTY.

1859.—The *Kansas Tribune*, at Olathe, by Francis & Davis. Suspended in 1861.

1859, September 8.—The *Olathe Herald*, at Olathe, by Giffen & Devinney. Suspended in August, 1861.

1861, May 9.—The *Olathe Mirror*, at Olathe, by John Francis. Afterward united with the *News Letter*, and called the *Mirror and News Letter*. Still published.

1867, October 9.—The *Kansas Central*, at Olathe, by W. F. Goble. In September, 1868, changed to the *Johnson County Democrat*.

1870, February 23.—The *Olathe News Letter*, at Olathe, by J. A. & H. F. Canutt. Afterward united with the *Mirror*.

1870, December 7.—The *Spring Hill Enterprise*, at Spring Hill, by Buel & Sprague. In 1872 changed to the *Western Progress*. In 1873 removed to Olathe.

1878, April 13.—The *Kansas State Register*, at Spring Hill, by C. F. Hyde.

### LABETTE COUNTY.

1868, April.—The *Eagle*, at Jacksonville, by B. K. Land.

1868.—The *Oswego Register*, at Oswego, by E. R. Trask.

1869, January 15.—The *Advance*, at Chetopa, by Homer & Corey. In January, 1874, changed to the *Southern Kansas Advance*. Still published.

1871, June.—The *Parsons Sun*, at Parsons, by Reynolds & Perry. Still published.

1874, April 9.—The *Parsons Eclipse*, at Parsons, by J. B. Lamb. Still published.

1876.—The *Herald*, at Chetopa, by Hibbetts & Frye. Suspended in 1877.

### LEAVENWORTH COUNTY.

1854, September 15.—The *Herald*, at Leavenworth, by W. H. Adams. Suspended June 27, 1861.

1854, November.—The *Kickapoo Pioneer*, at Kickapoo, by A. B. Hazzard. Published three years.

1855, March.—The *Territorial Register*, by Sevier & Delahay. Suspended December 22, 1855.

1856.—The *Leavenworth Journal*, at Leavenworth, by S. S. Goode. Suspended in 1859.

1857.—The *Young America*, at Leavenworth, by George W. McLane. Succeeded in September, 1857, by the *Daily Ledger*. Continued two years.

1857, March 7.—The *Times*, at Leavenworth, by a company. Daily established February 15, 1858. In September, 1868, united with the *Conservative*, and called the *Times and Conservative*. Latter part of title afterward dropped. Still published daily and weekly.

1858, September.—The *Kansas Zeitung*, removed from Atchison to Leavenworth, by C. F. Kob. Daily established in September, 1863. United with the *Journal* March 1, 1868, and called the *Kansas Staats-Zeitung*. Suspended April 1, 1869.

1859.—*L'Estafette du Kansas* (French), at Leavenworth, by Frank Barclay. Published a short time.

1859.—The *Daily Dispatch*, at Leavenworth, by Prescott & White. Published less than a year.

1861, January 28.—The *Leavenworth Conservative*, at Leavenworth, by Dr. R. Anthony; daily, tri-weekly, and weekly. In September, 1868, consolidated with the *Times*.

1861, June.—The *Inquirer*, at Leavenworth, by B. B. Taylor. Suspended February 10, 1863.

1862, September 18.—The *Evening Bulletin*, at Leavenworth, by a company; daily, tri-weekly, and weekly. In November, 1871, consolidated with the *Times*.

1865, March 1.—The *Kansas Journal*, at Leavenworth, by Soussman & Kempf. Consolidated with the *Zeitung* March 1, 1868.

1866, October 3.—The *Leavenworth Commercial*, at Leavenworth, by Prescott, Hume & Callahan; daily and weekly. In 1876 merged in the *Times*.

1867, June.—The *Leavenworth Medical Herald*, at Leavenworth, by Logan & Sinks; monthly. Suspended in 1876.

1868.—The *Evening Call*, at Leavenworth, by Clarke & McMichael. Suspended in 1873.

1869, April 1.—The *Freie Presse*, at Leavenworth, by John M. Haberlein. Still published, daily and weekly.

1871, May.—The *Doniphan Democrat*, at Doniphan. Published less than a year; revived shortly afterward as the *Herald*. Subsequently removed to Leavenworth, and continued about two years.

1872.—The *Home Record*, at Leavenworth, by a society; monthly. Still published.

1873.—The *Appeal*, at Leavenworth, by Embry & Co.; daily. Changed to weekly in 1877. Now published as the *Appeal and Tribune*.

1877, April 22.—The *Public Press*, at Leavenworth, by H. B. Horn; daily. Still published.

1878, May.—The *Western Homestead*, at Leavenworth, by W. S. Burke. Still published.

### LINCOLN COUNTY.

1872.—The *Lincoln County News*, at Lincoln Center, by Buzick & Barnhart. Subsequently changed to the *Lincoln County Patriot*. Suspended in 1875.

1874.—The *Lincoln County Farmer*, at Lincoln Center, by F. H. Barnhart. Published six months.

## KANSAS—Continued.

1874, December 2.—The *Western Democrat*, at Lincoln Center, by F. . Beatty. Succeeded in June, 1875, by the *Saline Valley Register*. ill published.

### LINN COUNTY.

1859, April 1.—The *Linn County Herald*, at Mound City, by Jonathan man. In April, 1860, changed to the *Mound City Report*. In 1861 moved to Mansfield and called the *Mansfield Shield and Banner*. Susnded in 1862.

1864, April 1.—The *Border Sentinel*, at Mound City, by J. T. & J. D. oddy. Removed to Fort Scott in 1874.

1869.—The *Linn County Press*, by A. B. Bowman. Removed to mner county in 1871.

1870, June 18.—The *La Cygne Weekly Journal*, at La Cygne, by ry & Kenea. Still published.

1871, August 24.—The *Pleasanton Observer*, at Pleasanton, by L. K. ok. Still published.

1875, April 1.—The *Linn County Enterprise*, at Mound City, by J. McCallum. Suspended in November, 1875.

1876, February 1.—The *Linn County Clarion*, at Mound City, by nnon & Van Buskirk. Still published.

### LYON COUNTY.

1857, June 6.—The *Kansas News*, at Emporia, by P. B. Plumb. In 59 changed to the *Emporia News*. Daily established in 1878. Still blished.

1859, August 20.—The *Americus Sentinel*, at Americus, by T. C. Hill. ublished one year.

1871, June.—The *Emporia Ledger*, at Emporia, by a company. Still blished.

1877, September 27.—The *Hartford Enterprise*, at Hartford, by Clark McCray. Still published.

1878, April 10.—The *Emporia Sun*, at Emporia, by J. M. Davis.

### M'PHERSON COUNTY.

1872, December 19.—The *McPherson Messenger*, at McPherson, by ale Bros. In 1874 changed to the *McPherson Independent*. Now pubshed as the *Republican*.

1874, July 7.—The *Farmers' Advocate*, at McPherson. In 1875 reoved to Salina.

1878, August 9.—The *Freeman*, at McPherson, by Clark & McCray. till published.

### MARION COUNTY.

1869, September.—The *Western News*, at Marion Center, by A. W. obinson. In 1871 changed to the *Western Giant*, and later to *Marion ounty Record*. Still published.

1871, April.—The *Florence Pioneer*, at Florence, by Mitchell & cReynolds. Suspended in 1873.

1873, May 1.—The *Peabody Gazette*, at Peabody, by J. P. Church. till published.

1876, June 23.—The *Florence Herald*, at Florence, by Howe & Moren. Still published.

### MARSHALL COUNTY.

1857, December 18.—The *Palmetto Kansan*, at Marysville, by J. E. lardy. Published seven months.

1859.—The *Democratic Platform*, at Marysville, by Peters & Newell. spended in 1861.

1861.—The *Big Blue Union*, at Marysville, by G. D. Swearingen. spended in December, 1865.

1862.—The *Constitutional Gazetteer*, at Marysville, by P. H. Peters. ublished a short time.

1864.—The *Enterprise*, at Marysville, by Baker, Peters & Magill. emoved to Irving in 1868 and called the *Blue Valley Record*. Published few months.

1869.—The *Locomotive*, at Marysville, by P. H. Peters. In 1870 anged to the *Marshall County News*. Still published.

1870, January 1.—The *Waterville Telegraph*, at Waterville, by Frank A. Root. In 1877 changed to the *Blue Valley Telegraph*. Still published.

1871, July 4.—The *Blue Rapids Times*, at Blue Rapids, by Campbell & Tibbetts. Still published.

1875.—The *Blue Valley Gazette*, at Irving, by John Thomson. Still published.

1876, October 26.—The *Frankfort Record*, at Frankfort, by Campbell & Bros.

### MIAMI COUNTY.

1857.—The *Southern Kansas Herald*, at Osawatomie, by Charles E. Griffiths. In July, 1860, removed to Paola, and afterward changed to the *Argus*. Removed to Iola in August, 1866, and soon after suspended.

1860, January 1.—The *Paola Chief*, at Paola, by W. B. & A. O. Wagstaff. Published six months.

1861.—The *Crusader*, at Paola, by T. H. Ellis. Suspended in 1863.

1866.—The *Advertiser*, at Paola, by A. Gore. Suspended in 1870.

1866, August 18.—The *Miami Republican*, at Paola, by McReynolds & Simpson. Still published.

1870, September.—The *Fontana Gazette*, at Fontana, by Jones & Weylandt. Suspended in 1871.

1871, July 3.—The *Paola Democrat*, at Paola, by T. H. Ellis. Suspended in 1872.

1871, July 10.—The *Kansas Spirit*, at Paola, by Perry & Bright. Subsequently changed to the *Western Spirit*. Still published.

1876, June.—The *Herald*, at Louisburg, by E. F. Heisler. Still published.

1878, August.—The *Republican Citizen*, at Paola, by Wickersham & Greason. Still published.

### MITCHELL COUNTY.

1871, April 5.—The *Mirror*, at Beloit, by A. B. Cornell. Published several months.

1872, April 11.—The *Beloit Gazette*, at Beloit, by Chaffee & Johnson. Still published.

1877, August 10.—The *Beloit Record*, at Beloit, by Kelley & Bertram.

### MONTGOMERY COUNTY.

1869, September 4.—The *Independence Pioneer*, at Independence, by Trask & Steel. In 1870 changed to the *Independence Republican*. Suspended in 1874.

1870.—The *Westralia Vidette*, at Westralia, by McConnell & McIntyre.

1870, June.—The *Parker Record*, at Parker, by G. D. Baker.

1870, December.—The *Kansas Democrat*, at Independence, by M. V. B. Bennett.

1871, March.—The *South Kansas Tribune*, at Independence, by Humphrey & Yoe. Still published.

1872, April.—*Ross's Paper*, at Coffeyville, by E. G. Ross.

1872, May.—The *Coffeyville Circular*, at Coffeyville, by E. W. Perry.

1873.—The *Coffeyville Courier*, at Coffeyville, by Chatham & White.

1873.—The *Cherryvale Herald*, at Cherryvale.

1873.—The *Southern Kansan*, at Independence, by W. H. Watkins. Afterward changed to the *Independence Kansan*. Still published.

1874.—The *Osage Chief*, at Independence, by Vangundy & Clark.

1874.—The *Elk City Courant*, at Elk City, by Abe Steinberger.

1875.—The *Independence Courier*, at Independence, by J. J. Chatham. Suspended in 1879.

1875.—The *Coffeyville Journal*, at Coffeyville, by W. A. Peffer. Still published.

### MORRIS COUNTY.

1859.—The *Kansas Press*, at Council Grove, by S. N. Wood. Afterward changed to the *Council Grove Press*, and in 1865 to the *Council Grove Democrat*. Suspended in 1866.

1869, March.—The *Council Grove Advertiser*, at Council Grove, by W. H. Johnson. Published eighteen months.

## KANSAS—Continued.

1870.—The *Council Grove Democrat*, at Council Grove, by S. M. Hays. In 1877 united with the *Republican* as *Republican and Democrat.* Now published as the *Republican.*

1871.—The *Chronicle*, at Council Grove, by H. R. Gregory. Published one year.

1872.—The *Morris County Republican*, at Council Grove, by J. T. Bradley. In 1877 united with the *Democrat.*

1878, January 1.—The *Morris County Enterprise*, at Parkersville, by McCray & Clark. Still published.

### NEMAHA COUNTY.

1863, November 14.—The *Nemaha Courier*, at Seneca, by John P. Cone. In 1871 changed to the *Seneca Weekly Courier.* Still published.

1869, September 18.—The *Mercury*, at Seneca, by a company. Published a short time.

1870.—The *Star of Kansas* (French), by Jules Leroux; monthly. Removed to Fremont county, Iowa, in May, 1876.

1870, January 1.—The *Independent Press*, at Seneca, by an association. In 1873 changed to the *Nonpareil.* Suspended in 1874.

1874, May 7.—The *Sabetha Advance*, at Sabetha, by Larzalere & Wright. Suspended in 1878.

1876, October 5.—The *Nemaha County Republican*, at Sabetha, by James F. Clough. Still published.

### NEOSHO COUNTY.

1868, August 5.—The *Osage Mission Journal*, at Osage Mission, by J. H. Scott. In 1871 changed to the *People's Advocate.* Subsequently merged in the *Transcript.*

1868, October 24.—The *Neosho Valley Eagle*, at Jacksonville, by B. K. Lamb. In 1871 removed to Erie, and called the *Erie Ishmaelite;* and soon after removed to Osage Mission, and called the *Neosho County Journal.* Still published.

1870, September 23.—The *New Chicago Transcript*, at New Chicago, by G. C. Crowther. Suspended April 30, 1872.

1871, May 13.—The *Tioga Herald*, at Tioga, by E. B. Hains. Suspended May 1, 1872.

1871, August 16.—The *Thayer Headlight*, at Thayer, by C. T. Ewing. Still published.

1872, October 19.—The *Chanute Times*, at Chanute, by A. L. Rivers. Still published.

1876, May 5.—The *Neosho County Record*, at Erie, by G. W. McMillan. Still published.

### NORTON COUNTY.

1877, January 1.—The *Norton County Bee*, at Norton, by Harmer & Baker. Suspended in 1878.

1878, June.—The *Norton County Advance*, at Norton, by Pettigrew & Collins. Still published.

### OSAGE COUNTY.

1863, September 26.—The *Osage County Chronicle*, at Burlingame, by M. M. Murdock. Still published.

1870.—The *Osage County Observer*, at Lyndon, by J. J. Johnson. Published one year.

1871, August.—The *Shaft*, at Osage City, by Morgan & Cooper. In 1875 changed to the *Osage City Free Press.* Still published.

1872.—The *Lyndon Signal*, at Lyndon, by Bently & Kirby. Published two years.

1874, September.—The *Lyndon Times*, at Lyndon, by Miller Brothers. Still published.

### OSBORNE COUNTY.

1873, January.—The *Osborne Weekly Times*, at Osborne City, by a company. Suspended in November, 1874.

1875, January 8.—The *Osborne County Farmer*, at Osborne City, by F. H. Barnhart. Still published.

### OTTAWA COUNTY.

1870, September.—The *Solomon Valley Pioneer*, at Lindsay. Suspended in May, 1873.

1871, January.—The *Ottawa County Independent*, at Minneapolis, by J. E. Wharton. Still published.

1874, October.—The *Solomon Valley Mirror*, at Minneapolis, by C. C. Olney; monthly. Still published.

1875, August.—The *Sentinel*, at Minneapolis, by Hoyt & Crosley. Still published.

### PAWNEE COUNTY.

1873.—The *Larned Press*, at Larned, by W. C. Tompkins.

1876.—The *Republican*, at Larned. Published one year.

1878, April 1.—The *Larned Enterprise*, at Larned. Subsequently changed to the *Chronoscope.* Still published.

1878, November 27.—The *Optic*, at Larned, by H. H. Doyle. Still published.

### PHILLIPS COUNTY.

1873, August.—The *Kirwin Chief*, at Kirwin, by a company. Still published.

1876.—The *Kirwin Progress*, at Kirwin, by Professor Robinson. Suspended in 1878.

1877.—The *Phillipsburg Advance*, at Phillipsburg, by C. Dickey. Changed to the *Phillips County Democrat* in July, 1878.

1878.—The *Phillips County Herald*, at Phillipsburg, by Charles F. Jenkins.

### POTTAWATOMIE COUNTY.

1867, July 17.—The *Pottawatomie Gazette*, at Louisville, by A. Sellers.

1869.—The *Kansas Valley*, at Wamego, by Clardy & O'Flanagan. In 1871 removed to Solomon City.

1869, May.—The *Wamego Courier*, at Wamego, by Mr. Jennings. Published several months.

1870.—The *Kansas Reporter*, at Louisville, by a company. Still published.

1870.—The *Dispatch*, at Wamego, by R. W. Jenkins. In 1871 removed to Neuchatel, Nemaha county.

1870, October.—The *Saint Mary's Star*, at Saint Mary's. Subsequently changed to the *Pottawatomie Independent.* Suspended shortly afterward.

1872.—The *Wamego Blade*, at Wamego, by R. E. Cunningham. In 1873 removed to Clay Center.

1875.—The *Saint Mary's Times*, at Saint Mary's, by O. Le Roy Sedgwick. In 1877 changed to the *Saint Mary's Democrat.* Still published.

1877, September.—The *Wamego Tribune*, at Wamego, by W. P. Campbell. Still published.

1878, January.—The *Pottawatomie Chief*, at Saint Mary's.

1878, May 9.—The *Onaga Journal*, at Onaga, by Stauffer & Carnes. Still published.

### RENO COUNTY.

1872, July 4.—The *Hutchinson News*, at Hutchinson, by Perry Bros. & Co. Still published.

1875, October.—The *Reno Independent*, at Hutchinson, by W. F. Wallace. In 1876 changed to the *Hutchinson Herald.* Still published.

1877, January.—The *Hutchinson Interior*, at Hutchinson, by H. Inman. Still published.

### REPUBLIC COUNTY.

1870, September 20.—The *Belleville Telescope*, at Belleville. Still published.

1872, February 7.—The *Belleville Republic*, at Belleville. Removed to Scandia in 1876, and called the *Scandia Republic.* Afterward changed to the *Republic-Journal.* Now published as the *Republic County Journal.*

## KANSAS—Continued.

### RICE COUNTY.

1872.—The *Rice County Herald*, at Atlanta, by ——— Frazier. Re-
oved subsequently to Peace, and later to Hutchinson.

1875.—The *Rice County Gazette*, at Sterling, by ——— Cowgill. Still
ublished.

1877.—The *Weekly Bulletin*, at Lyons, by ——— Ulmer. After-
ard removed to Sterling. Still published.

### RILEY COUNTY.

1859, May.—The *Western Kansas Express*, at Manhattan, by C. F.
e Vivaldi. In 1860 changed to the *Manhattan Express*, and in 1863 to
e *Independent*. In 1868 consolidated with the *Radical*, and called the
*anhattan Standard*. In 1870 changed to the *Nationalist*. Still pub-
shed.

1866, July.—The *Kansas Radical*, at Manhattan, by E. C. Manning.
nited with the *Independent* in 1868.

1872.—The *Beacon*, at Manhattan, by A. D. & A. G. Goodwin.
uspended in 1874.

1876, April.—The *Manhattan Enterprise*, at Manhattan, by A. L.
unyan. Still published.

### ROOKS COUNTY.

1876.—The *Stockton News*, at Stockton, by J. W. Newell. Still pub-
ished.

### RUSH COUNTY.

1874, December.—The *Walnut Valley Standard*, by W. P. Tomlinson.
n 1877 removed to La Crosse, and afterward to Ellis, Ellis county.

1877, June.—The *Rush County Progress*, at Rush Center, by R. H.
itchell. Subsequently removed to La Crosse.

1878, July 9.—The *Blade*, at Walnut City, by Gunn & Stumbaugh.
till published.

### RUSSELL COUNTY.

1871.—The *Pioneer*, at Bunker Hill, by Harbaugh & Corbett. Pub-
ished a short time.

1872, April 25.—The *Western Kansas Plainsman*, at Russell, by A. B.
ornell. Suspended in 1876.

1872, May 9.—The *New Republic*, at Bunker Hill, by John R. Ran-
in. Suspended in September, 1874.

1874, November 19.—The *Russell County Record*, at Russell, by Dolli-
on Brothers. Still published.

### SALINE COUNTY.

1867, February 13.—The *Salina Herald*, at Salina, by B. J. F. Hanna.
till published.

1871, February.—The *Saline County Journal*, at Salina, by W. H.
ohnson. Still published.

1874.—The *Farmers' Advocate*, at Salina, by Allen Brothers. Now
ublished as the *News and Farmers' Advocate*.

### SEDGWICK COUNTY.

1870, August 13.—The *Vidette*, at Wichita, by Sowers & Hutchin-
on. Suspended in 1872.

1872.—The *Gazette*, at Wichita. Afterward changed to the *Beacon*.
till published.

1872, April 6.—The *Wichita Eagle*, at Wichita, by M. M. Murdock.
till published.

1877.—The *Wichita Herald*, at Wichita, by Robbins & Nixon.

### SHAWNEE COUNTY.

1855, July 4.—The *Kansas Freeman*, at Topeka, by E. C. K. Garvey.
uspended in 1856.

1855, September 15.—The *Kansas Tribune*, at Lawrence, by John
peer. Subsequently removed to Topeka. Suspended about 1868.

1857.—The *Note Book*, at Tecumseh, by S. G. Reid. Suspended in
858.

1859, October 1.—The *Kansas State Record*, at Topeka, by E. G. & W. W. Ross. Daily established June 3, 1868, and merged in the *Commonwealth* December 7, 1871. The *Weekly Record* merged in the same paper May 25, 1875.

1860, June 20.—The *Auburn Docket*, at Auburn, by D. B. Emmert. Published one year.

1863, May 1.—The *Kansas Farmer*, at Topeka, by the State Agricultural Society; monthly. Removed to Lawrence in 1865, and in 1867 to Leavenworth. In 1873 again removed to Topeka. Still published.

1864, January 1.—The *Kansas Educational Journal*, at Topeka; monthly. Suspended in 1874.

1865, December 9.—The *Topeka Leader*, at Topeka, by Cummings & Burlingame. Merged in the *Commonwealth* in 1869.

1869, May 1.—The *Commonwealth*, at Topeka, by Prouty & Davis; daily and weekly. Still published.

1871.—The *North Topeka Times*, by C. Maynard. In 1876 merged in the *Commonwealth*.

1871, September 15.—The *Kansas Staats Zeitung*, at Topeka, by George Tauber. Published about one year.

1872.—The *Kansas Monitor* (Swedish), at Topeka. Published about one year.

1872, January.—The *Kansas Magazine*, at Topeka, by a company. Suspended in October, 1873.

1873, August 1.—The *Topeka Blade*, at Topeka, by J. C. Swayze; daily. Suspended from January 31, 1874, to January 7, 1875. Suspended in 1879.

1875.—The *American Young Folks*, at Topeka, by J. K. Hudson; monthly. Still published.

1875, January 20.—The *Kansas Democrat*, at Topeka, by Peacock & Sons. Still published.

1876, June 8.—The *North Topeka Times*, at North Topeka, by Frank A. Root. Still published.

1878, January 1.—*Der Courier*, at Topeka, by Edward Fleisher. Still published.

### SMITH COUNTY.

1872, November.—The *Smith County Pioneer*, at Cedarville, by W. D. Jenkins. Removed to Smith Center in 1873. Still published.

### SUMNER COUNTY.

1871, June.—The *Oxford Times*, at Oxford, by Mugford & Hughes. In 1872 changed to the *Oxford Press*. In May, 1873, removed to Wellington, and called the *Sumner County Press*. Still published.

1876, May 27.—The *Oxford Independent*, at Oxford, by John Blevins. In 1878 removed to Harper county.

1876, August.—The *Sumner County Democrat*, at Wellington, by Crawford & Edmoncy.

### WABAUNSEE COUNTY.

1869, April 1.—The *Wabaunsee County Herald*, at Alma, by Sellers & Bertram. In 1871 changed to the *Alma Union*, and in 1872 to the *Wabaunsee County News*. Still published.

1871.—The *Landmark*, at Eskridge, by E. H. Sandford. Published at Alma several months in 1874. Suspended about January, 1875.

1877, March 1.—The *Alma Blade*, at Alma, by R. Cunningham & Co. Suspended in February, 1878.

### WASHINGTON COUNTY.

1869, March.—The *Washington Observer*, at Washington, by M. J. Kelly. Now published as the *Republican*.

### WILSON COUNTY.

1870, January 20.—The *Wilson County Courier*, at Fredonia, by John R. Jennings. Suspended in December, 1870.

1870, March 30.—The *Altoona Union*, at Altoona, by Bowser & Brown. Suspended December 5, 1872.

## KANSAS—Continued.

1870, April 21.—The *Guilford Citizen*, at Guilford, by John S. Gilmore. Suspended October 22, 1870.

1870, November 18.—The *Neodesha Citizen*, at Neodesha. Published two years.

1870, December 24.—The *Neodesha Enterprise*, at Neodesha, by Berry & Campbell. Published a short time.

1871, January 13.—The *Fredonia Journal*, at Fredonia, by Peffer & Wellman. Suspended in May, 1873.

1873, January 9.—The *Wilson County Free Press*, at Neodesha, by G. P. Smith. Still published.

1873, June 6.—The *Wilson County Citizen*, at Fredonia, by John S. Gilmore. Still published.

1876, September 7.—The *Fredonia Tribune*, at Fredonia, by B. F. Bowen.

### WOODSON COUNTY.

1869, October.—The *Frontier Democrat*, at Neosho Falls, by I. B. Boyle. In January, 1870, changed to the *Neosho Falls Advertiser*, and in January, 1873, to the *Woodson County Post*. Still published.

1872, February.—The *Woodson County Advocate*, at Neosho Falls, by W. H. Jones. Suspended in 1873.

1877, June.—The *Weekly News*, at Yates Center, by Steinbarger & Baker. Still published.

### WYANDOTTE COUNTY.

1857.—The *Wyandotte Reporter*, by M. W. Delahay. Published a short time.

1857, April.—The *Quindaro Chindowan*, at Quindaro, by Babb & Walden.

1857, May.—The *Wyandotte Democrat*, by J. A. Berry. Published eighteen months.

1858.—The *Wyandotte Citizen*, at Wyandotte City, by Ephraim Abbott. Succeeded in a few months by the *Western Argus*. Suspended in 1861.

1858, August 7.—The *Wyandotte Gazette*, at Wyandotte, by S. D. Macdonald. Still published.

1859.—The *Kansas Tribune*, at Quindaro, by Francis & Davis. Suspended in 1861.

1866, September 12.—*Die Fackel* (German), at Wyandotte, by Kastor, Ficher & Co. Suspended in January, 1868.

1872, January 4.—The *Wyandotte Herald*, at Wyandotte, by V. J. Lane. Still published.

## KENTUCKY.

Area, 40,000 square miles; population, 1,648,690; 117 counties—newspapers published in 78. The total number of newspapers and periodicals published in 1810 was 17; in 1840, 38; 1850, 62; 1860, 77; 1870, 89; 1880, 205. The publications in 1880 were divided, according to periods of issue, as follows: Dailies, 11; weeklies, 160; semi-weeklies, 7; tri-weeklies, 2; monthlies, 23; semi-monthlies, 2. In each of 56 towns one paper was published; in 24, two; in 4, three; in 4, four; and in 5, five or more.

### EARLY HISTORY.

1786.—Printing was introduced at Lexington, by John Bradford.

The following is a list of early publications by counties:

### BOURBON COUNTY.

1809.—The *Western Citizen*, established at Paris. Still published.

1866.—The *True Kentuckian*, at Paris. Still published.

### BOYLE COUNTY.

1860.—The *Danville Review*, at Danville, by Dr. Breckinridge and others.

1865.—The *Kentucky Advocate*, at Danville. Still published.

### CHRISTIAN COUNTY.

——.—The *Hopkinsville Gazette*, at Hopkinsville.

### FAYETTE COUNTY.

——.—The *Lexington Observer*, at Lexington, by W. W. Worsley. In 1832 consolidated with the *Kentucky Reporter*.

——.—The *Lexington Atlas*, at Lexington, by N. L. Finnell; daily.

1787, August 18.—The *Kentucke Gazette*, at Lexington, by J. & F. Bradford. March 14, 1789, changed to the *Kentucky Gazette*. Published nearly seventy-five years.

1807.—The *Kentucky Reporter*, at Lexington, by Worsley & Overton. In 1832 consolidated with the *Lexington Observer* and called the *Kentucky Reporter and Lexington Observer*.

1829.—The *Transylvania Literary Journal*, at Lexington, by T. J. Matthews.

1845, June 3.—The *True American*, at Lexington, by C. M. Clay. Published a short time.

1849, October 6.—The *Kentucky Statesman*, at Lexington, by a company. Published thirteen years.

1866, June 23.—The *Kentucky Gazette*, at Lexington, by H. Gratz; semi-weekly. Still published.

1867, January 1.—The *Kentucky Statesman*, at Lexington, by W. C. & W. O. Goodloe.

1867, May.—The *Farmers' Home Journal*, at Lexington, by Miller & Marrs.

1870, October.—The *Lexington Daily Press*, at Lexington, by Marrs, Gibson & Duncan. Still published, daily and weekly.

1872, June.—The *Collegian*, at Lexington, by the students of the Kentucky University; monthly.

### FLEMING COUNTY.

——.—The *Fleming Flag*, at Flemingsburg.

### FRANKLIN COUNTY.

——.—The *Frankfort Commonwealth*, at Frankfort.

1806, July.—The *Western World*, at Frankfort, by Wood & Street.

1850.—The *Kentucky Yeoman*, at Frankfort.

### FULTON COUNTY.

——. —The *Commercial Standard*, at Hickman.

### GALLATIN COUNTY.

——.—The *Warsaw Herald*, at Warsaw.

### JEFFERSON COUNTY.

——.—The *Times*, at Louisville; daily and weekly.

——.—The *Union*, at Louisville; daily.

——.—The *Bulletin*, at Louisville; daily.

——.—The *Evening Express*, at Louisville; daily.

——.—The *Sunday Varieties*, at Louisville; weekly.

——.—The *Kentucky New Era*, at Louisville; semi-weekly.

——.—The *Watchman and Evangelist*, at Louisville.

——.—The *Indian Advocate*, at Louisville.

——.—The *Christian Repository*, at Louisville; monthly.

——.—The *Bible Advocate*, at Louisville; monthly.

——.—The *Theological Medium*, at Louisville; monthly.

——.—The *Transylvania Medical Journal*, at Louisville; monthly.

——.—The *Western Journal of Medicine and Surgery*, at Louisville; monthly.

——.—The *Southern Methodist Quarterly Review*, at Louisville.

——.—The *Spirit of the Age*, at Louisville.

——.—The *Examiner*, at Louisville.

——.—The *Louisville Dime*, at Louisville, by Halderman & Bryant.

## KENTUCKY—Continued.

——.—The *Journal of Commerce*, at Louisville.

——.—The *Presbyterian Herald*, at Louisville.

——.—The *Baptist Banner*, at Louisville.

1807.—The *Farmers' Library*, at Louisville.

1808.—The *Louisville Gazette*, at Louisville.

1810.—The *Western Courier*, at Louisville, by H. Clarke. In March, 821, changed to the *Emporium and Commercial Advertiser*.

1810.—The *Louisville Correspondent*, at Louisville, by E. C. Barry. uspended in 1817.

1818, July.—The *Louisville Public Advertiser*, at Louisville, by S. Penn, jr.; semi-weekly.

1826.—The *Focus*, at Louisville, by Morton & Co. In 1832 merged with the *Louisville Journal* and changed to the *Journal and Focus*.

1830.—The *Louisville City Gazette*, at Louisville, by J. J. & J. B. Marshall; daily.

1830.—The *Western Messenger*, at Louisville, by Rev. J. F. Clarke; monthly. Formerly published at Cincinnati, but removed to Louisville in 1830.

1830.—The *Louisville Daily Journal*, at Louisville, by Prentice & Buxton; daily, tri-weekly, and weekly.

1834.—The *Western Recorder*, at Louisville. Still published.

1835.—The *Western Journal of Education*, at Louisville, by Rev. B. D. Peers. Published a short time.

1838.—The *Literary Newsletter*, at Louisville, by E. Flagg. Suspended in 1841.

1843.—The *Louisville Courier*. In 1868 the *Journal*, *Courier*, and *Democrat* were consolidated in the *Louisville Courier-Journal*, published by the *Courier-Journal* company.

1844.—The *Louisville Democrat*, at Louisville; daily, weekly, and tri-weekly.

1849.—The *Anzeiger*, at Louisville, daily; weekly, 1851. Still published.

1869.—The *Catholic Advocate*, at Louisville. Still published.

### KENTON COUNTY.

——.—The *Licking Valley Register*, at Covington.

——.—The *Covington Intelligencer*, at Covington.

### LOGAN COUNTY.

——.—The *Russellville Herald*, at Russellville.

### MADISON COUNTY.

——.—The *Richmond Chronicle*, at Richmond.

——.—The *Review*, at Richmond.

### MASON COUNTY.

——.—The *Maysville Herald*, at Maysville.

1797–'98.—The *Kentucky Palladium*, at Washington, by Beamont & Hunter.

1819.—The *Maysville Eagle*, at Maysville. Still published.

### SCOTT COUNTY.

——.—The *Georgetown Herald*, at Georgetown.

## LOUISIANA.

Area, 45,420 square miles; population, 939,946; 58 parishes—newspapers published in 53. The total number of newspapers and periodicals published in 1810 was 1; in 1840, 34; 1850, 55; 1860, 81; 1870, 92; 1880, 112. The publications during 1880 were divided, according to periods of issue, as follows: Dailies, 13; weeklies, 94; semi-weeklies, 1; tri-weeklies, 1; bi-weeklies, 1; monthlies, 2. In each of 44 towns one paper was published; in 12, two; in 2, four; and in 1, five or more.

### EARLY HISTORY.

1804.—Printing was introduced by the French, and *Le Moniteur* established by —— Fontaine.

1804, July 31.—The *Louisiana Gazette*, at New Orleans, by John Mowery; semi-weekly. (a)

1806–1819.—*Moniteur de la Louisiane* (French). (b)

1807.—The *Louisiana Courier* established (French and English).

1813–1824.—*Louisiana Friend of Law*, by J. Secleve. (b)

1816.—The *Louisiana Gazette and New Orleans Mercantile Advertiser*, established by William Bruner.

1822.—*Gazette de la Louisiane*, by Charles G. Duhy.

1822.—The *New Orleans Price Current*, by Cook, Young & Co.

1823–'24.—*Le Louisianas* (French). (b)

1825.—The *Louisiana Advertiser*, by J. Beardslee.

1825, July 22.—The *City Journal*, by the city council.

1827.—*L'Abaille de la Nouvelle Orléans*, or the *New Orleans Bee* (French and English), by Jerome Bayou. Still published.

1832.—The *Commercial Bulletin*, by Putnam P. Rea.

1834–1839.—The *New Orleans Argus*. (b)

1835.—The *True American*, by John Gibson.

1837.—The *New Orleans Picayune*, by Lumsden, Kendall & Co. Weekly established 1841. Still published.

1843.—The *Daily Tropic*, by Alden S. Merrifield.

1843.—The *Daily True Delta*, by John Maginnis.

1846.—The *Daily Jeffersonian*, by J. F. H. Claiboine.

1848–1858.—The *Daily Orleanian*, by J. C. Pendergrast. (b)

1850, January 1.—The *Louisiana Spectator*, by J. P. McMillan.

1850, March 1.—The *Carrollton Star*, by P. Soulier.

1851.—The *Daily Crescent*, by J. O. Nixon.

1853.—The *Louisiana State Republican*.

1855.—The *American Exponent*, by Joseph Etter.

1855–'56.—The *National*, by R. P. Theard de la Breton. (b)

1856.—The *Daily Delta*, by A. Walker.

1856.—The *Semi-weekly and Daily Creole*, by Harmon, Latham & Co.

1856, April 17.—The *True Democrat*, by Dillard & Farris.

1857.—The *Daily Union*, by ——— Malispine.

1858, May 1.—The *Sunday Magnet*, by J. Stroud, jr.

1858, September 1.—The *Weekly Mirror*, by Joseph H. Wilson & Co.

1860, August 29.—The *Louisiana Signal*.

1863.—The *New Orleans Times*. Still published.

1863–'64.—The *Era*, by Tracy & Fairfax. (b)

1864, July 21.—The *New Orleans Tribune*, by Dr. Roudanez.

1865–'66.—The *Daily Southern Star*, by E. S. Jewell. (b)

1867.—The *Daily City Item*, by M. F. Bigney.

1867–1877.—The *New Orleans Republican*, by Wright R. Fish. (b)

[a] Nineteen subscribers, $10 per annum.

[b] The files for the years specified are in the municipal archives at New Orleans. All were published in that city.

## MAINE.

Area, 29,895 square miles; population, 648,936; 16 counties—newspapers published in all. The total number of newspapers and periodicals published in 1810 was 8; in 1840, 36; 1850, 49; 1860, 70; 1870, 65; 880, 123. The publications during 1880 were divided, according to periods of issue, as follows: Dailies, 12; weeklies, 90; tri-weeklies, 1; bi-weeklies, 1; monthlies, 18; quarterlies, 1. In each of 35 towns one paper was published; in 11, two; in 2, three; in 1, four; and in 5, five or more.

### EARLY HISTORY.

1780.—Printing introduced.

1785, January 1.—The *Falmouth Gazette and Weekly Advertiser*, established at Bangor, by Titcomb & White. See Cumberland county. (a)

[a] It was said in 1842 that the man was yet living who published the first paper in Maine, fifty-six years before. It was about the size of a sheet of foolscap, nd made up of extracts from other papers, a fortnight and three weeks old, from New York and Boston, as the latest intelligence. Thomas has no allusion to his paper. We learn that a paper was established at Falmouth about the year 1785, the object of which was to advocate the separation of the province from Massachusetts and erect it into an independent state. The expenses of the government in such case were estimated at £3,500, which, if raised by poll-tax, would mount to 6s. on a poll. It was probably the paper above mentioned.—*Munsell's Typographical Miscellany*.

## MAINE—Continued.

The following is a list of the early publications by counties:

### ANDROSCOGGIN COUNTY.

1847, May 21.—The *Lewiston Journal*, at Lewiston, by William H. Waldron & Co. April 20, 1861, daily *Journal*, established in connection with weekly. Still published.

1852.—The *Panophist*, at Lewiston, by Dr. Young. Published one year.

1852, May.—The *Democrat Advocate*, at Lewiston, by G. W. Chase. In 1861 merged in the *Lewiston Herald*.

1853.—The *Farmer and Mechanic*, at Lewiston, by Stetson & Jones. Published eight months.

1853.—The *Touchstone*, at Lewiston, by Dr. Young. Published a year or two.

1856.—The *Evangelist*, at Lewiston, by Waldron & Dingley. Suspended about 1862.

1857.—The *Rising Sun*, at Little River village, Lisbon, by George Plummer. Published one year; then removed to Richmond and published one year.

1857.—The *Livermore Falls Gazette*, at Livermore Falls. Published about one year.

1860.—The *Lewiston Republican*, at Lewiston, by H. C. Johnson. In 1861 merged in the *Lewiston Herald*.

1861.—The *Lewiston Herald*, at Lewiston, by Johnson & Hale; daily and weekly. Daily published six months, weekly eight months.

1867.—The *Mechanics Falls Herald*, at Mechanics Falls, by Moody. Published four years.

1868.—The *Jacksonian*, at Lewiston, by E. K. Smart. Published a short time.

1872.—The *Lewiston Gazette*, at Lewiston, by William H. Waldron. Still published.

1873.—The *Bates Student*, at Lewiston, by the students of Bates College; monthly. Still published.

1873, April 5.—The *Once a Week*, at Lewiston, by Mrs. Gatchell and Miss Sanford. Published about a year.

1874.—The *Clipper*, at Auburn.

### AROOSTOOK COUNTY.

1857.—The *Pioneer*, at Presque Isle, by Hall & Gilman. In January, 1868, removed to Houlton. Still published.

1860, April.—The *Aroostook Democrat*, at Houlton. Suspended in November, 1860.

1860, April 13.—The *Aroostook Times*, at Houlton, by Theo. Cary. Still published.

1860, June 24.—The *Aroostook Herald*, at Houlton, by J. B. Hall. Suspended in 1862.

1863, August 5.—The *Loyal Sunrise*, at Presque Isle, by D. Stickney & Co. In February, 1868, changed to the *Sunrise*. Now published as the *Aroostook Valley Sunrise*.

1872, January.—The *North Star*, at Fort Fairfield, by W. J. Sleeper & Son.

### CUMBERLAND COUNTY.

——.—The *Pleasure Boat*, at Portland, by J. Hacker. Published several years, then removed to New Jersey and suspended.

——.—The *Standard*, at Portland, by J. F. Hartley. Published a year.

——.—The *Eastern Rosebud*, at Portland; semi-monthly. Formerly published at Norway, by S. H. Colesworthy, and continued two years.

——.—The *Genius*, at Portland, by J. L. Thomas. Published several years.

——.—The *Religious Instructor*, at Portland, by S. H. Colesworthy; semi-monthly. Published two years.

——.—The *Temperance Journal*, at Portland, by A. Shirley & Son.

——.—The *Peace Washington*, at Portland, by Messrs. Nichol.

——.—The *Umpire*, at Portland, by J. Edwards. Published a short time.

——.—The *Orion*, at Portland, by J. Furbish. Published a short time.

1785, January 1.—The *Falmouth Gazette and Weekly Advertiser*, at Portland, by Titcomb & White. In 1786 changed to the *Cumberland Gazette*, and in 1792 to the *Eastern Herald*. In 1796 consolidated with the *Gazette of Maine* and published as the *Eastern Herald and Gazette of Maine*. In 1804 united with the *Portland Gazette*. In 1831 daily established under the title of the *Advertiser*, but suspended in 1866. Reappeared in 1868, and still published in connection with the weekly and called the *Advertiser*.

1790.—The *Gazette of Maine*, at Portland, by B. Titcomb. In 1796 consolidated with the *Eastern Herald*.

1796.—The *Oriental Trumpet*, at Portland, by J. Rand. Published a year or two.

1798.—The *Portland Gazette*, at Portland, by E. A. Jenks. In 1804 consolidated with the *Eastern Herald and Gazette of Maine*.

1803, September.—The *Eastern Argus*, at Portland, by Day & Willis. In 1824 semi-weekly established; in 1832, tri-weekly; in 1835, daily. Still published daily, tri-weekly, and weekly.

1806.—The *Freeman's Friend*, at Portland, by J. McKnown. Published a few years.

1820.—The *Maine Intelligencer*, at Brunswick. Published six months.

1821.—The *Independent Statesman*, at Portland, by J. Griffin. Changed to the *American Patriot*, and suspended about a year later.

1821, September.—The *Christian Intelligencer*, at Portland, by Rev. R. Streeter. In 1822 changed to the *Christian Intelligencer and Gospel Advocate*. In January, 1827, removed to Gardiner.

1822.—The *Wreath*, at Portland, by J. Edwards. Published one year.

1822, August.—The *Christian Mirror*, at Portland. Still published.

1824, July 17.—The *Maine Baptist Herald*, at Brunswick, by —— Griffin. Afterward changed to the *Galaxy and Herald*. Published about six years.

1825.—The *Northern Iris*, at Brunswick, by S. L. Pairfield; monthly. Published six months.

1825.—The *Experiment*, at Portland, by J. N. Purinton; semi-monthly.

1826–'27.—The *Escritor*, at Brunswick, by a club of students; monthly.

1827.—The *Free Press*, at Brunswick, by Moore & Wells. Published about two years.

1828.—The *Zion's Advocate*, at Portland, by Kalloch & Smith. Still published.

1828, January.—The *Yankee*, at Portland, by J. Adams, jr. Eighteen months later united with the *Bachelor's Monthly*, including Mrs. Hale's Monthly and the *Boston Literary Gazette*. Suspended six months afterward.

1829, November.—The *Family Reader*, at Portland, by S. Smith. Published several years.

1829.—The *Courier*, at Portland, by Seba Smith; daily.

1830.—The *Maine Wesleyan Journal*, at Portland, by Rev. G. F. Cox. In 1832 removed to Boston and consolidated with the *Zion's Herald*.

1830.—The *Brunswick Journal*, at Brunswick, by William Noyes. Published fifteen months.

1830, May.—The *Sabbath School Instructor*, at Portland, by Colesworthy, Woodbury & Greely. Published several years.

1831.—The *Juvenile Key*, at Brunswick, by the two children of J. Griffin. Afterward enlarged and called the *Family Pioneer and Brunswick Journal*. Published four years.

1832.—The *American Standard*, at Portland, by —— Sheldon. Published one year.

1832, July.—The *Christian Pilot*, at Portland, by Rev. M. Rayner. In July, 1833, removed to North Yarmouth. In July, 1836, consolidated with the *Gospel Banner* and changed to the *Banner and Pilot*. For a time was issued simultaneously in Portland and Augusta.

1833, May.—The *Jeffersonian*, at Portland, by H. King. Established in 1828 at Paris, Oxford county. Published several years.

1835.—The *Workingman's Advocate*, at Portland, by Day & Sumner. Published one year.

## MAINE—Continued.

1835-1840.—The *Nostrum*, at Portland. Published for some time.

1836.—The *Eastern Baptist*, at Brunswick, by the Baptist Association. Published one year.

1836.—The *Daily Times*, at Portland, by C. P. Ilsley. About 1837 changed to the *Portlander.*

1836.—The *Journal of Reform*, at Portland, by D. C. Colesworthy.

1836.—The *Yankee Farmer*, at Portland, by S. W. Cole. Formerly of Cornish, but in 1836 removed to Portland and published several years; then removed to Boston and consolidated with the *New England Farmer.*

1837.—The *Regulator*, at Brunswick, by T. S. McLellan. Published two years.

1837, April 1.—The *Transcript*, at Portland, by C. P. Ilsley. In July, 1848, consolidated with the *Pioneer*, and afterward with the *Eclectic.* Still published.

1838, March.—The *Advocate of Freedom*, at Brunswick, by Professor W. Smith; semi-monthly. One year later removed to Hallowell.

1839.—The *Youth's Monitor*, at Portland, by D. C. Colesworthy. Published two years.

1839.—The *Argus Revived*, at Portland. Published two years.

1839, October.—The *Universalist Palladium*, at Portland, by S. H. Colesworthy; semi-monthly. Published four years and then merged in the *Gospel Banner.*

1841.—The *Portland Tribune*, at Portland, by D. C. Colesworthy. United with the *Portland Umpire.*

1841.—The *Eastern Farmer*, at Portland, by I. Berry. Published for some time.

1841.—The *Family Instructor*, at Portland, by Rev. L. H. Fleming.

1842.—The *Brunswick*, at Brunswick, by T. S. McLellan. Published one year.

1842, March.—The *Wreath*, at Portland, by B. Thurston. In May, 1842, changed to semi-monthly. Suspended in October, 1843.

1844.—The *Daily Express*, at Portland, by D. C. Colesworthy. Published less than a year.

1845.—The *Forester*, at Brunswick, by Noyes & Stanwood.

1846.—The *Pejepscot Journal*, at Brunswick, by G. C. Swallow. Published one year.

1846.—The *Watch Tower*, at Portland, by J. M. Buzzell. Published two years.

1848.—The *Portland Inquirer*, at Portland, by B. Thurston. Published eight years.

1849.—The *Battle Axe*, at Portland, by B. F. Thorndike.

1850.—The *American*, at Portland; daily. Published a short time.

1850, October.—The *Eclectic*, at Portland, by E. Plummer. In April, 1855, merged in the *Transcript.*

1853.—The *Telegraph*, at Brunswick, by Waldron & Moore.

1853, July.—The *State of Maine*, at Portland, by May & Marble; daily, tri-weekly, and weekly. Formerly the *Northern Light*, at Hallowell. In 1859 consolidated with the *Advertiser.*

1854.—The *Expositor*, at Portland, by T. Nichols & Bro. Suspended in 1856.

1854.—The *Juvenile Temperance Watchman*, at Brunswick, by H. Owen.

1854.—The *Musical Advertiser*, at New Sharon, by G. W. Chase; monthly. Removed to Brunswick and changed to the *Musical and Masonic Journal.* In 1857 removed to Haverhill, Massachusetts. In January, 1860, consolidated with the *Crystal* at Portland under the title of the *Crystal and Masonic Journal.* Suspended December, 1860.

1857.—The *Reporter*, at Bridgeton, by S. Noyes. In 1863 changed to the *Bridgeton Sentinel.* Suspended in March, 1864.

1859.—The *Evening Courier*, at Portland, by S. S. Starbird; daily. Changed to the *Evening Star*, and afterward to the *Portland Advertiser.*

1862, June.—The *Daily Press*, at Portland, by Gillman, Hall & Foster; daily and weekly. Still published.

1864.—The *Observer*, at Portland, by S. Berry.

1864, March.—The *Northern Monthly*, at Portland, by E. P. Weston; monthly. Published ten months.

1865, December.—The *Riverside Echo*, at Bucksport, by a lodge of Good Templars; monthly. In January, 1873, changed to the *Inquirer.*

1866, December.—The *Maine Journal*, at Farmington, by G. M. Gage; monthly. In June, 1868, removed to Portland and changed to the *Journal of Education.*

1870, September.—The *Bridgeton Weekly News*, at Bridgeton, by H. A. Shorey. Still published.

1871.—The *Bowdoin Scientific Review*, at Brunswick; semi-monthly.

1871, February.—The *Good Seed*, at Portland, by T. G. Rich; monthly. Merged in the *Echo.*

1872.—The *Orient*, at Brunswick, by the students of Bowdoin College; semi-monthly. Published during the collegiate year.

1872.—The *North East*, at Portland, by Hoyt, Fogg & Breed; monthly. Still published.

### FRANKLIN COUNTY.

——.—The *Maine Normal*, at Farmington, by J. W. Swift. Published one year.

——.—The *Sandy River Farmer*, at Farmington. Published six months.

1832.—The *Sandy River Yeoman*, at Farmington, by W. A. Dunn. Published one year.

1840.—The *Harpswell Banner*, at Harpswell, by J. S. Swift. Published six months.

1840, February.—The *Franklin Register*, at Farmington, by J. S. Swift. Suspended at the close of the fourth volume.

1845.—The *Chronicle*, at Farmington. Still published.

1858.—The *Franklin Patriot*, at Farmington, by Pillsbury & Stetson. Suspended 1867.

1861.—The *County Record*, at Farmington, by J. S. Swift. Merged in the *Chronicle.*

### HANCOCK COUNTY.

——.—The *Hancock Advertiser*, at Ellsworth, by R. Grant. Suspended in 1834.

1799.—The *Journal and Advertiser*, at Castine, by D. J. Waters. Published two years and then removed to Hampden.

1805, July.—The *Maine Gazette*, at Bucksport, by W. W. Clapp. Suspended about 1812.

1809, November 14.—The *Eagle*, at Castine, by S. Hall.

1826, November 29.—The *Independent Courier*, at Ellsworth, by C. Lowell. Suspended about 1829.

1827, January 20.—The *Eastern American*, at Castine, by Haynes & Co. Published about a year.

1828, February 15.—The *Crescent*, at Castine.

1830.—The *Bluehill Beacon and Hancock County Journal*, at Bluehill, by B. F. Bond. Published two years.

1835.—The *Radical*, at Ellsworth, by Pike & Co. Suspended about 1837.

1837.—The *Laborer's Journal*, at Ellsworth, by J. H. Jordan. Published six months.

1838, November.—The *Northern Statesman*, at Ellsworth, by C. Lowell. Published one year.

1839.—The *Bee*, at Ellsworth, by J. H. Jordan. Published less than two years.

1841, June.—The *Hancock Democrat*, at Ellsworth, by J. H. Jordan. Published about three years.

1851, October.—The *Herald*, at Ellsworth, by Conhard & Hilton. Suspended in 1854.

1853.—The *Eastern Freeman*, at Ellsworth, by J. H. Jordan. Published two years.

1854, December.—The *American*, at Ellsworth, by C. W. Moor. Still published.

1860, April.—The *Eastern Farmer*, at Ellsworth, by Wasson & Moor. Suspended 1861.

1866, January.—The *Hancock Journal*, at Ellsworth, by Z. A. Smith. Published eight months.

## MAINE—Continued.

### KENNEBEC COUNTY.

——.—The *Free Press* (anti-Masonic), at Hallowell, by A. Herrick. Afterward merged with the *Advocate* and changed to the *Free Press and Advocate.*

1794, August 4.—The *Eastern Star*, at Hallowell, by H. S. Robinson. Published a short time.

1795.—The *Tocsin*, at Hallowell, by Baker & Wait. Published two years.

1795.—The *Kennebec Intelligencer*, at Hallowell (now Augusta), by P. Edes. In 1800 changed to the *Kennebec Gazette*, and in 1810 to the *Herald of Liberty.* In 1815 removed to Bangor.

1814.—The *Hallowell Gazette*, at Hallowell, by Goodale & Burton. Published about twenty years.

1817, March 17.—The *Augusta Patriot*, at Augusta, by J. Burton, jr. Published a year or two.

1823.—The *Kennebec Journal*, at Augusta, by Severance & Eaton. Now published as the weekly of the *Daily Journal*, established in January, 1870.

1823, May.—The *Waterville Intelligencer*, at Waterville, by William Hastings. Suspended in 1828.

1824, October 24.—The *Eastern Chronicle*, at Gardiner, by P. Sheldon. January 25, 1827, merged in the *Intelligencer*.

1827, August 28.—The *Maine Patriot*, at Augusta, by J. Dickman. Suspended in December, 1831.

1828.—The *New England Farmer and Mechanics' Journal*, at Gardiner; monthly. Published about a year.

1828, January.—The *Genius of Temperance*, at Hallowell, by P. Crandall; semi-monthly. Published two years.

1828 ,December, 18.—The *Watchman*, at Waterville, by William Hastings. Suspended December 30, 1829.

1831.—The *Age*, at Augusta, by J. Berry & Co. Suspended about 1862.

1831, June.—The *Times*, at Waterville, by J. Burleigh. Published about two years.

1831, August 19.—The *Augusta Courier and Workingmen's Advocate*, at Augusta, by Washburn & Jewell. Suspended November 26, 1832.

1833, January 21.—The *Kennebec Farmer and Journal*, at Winthrop, by Noyes & Co. In March, 1833, changed to the *Maine Farmer*. Removed to Hallowell; afterward removed to Winthrop. Still published.

1834.—The *Waterville Journal*, at Waterville, by J. Burleigh. Published one year.

1835, July 25.—The *Gospel Banner*, at Augusta, by Rev. W. A. Drew. Still published.

1839, September 28.—The *Maine Cultivator and Weekly Gazette*, at Hallowell, by Newman & Lincoln. In 1850 changed to the *Hallowell Gazette and Maine Cultivator;* in September, 1853, to the *Hallowell Gazette*, and in 1869 to the *Saturday Gazette.* Suspended December 9, 1871.

1839, December.—The *Gardiner Spectator*, at Gardiner, by A. Bartlett. Suspended September 24, 1842.

1840.—The *Liberty Standard*, at Hallowell, by Rev. J. C. Lovejoy. Published about eight years.

1841.—The *Gardiner Ledger*, at Gardiner. Suspended 1843.

1842.—The *Watervillonian*, at Waterville, by Wing & Mathews. At the close of the first volume changed to the *Yankee Blade.* In 1844 removed to Gardiner and published there nearly four years. Removed to Boston and finally merged in the *Olive Branch.*

1844, June 24.—The *Cold Water Fountain*, at Gardiner, by G. M. Atwood. United with the *Washington Journal* and changed to the *Fountain and Journal.* In 1853 removed to Portland.

1845.—The *Eastern Light*, at Gardiner, by H. W. Jewell. Published a short time.

1845, February 1.—The *David's Sling*, at Gardiner, by Rowell & Clay. Published nine months.

1847, April.—The *Union*, at Waterville, by C. F. Hathaway. Published about four months.

1847, July 19.—The *Eastern Mail*, at Waterville, by E. Maxham. Changed to the *Waterville Mail.* Still published.

1850, February 9.—The *Advertiser*, at Gardiner, by R. B. Caldwell. Changed on the second number to the *Kennebec Transcript* and published six months as a semi-weekly. In 1856 merged in *Drew's Rural Intelligencer*, under the title of the *Maine Rural.* Suspended in 1860. The *Daily Rural* published a few months in 1859.

1852.—The *Northern Light*, at Hallowell, by Currier & May. Published a few months, and in 1853 removed to Portland.

1854, January.—The *Northern Home Journal*, at Gardiner, by A. M. C. Heath. In 1868 changed to the *Gardiner Home Journal.*

1855.—The *Glenwood Valley Times*, at Vienna, by R. M. Mansur; monthly. In 1861 removed to Mount Vernon village and published one year as the *Young Folks' Monitor.* In 1866 removed to Augusta and changed to the *Musical Monitor.*

1855, January.—The *Rural Intelligencer*, at Augusta, by Rev. W. A. Drew. Afterward removed to Gardiner and consolidated with the *Transcript* under the title of the *Maine Rural.*

1861–'62.—The *Kennebec Courier*, at Hallowell, by T. W. Newman. Removed to Bath and shortly after suspended.

1865, February.—The *Kennebec Reporter*, at Gardiner, by Bailey & Brown. Still published.

1867.—The *Maine Standard*, at Augusta, by Brown & Jordon. Still published.

1869, October.—The *People's Literary Companion*, at Augusta, by E. C. Allen; monthly. In October, 1871, issued as a weekly. Still published.

1871, October.—*Our Young Folks*, at Augusta, by E. C. Allen & Co.; illustrated monthly.

### KNOX COUNTY.

1825, May 17.—The *Thomaston Register*, at Thomaston, by J. Ruggles & Co. In September, 1831, changed to the *Independent Journal.*

1832, October.—The *National Republican*, at Thomaston, by J. Ramsay. A few years later removed to East Thomaston (now Rockland) and merged in the *Recorder.*

1837, August 23.—The *Thomaston Recorder*, at Thomaston, by H. P. Coombs. In October, 1846, suspended. Afterward revived as the *Star and Recorder*, and in 1848 again suspended.

1839, January.—The *Thomaston Republican*, at Rockland, by R. B. Caldwell. In 1841 removed to Wiscasset.

1846, January 22.—The *Lime Rock Gazette*, at Rockland, by Richardson & Porter. Afterward changed to the *Rockland Gazette.*

1850, August 7.—The *Lincoln Miscellany*, at Thomaston, by Corthell & Swan. Suspended in March, 1854.

1851.—The *Camden Advertiser*, at Camden, by F. C. Messinger. About a year later removed to Rockland and changed to the *Commercial Advertiser.* Suspended in 1854.

1854, March 9.—The *Thomaston Journal*, at Thomaston, by C. H. Paine. Four years later changed to the *Lincoln Advertiser.* In October, 1859, removed to Damariscotta and published there a few months.

1855, November 1.—The *United States Democrat*, at Rockland, by A. & E. Sprague. In 1857 consolidated with the *Maine Free Press* of Belfast and changed to the *Democrat and Free Press.* Now published as the *Free Press.*

1860, February.—The *Youth's Temperance Visitor*, at Rockland, by Z. P. Vose. Published about fifteen months and suspended, but revived in September, 1862. Afterward removed to Portland.

1869, January.—The *Camden Herald*, at Camden, by W. H. Berry. Still published.

### LINCOLN COUNTY.

——.—The *Citizen*, at Wiscasset, by A. Herrick. Published about a year.

1796.—The *Telegraph*, at Wiscasset, by Russell & Hoskins.

1805, June.—The *Eastern Repository*, at Wiscasset.

## MAINE—Continued.

1820.—The *Lincoln Telegraph*, at Wiscasset, by S. B. Dana. Pubshed eighteen months.

1821, October.—The *Lincoln Intelligencer*, at Wiscasset, by J. Dorr. uspended about 1835.

1830.—The *Yankee*, at Wiscasset, by E Brooks.

1837-1841.—The *Lincoln Patriot*, at Waldoboro, by Nichols Brothers.

1841-1843.—The *Lincoln County Republican*, at Wiscasset, by J. B. rith.

1845.—The *Yankee*, at Wiscasset, by J. B. Frith.

1856.—The *Lincoln Democrat*, at Newcastle, by J. J. Ramsay.

1859.—The *Lincoln Advertiser*, at Damariscotta.

1859, July.—The *Wiscasset Herald*, at Wiscasset, by Farrar & Wood. ublished three months.

1869.—The *Seaside Oracle*, at Wiscasset, by J. Wood; monthly. In 870 changed to a semi-monthly, and in 1872 to a weekly.

1873, January.—The *News*, at Waldoboro. Still published.

### OXFORD COUNTY.

1798, February.—The *Echo or the North Star*, at Fryeburg, by E. Russell. Published less than a year.

1824, July 8.—The *Oxford Observer*, at Paris, by Asa Barton. In December, 1826, removed to Norway. In June, 1832, changed to the *Politician*. Suspended April, 1833.

1828.—The *Jeffersonian*, at Paris, by Hamlin & King. In 1832 removed to Portland.

1830, March.—The *Village Spy*, at Norway, by Asa Barton. Published a short time.

1832, April.—The *Journal of the Times*, at Norway, by William E. Goodnow. Published three months.

1833, March.—The *Oxford Democrat*, at Paris, by Millet & King. Still published.

1844, March.—The *Norway Advertiser*, at Norway, by Berry & Blake. Changed to the *Pine State News*. Discontinued in January, 1851.

1849.—*A Word to the Little Folks*, at Topsham, by J. White. Published a few months.

1850.—The *Review and Herald of the Sabbath*, at Paris; monthly. In 1851 issued as a semi-monthly; removed to Saratoga Springs and then to Rochester, New York, and afterward to Battle Creek, Michigan. Still published.

1851, July.—The *Norway Advertiser*, at Norway, by M. B. Bartlett, Published several years.

1858, December 17.—The *Bethel Courier*, at Bethel, by Cady & Smith. Suspended July 26, 1861.

1869, October 1.—The *Oxford Register*, at Paris, by Watson Brothers.

### PENOBSCOT COUNTY.

——.—The *Expositor*, at Bangor, by C. Godfrey; monthly.

——.—The *Bangor Post*, at Bangor, by T. Bartlett. Published a short time.

——.—The *Daily Mercury*, at Bangor, by T. Bartlett. Suspended in 1854.

——.—The *Spirit Guardian*, at Bangor, by G. W. Brown. Published a short time.

——.—The *Crucible*, at Orono, by the students of the Maine State College.

1815, November 25.—The *Bangor Weekly Register*, at Bangor, by P. Edes. December 25, 1817, changed to the *Bangor Register*. Suspended August 2, 1831.

1824.—The *Penobscot Gazette*, at Bangor, by D. Pike. Suspended February 14, 1827.

1827.—The *Eastern Republican*, at Bangor, by N. Haynes. Suspended in November, 1838.

1828, May 3.—The *Clarion*, at Bangor, by G. Merrill.

1831, August.—The *Penobscot Journal*, at Bangor, by P. Barnes. Published two years.

1833, September 22.—The *Bangor Courier*, at Bangor, by William E. P. Rogers. In July, 1834, the *Bangor Daily Whig* established. December 20, 1834, changed to the *Bangor Daily Whig and Courier*. Still published.

1834, August 7.—The *Penobscot Freeman*, at Bangor, by A. Herrick. Published a short time.

1835.—The *Daily Commercial Advertiser*, at Bangor, by A. Herrick. In December, 1836, merged in the *People's Press*.

1835, February.—The *Mechanic and Farmer*, at Bangor, by J. Brown & Co. Suspended February 21, 1839.

1835, June.—The *Eastern Magazine*, at Bangor, by J. S. Carter; monthly. In 1836 changed to the *Maine Monthly Magazine*, and continued a short time.

1836, January.—The *Bangorean*, at Bangor, by J. S. Carter. In October, 1836, consolidated with the *Mechanic and Farmer*.

1836, February 15.—The *Democrat*, at Bangor, by Smith & Johnson. In 1857 consolidated with the *Daily Mercury* under the title of the *Bangor Daily Union*. Daily suspended 1861.

1836, March 12.—The *People's Press*, at Bangor, by T. Bartlett, jr.; daily and weekly. Suspended in November, 1838.

1837, June 1.—The *Journal*, at Bangor, by Rev. T. Curtis. Published one year.

1842, April 30.—The *Bangor Gazette*, at Bangor, by J. Burrill. Published one year as a weekly, then changed to a daily. Afterward changed to the *Platform*. Suspended after the Van Buren campaign.

1850.—The *Daily Bee*, at Bangor, by S. F. Whetmore. Published a short time.

1854.—The *Bangor Daily Journal*, at Bangor, by W. E. Hilton & Co. In 1857 merged in the *Democrat* under the title of the *Daily Union*.

1858, June 19.—The *Bangor Daily Evening Times*, at Bangor, by William Thompson. Suspended September 10, 1867.

1859, March.—The *Jeffersonian*, at Bangor, by J. Bartlett & Burr. June 28, 1862, The *Jeffersonian Daily Evening News* established, but August 2, 1862, suspended. In 1870 weekly suspended.

1863.—The *Gazette*, at Dexter, by J. F. Witherell. Still published.

1872, January.—The *Bangor Daily Commercial*, at Bangor, by M. Emory. Still published.

1873, January.—The *Northern Border*, at Bangor, by an association of citizens.

### PISCATAQUIS COUNTY.

1838, June.—The *Piscataquis Herald*, at Dover, by G. V. Edes. In 1849 changed to the *Piscataquis Observer*. Still published.

1839, July.—The *Democratic Republican*, at Dover, by S. H. Davee. Published one year.

### SAGADAHOC COUNTY.

——.—The *Weekly Mirror*, at Bath, by Haines & Wing. In 1853 issued a daily. In June, 1855, consolidated with the *Northern Tribune*. In September, 1857, consolidated with the *Eastern Times*, and changed to the *Northern Tribune and Eastern Times*. Afterward merged in the *People's Organ*.

1820, December 8.—The *Maine Gazette*, at Bath, by Torrey & Simpson. In 1832 consolidated with the *Inquirer* under the title of the *Gazette and Inquirer*. In March, 1836, changed to the *Lincoln Telegraph;* in September, 1846, to the *Northern Tribune;* 1848, *Daily Northern Tribune* established. Afterward suspended and issued as a tri-weekly. In June, 1855, consolidated with the *Daily and Weekly Mirror*.

1824, October 14.—The *Maine Inquirer*, at Bath, by T. Eaton. In 1832 consolidated with the *Maine Gazette*.

1837.—The *Telescope*, at Bath, by J. Nelson. Published one year.

1842, May.—The *Maine Enquirer*, at Bath, by J. J. Ramsay. In 1846 changed to the *Eastern Times*. In September, 1857, consolidated with the *Northern Tribune*.

1853.—The *Sagadahoc Review*, at Bath, by J. S. Swift; daily and weekly. Published a few months.

1854.—The *American Sentinel*, at Damariscotta village. Afterward removed to Bath. In 1862 consolidated with the *Tribune and Daily*

## MAINE—Continued.

*Times* and published as the *Daily Sentinel and Times*, also the *Weekly American Sentinel*.

1857, September 8.—The *People's Organ*, at Bath, by J. T. Gilman. A few months later consolidated with the *Northern Tribune and Eastern Times*. In June, 1862, merged in the *American Sentinel*.

1869–'70.—The *Maine Temperance Advocate*, at Bath, by H. A. Shorey. Published nine months.

1874, January.—The *Leisure Hours*, at Bath.

### SOMERSET COUNTY.

1823, May 15.—The *Somerset Journal*, at Norridgewock, by Copeland & Edes. In 1843 changed to the *Workingman;* a few months later to the *Workingman and People's Press*. About 1853 removed to Bangor.

1828, June 10.—The *Democratic Somerset Republican*, at Norridgewock. In 1831 removed to Skowhegan and changed to the *Skowhegan Sentinel and Somerset Democratic Republican*, and afterward to the *Skowhegan Sentinel*. Suspended in April, 1841.

1841, July.—The *Democratic Clarion*, at Skowhegan, by ——— Littlefield. In April, 1868, changed to the *Somerset Reporter*. Still published.

1844.—The *Investigator*, at Skowhegan, by William D. Gould. Published a few weeks.

1852, July 23.—The *Somerset Spectator*, at North Anson, by R. Collins. Published about four years.

1856, July 23.—The *Union Advocate*, at North Anson, by A. Moore. Still published.

1857, April.—The *Somerset Telegraph*, at Skowhegan, by J. L. Patten. April 10, 1861, changed to the *Somerset Farmer*. Suspended about 1865.

1872, May.—The *Fairfield Weekly Chronicle*, at Fairfield, by the Fairfield Chronicle Association.

### WALDO COUNTY.

1820, July 6.—The *Hancock Gazette*, at Belfast, by Simpson & Fellows. After publishing twenty-one numbers changed to the *Hancock Gazette and Penobscot Patriot*. June 26, 1826, changed to the *Belfast Gazette*. About 1828 suspended, but revived as the *Waldo Democrat*, and continued less than a year.

1825, September.—The *Christian Visitant*, at Belfast, by Rev. William A. Drew; monthly. Published two years.

1829, February.—The *Republican Journal*, at Belfast, by White & Rowe. Suspended a short time, but revived, and still published.

1829, April 8.—The *Maine Farmer and Political Register*, at Belfast, by E. Palmer. Suspended in October, 1830.

1830, November 3.—The *Maine Workingmen's Advocate*, at Belfast, by J. Dorr. Suspended April 28, 1836.

1836, November 17.—The *Belfast Intelligencer*, at Belfast, by Williamson & Ingalls. One year later removed to Winterport and published until January 12, 1839.

1838, January 1.—The *Waldo Patriot*, at Belfast, by J. Dorr. Published one year, and then removed to Augusta and united with the *Kennebec Journal*.

1840.—The *Waldo Signal*, at Belfast, by C. Giles. June 26, 1846, changed to the *State Signal*. October 27, 1847, consolidated with the *New Planet*, and changed to the *Signal and Planet*. Suspended in 1853.

1844, March.—The *People's Advocate*, at Belfast, by L. Richardson. Published less than two years.

1848, May.—The *Common School Advocate*, at Belfast, by Griffin & Rowe; semi-monthly. Suspended August 1, 1849.

1854, June 15.—The *Maine Free Press*, at Belfast, by L. R. Wing and E. K. Smart. In 1857 removed to Rockland and consolidated with the *United States Democrat*, under the title of the *Democrat and Free Press*.

1854, July.—The *Progressive Age*, at Belfast, by W. M. Rust. April 24, 1861, the *Progressive Age Evening Bulletin* established. January 29, 1861, discontinued, but revived March 10, 1862. Published twenty-six numbers and again suspended. The *Bulletin*, weekly, is still published.

1870, January.—The *Union Banner*, at Belfast, by S. H. Murch; monthly. Published one year.

1871, July.—The *Belfast Advertiser*, at Belfast, by Bracket & Burgess; monthly.

### WASHINGTON COUNTY.

——.—The *Herald*, at Saint Stephen, by J. S. Hay. In 1862 removed to Calais and published one year.

1818, August.—The *Eastport Sentinel*, at Eastport, by B. Folsom. Still published.

1823, December 3.—The *Eastern Star*, at Machias, by J. O. Balch. Published one year.

1828, April.—The *Northern Light*, at Eastport. In 1832 changed to the *Eastern Democrat*. In 1835 removed to Calais. Suspended in May, 1837, but revived in 1839.

1833, April 12.—The *Boundary Gazette and Calais Advertiser*, at Calais, by H. P. Pratt. Suspended July 28, 1836.

1834, January 28.—The *Saint Croix Courier*, at Calais, by H. Bates. Suspended December 18, 1835.

1835, November 26.—The *Eastern Democrat*, at Calais, by J. Brent. Suspended 1836.

1836, August 16.—The *Gazette and Advertiser*, at Calais, by Snow & Jackson. Suspended November 14, 1838, revived April 14, 1841.

1837, February 18.—The *Down-Easter*, at Milltown, by —— Snow. Suspended December 27, 1838.

1838, January 9.—The *Frontier Journal*, at Saltwater village, by J. C. Washburn. Suspended April 28, 1840, revived in 1842 and published until 1848.

1839, June 18.—The *Eastern Democrat*, at Calais, by J. C. Washburn. Suspended June 22, 1841.

1853, May 25.—The *Machias Union*, at Machias, by Yates & Furbish. Still published.

1856, June.—The *Republican*, at Machias, by S. Fowler. Still published.

### YORK COUNTY.

——.—The *Biddeford Townsman*, at Biddeford, by W. F. Scammon.

1803.—The *Annals of the Times*, at Kennebunk. Published two years.

1805.—The *Freeman's Friend*, at Saco, by William Weeks.

1805, March 20.—The *Gazette*, at Kennebunk, by J. K. Remick. Suspended about 1842.

1820.—The *Maine Palladium*, at Saco, by Putnam & Blake. Suspended July 21, 1830.

1828, January 6.—The *Maine Democrat*, at Saco, by William J. & J. Condon. In January, 1868, removed to Biddeford and published as the weekly of the *Daily Times*.

1832, April.—The *Maine Recorder*, at Limington, by M. A. Dow. Suspended December 31, 1835.

1832, October.—The *National Republican*, at Saco, by Dow & Marble. Published two years.

1834, March.—The *Republican*, at South Berwick, by C. P. Hale. Suspended August, 1835.

1835.—The *Yankee Farmer*, semi-monthly, at Cornish, by S. W. Cole. Afterward merged in the *New England Farmer* at Boston.

1838, March.—The *York County Herald*, at Saco, by S. & C. Webster. Suspended February 17, 1843.

1840, May.—The *Village Register and Farmers' Miscellany*, at Limerick, by S. B. Eastman. In September, 1840, changed to the *Eastern Herald*, and continued six months.

1841.—The *Washingtonian Banner*, at Saco, by C. Webster. Published two years.

1843, March.—The *Maine Freewill Baptist Repository*, at Saco, by J. M. Buzzell. Three years later removed to Limerick, where it reached its eighth volume.

## MAINE—Continued.

1844.—The *Columbian Star*, at Alfred, by J. Dickman.

1845, January.—The *Union*, at Saco, by William Noyes. In 1856 emoved to Biddeford and consolidated with the *Eastern Herald and Mercantile Advertiser*, under the title of the *Union and Journal*. Still published.

1848.—The *Biddeford Herald*, at Biddeford, by Reed & Cole. Published about seventeen months.

1849, April.—The *Mercantile Advertiser*, at Saco, by M. Watson. In 1850 removed to Biddeford and published eighteen months as the *Eastern Journal* and merged in the *Union*.

1857, January 5.—The *Weekly Gazette*, at Biddeford, by M. Watson. Suspended in 1861.

1869, May 18.—The *York County Independent*, at Saco, by William Noyes & Son. Still published.

## MARYLAND.

Area, 9,860 square miles; population, 934,943; 24 counties—newspapers published in all. The total number of newspapers and periodicals published in 1810 was 21; in 1840, 45; 1850, 68; 1860, 57; 1870, 38; 1880, 143. The publications during 1880 were divided, according to periods of issue, as follows: Dailies, 15; weeklies, 111; monthlies, 12; semi-monthlies, 4; quarterlies, 1. In each of 24 towns one paper was published; in 8, two; in 8, three; and in 5, five or more.

### EARLY HISTORY.

1727.—Printing was introduced at Annapolis.

1727, September 24.—The *Maryland Gazette*, established at Annapolis by William Parks. Publication suspended after 1729.

1745, April 26.—The *Maryland Gazette*, at Annapolis, by Jonas Green, cap sheet, 14 by 17. Publication suspended in 1839.

1773, August.—The *Maryland Journal and Baltimore Advertiser*, at Baltimore, by William Goddard. Publication suspended in 1797.

1809, May.—The *Hagerstown Gazette*, at Hagerstown.

1811.—The *Weekly Register*, at Baltimore, by H. Niles.

In addition to the above the following newspaper files are in the possession of the State Historical Society:

ANNAPOLIS.—The *Maryland Republican*, 1809–1839.

BALTIMORE.—The *Maryland Journal and Baltimore Advertiser*, 1773–1797; *Dunlap's Maryland Gazette*, 1775–1779—continued as the *Maryland Gazette*, 1783–1791; the *Baltimore Daily Repository*, 1791–1793; the *Baltimore Daily Intelligencer*, 1793–1794—continued as the *Federal Intelligencer*, 1795—continued as the *Federal Gazette*, 1796–1825—continued as the *Baltimore Gazette*, 1825–1837; the *Baltimore Weekly Gazette*, 1832–1834; the *Telegraphe and Daily Advertiser*, 1797–1802; the *American and Daily Advertiser*, *American and Commercial Advertiser*, *Baltimore American and Commercial Advertiser*, 1799–1880; the *American Patriot and Fell's Point Advertiser*, 1802–1803; the *Republican or Anti-Democrat*, 1802–1803; the *Baltimore Evening Post*, 1805–1811; the *Whig*, 1808–1810—continued as the *Baltimore Whig*, 1810–1811; the *North American and Mercantile Advertiser*, 1808–1809—continued as the *Federal Republican and Commercial Gazette*, 1809–1811; the *Baltimore Patriot*, 1812–1847; the *Mechanics' Gazette and Merchants' Daily Advertiser*, 1815; the *People's Friend*, 1816; the *Federal Republican and Baltimore Telegraph*, 1819–1823; the *Morning Chronicle and Baltimore Advertiser*, 1820–1823; the *North American*, 1827; the *Marylander*, 1827–1828; the *Baltimore Republican*, also known as *The Argus*, 1829–1863; the *Weekly Argus*, 1849–1851; the *Daily Chronicle*, 1833; the *Baltimore Daily Transcript*, *Baltimore Commercial Transcript*, 1836–1838; the *Commercial Chronicle and Daily Marylander*, 1839; the *Baltimore Clipper*, 1839–1840; the *Spirit of Democracy*, 1840; the *Sun*, 1837–1880; the *Daily Exchange*, 1859–1861—continued as the *Maryland Times*, the *Maryland News Sheet*, 1861–1862—continued as the *Baltimore Daily Gazette*, 1862–1880; the *South*, T. W. Hall, jr., 1861; the *South*, J. M. Mills & Co., 1861–1862; the *Evening Bulletin*, 1876–1879; the *Telegram*, 1879–1880.

CHESTERTOWN.—The *Chestertown Transcript*, 1875–1878.

EASTON.—The *Maryland Herald*, 1791–1793, 1796–1804; the *Republican Star or Eastern Shore General Advertiser*, 1802–1830; the *People's Monitor*, 1815; the *Eastern Shore Whig*, 1830–1841; the *Easton Gazette*, 1831–1848; the *Eastern Shore Star*, afterward the *Easton Star*, 1841–1862.

FREDERICK.—The *Maryland Chronicle, or the Universal Advertiser*, 1786–1787; *Bartgis' Maryland Gazette and Frederick-Town Weekly Advertiser*, 1792–1794—continued as *Bartgis' Federal Gazette, or the Frederick Town and County Weekly Advertiser*, 1796–1799—continued as *Bartgis' Republican Gazette*, 1801–1820—continued as the *Republican Gazette and General Advertiser*, 1821–1824—continued as the *Political Intelligencer, or Republican Gazette*, 1824; the *Rights of Man*, 1794, 1798, 1800; the *Hornet*, 1803–1806; *Frederick-Town Herald*, *Frederick Herald*, 1804, 1812–1831, 1834; the *Independent American Volunteer*, 1807–1808; the *Hornet, or Republican Advocate*, 1809–1811; the *Plain Dealer*, *Plain Dealer and Political Intelligencer*, 1813–1814; the *Political Examiner and Public Advertiser*, 1814–1815, 1818–1819, 1822–1823, 1827, 1830, 1835; the *Examiner*, 1857–1880; the *Republican Citizen and State Advertiser*, 1821–1828, 1837–1838; the *Anti-Jacksonian*, 1828; the *People*, 1828; the *Times* 1834—continued as the *Times and Democratic Advocate*, 1837—continued as the *Frederick Times and Democratic Advocate*, 1838—continued as the *Times and Democratic Advocate*, 1839; the *True Democrat*, 1853.

HAGERSTOWN.—The *Torch-Light and Public Advertiser*, 1825–1827, 1831–1833.

WILLIAMSPORT.—The *Republican Banner*, 1830–1831.

## MASSACHUSETTS.

Area, 8,040 square miles; population, 1,783,085; 14 counties—newspapers published in all. The total number of newspapers and periodicals published in 1810 was 32; in 1840, 91; 1850, 209; 1860, 222; 1870, 259; 1880, 427. The publications during 1880 were divided, according to periods of issue, as follows: Dailies, 39; weeklies, 279; semi-weeklies, 13; tri-weeklies, 1; bi-weeklies, 7; monthlies, 80; semi-monthlies, 1; quarterlies, 7. In each of 82 towns one paper was published; in 30, two; in 10, three; in 2, four; and in 12, five or more.

### EARLY HISTORY.[a]

1639, January.—Printing was introduced at Boston.

1704, April 17.—The *Boston News Letter*, established at Boston, by John Campbell; two pages, 8 by 12 inches. Publication suspended in 1776.

1719, December 14.—The *Boston Gazette*, at Boston, by William Brooker; half sheet foolscap, 8½ by 17 inches. Publication suspended in 1752.

1721, August 17.—The *New England Courant*, at Boston, by James Franklin; half sheet crown, 9½ by 15 inches. Publication suspended in 1727.

1727, March 20.—The *New England Weekly Journal*, at Boston, by Samuel Kneeland; half sheet foolscap, 8½ by 17 inches. In 1741 incorporated with the *Boston Gazette*, and called the *Boston Gazette and Weekly Journal*. Publication suspended in 1752.

1731, September 27.—The *Weekly Rehearsal*, at Boston, by Jeremiah Gridley; half sheet demy, 10½ by 16 inches. Publication suspended in 1735.

1734, October.—The *Boston Weekly Post Boy*, at Boston, by Ellis Huske; half sheet demy, 10½ by 16 inches. Publication suspended in 1755.

1735, August 25.—The *Boston Evening Post*, at Boston, by Thomas Fleet; half sheet foolscap, 8½ by 14 inches. Publication suspended in 1775.

1743, March 2.—The *Boston Weekly Magazine*, at Boston, by Rogers & Fowle. First magazine published in America. Suspended in April, 1743.

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[a] Further details regarding early Massachusetts newspapers will be found in the catalogue of the newspaper files in the collection of the American Antiquarian Society at Worcester, following this chronology.

## MASSACHUSETTS—Continued.

1743, March 5.—The *Christian History* (magazine), at Boston, by Thomas Price, jr. Publication suspended in 1745.

1743, September.—The *American Magazine and Historical Chronicle* (magazine), at Boston, by Eliot & Blanchard. Publication suspended in 1746.

1748, January 4.—The *Independent Advertiser*, at Boston, by Rogers & Fowle; half sheet crown, 9½ by 15 inches. Publication suspended in 1750.

1753, January 3.—The *Boston Gazette or Weekly Advertiser*, at Boston, by Samuel Kneeland; half sheet crown, 9½ by 15 inches. Publication suspended in 1755.

1755, April 7.—The *Boston Gazette or Country Journal*, at Boston, by Edes & Gill; half sheet crown, 9½ by 15 inches. Publication suspended September 17, 1798.

1757, August 22.—The *Boston Weekly Advertiser*, at Boston, by Green & Russell. Title changed several times, finally to *Massachusetts Gazette* and *Boston Post Boy and Advertiser;* crown sheet, 15 by 19 inches. Publication suspended in 1775.

1758, August 31.—The *New England Magazine*, at Boston, by Benjamin Mecom; 60 pp., 12mo. Publication suspended in 1759.

1767, December 21.—The *Boston Chronicle*, at Boston, by John Mein; demy sheet, 16 by 21 inches. Publication suspended June 25, 1770.

1768, August 2.—The *Essex Gazette*, at Salem, by Samuel Hall; crown sheet, 15 by 19 inches. In 1775 removed to Cambridge, and called the *New England Chronicle or Essex Gazette*. Removed to Boston on its evacuation by the British and called the *New England Chronicle*. It was afterward sold and called the *Independent Chronicle*. Consolidated with the *Boston Patriot* in 1819.

1770, August 7.—The *Massachusetts Spy*, at Boston, by Z. Fowle and I. Thomas; half sheet large crown. Publication suspended in six months. Revived in March, 1771, by Isaiah Thomas, on a royal sheet. Removed to Worcester in 1775. Still published daily and weekly.

1771, November 23.—The *Censor* (magazine), at Boston, by Ezekiel Russell. Publication suspended in 1772.

1773, December 4.—The *Essex Journal and Merrimack Packet*, or the *Massachusetts and New Hampshire General Advertiser*, at Newburyport, by Isaiah Thomas; crown sheet, 15 by 19 inches. Publication suspended before 1800.

1774, January.—The *Royal American Magazine*, at Boston, by Isaiah Thomas. Publication suspended in 1775.

1774, June.—The *Salem Gazette*, and *Newbury and Marblehead Advertiser*, at Salem, by E. Russell; crown sheet, 15 by 19 inches. Publication continued but a short time.

1776, May 30.—The *Continental Journal and Weekly Advertiser*, at Boston, by John Gill. Suspended about 1784.

1776, June 18.—The *American Gazette*, or the *Constitutional Journal*, at Salem, by E. Russell; crown sheet. Published a short time.

1778, June 15.—The *Independent Ledger and American Advertiser*, at Boston, by Draper & Folsom. Suspended about 1784.

1784, March 24.—The *Massachusetts Centinel and Republican Journal*, at Boston, by Benjamin Russell; semi-weekly. Changed to the *Massachusetts Centinel* in 1785, and in 1790 to the *Columbian Centinel*. United with the *New England Palladium* in 1830, and with the *Boston Gazette* in April, 1836. Merged in the *Boston Daily Advertiser* in 1840. Published daily, tri-weekly, and weekly after 1830.

1786, September 6.—The *Hampshire Gazette*, at Northampton, by William Butler. Still published.

1787.—The *Salem Mercury*, at Salem, by Dabney & Cushing. In 1790 changed to the *American Eagle*, and the next issue to the *Salem Gazette*. Still published.

1788.—The *Berkshire Chronicle*, at Pittsfield, by Roger Stoors.

1788.—The *Western Star*, at Stockbridge.

1788, September 15.—The *Herald of Freedom and the Federal Advertiser*, at Boston, by Freeman & Andrews; semi-weekly. Suspended in 1791. Succeeded by the *Argus*, by E. E. Powers.

1792.—The *American Apollo*, at Boston, by Belknap & Young. Suspended in December, 1794.

1792, January.—The *Greenfield Gazette, or Massachusetts and Vermont Telegraphe*, at Greenfield, by Thomas Dickman. Afterward united with the *Courier* and called the *Gazette and Courier*. Still published.

1793, January.—The *Massachusetts Mercury*, at Boston, by Young & Etheridge; tri-weekly. In 1801 changed to the *Mercury and New England Palladium*; semi-weekly. In 1840 merged in the *Daily Advertiser*.

1794, October 20.—The *Federal Orrery*, at Boston, by Thomas Paine; semi-weekly. In November, 1796, changed to the *Courier and General Advertiser*.

1795, April.—The *Political Gazette*, at Newburyport, by William Barrett. In October, 1797, united with the *Impartial Herald* (published some years by Angier March), and called the *Newburyport Herald and Country Gazette*. In 1832 changed to daily and weekly. Still published as the *Newburyport Herald*.

1795, September 5.—The *Boston Price Current and Marine Intelligencer*, at Boston, by J. & J. N. Russell. June 7, 1798, changed to *Russell's Gazette*, and in October, 1800, to the *Boston Gazette*. In 1840 merged in the *Daily Advertiser*.

1795, October 22.—The *Rural Repository*, at Leominster, by Charles Prentiss. Published two years. The *Political Focus* afterward published by Prentiss.

1796, October 6.—The *Polar Star and Boston Daily Advertiser*, at Boston. Suspended in 1797.

1798, January.—The *Federal Gazette and Daily Advertiser*, at Boston, by Caleb P. Wayne. Published four months.

1799, October 2.—The *Constitutional Telegraphe*, at Boston, by Samuel S. Parker; semi-weekly. In 1801 changed to the *Republican Gazetteer*, and afterward to the *Democrat*. Suspended in 1808.

1800, May 12.—The *Impartial Register*, at Salem, by William Carleton; semi-weekly. Soon changed to the *Salem Register*. Still published.

1802, March 2.—The *Boston Courier*, by J. T. Buckingham; daily.

1803, July 10.—The *New England Repertory*, at Newburyport, by John Park. The second number was published in Boston, and in 1812 the *Repertory and General Advertiser* was published by William W. Clapp, at the Exchange Coffee House.

1806.—The *Polyanthos*, at Boston, by Joseph T. Buckingham; monthly, 72 pp., 18mo. Twenty numbers published. Publication resumed in February, 1812.

1809.—The *Ordeal*, at Boston, by J. T. Buckingham and Benj. Pollard; weekly, of sixteen octavo pages. Six months.

1809, March 3.—The *Boston Patriot*, Everett & Monroe publishers. In May, 1817, the *Patriot*, then published by Davis C. Ballard and Edmund Wright, jr., bought the *Independent Chronicle*, and the two papers were thereafter published as a daily under the title of the *Independent Chronicle and Boston Patriot*, until the absorption of both in the *Boston Daily Advertiser*, in December, 1831.

——— The *Christian Disciple*, at Boston, by Rev. Noah Worcester.

1814, January 1.—The *Boston Spectator*, at Boston, by John Clark, "devoted to politics and belles-lettres." Seventy weekly numbers were published.

1817.—The *New England Galaxy and Masonic Magazine*, at Boston, by J. T. Buckingham. Sold in 1828 to Willard Phillips and Theophilus Parsons, who continued it.

1831.—The *New England Magazine*, at Boston, by Edwin Buckingham.

## MICHIGAN.

rea, 57,430 square miles; population, 1,636,937; 79 counties—newsers published in 72. The total number of newspapers and periodls published in 1840 was 32; in 1850, 58; 1860, 118; 1870, 211; 1880, . The publications during 1880 were divided, according to periods ssue, as follows: Dailies, 33; weeklies, 397; semi-weeklies, 3; trieklies, 3; bi-weeklies, 2; monthlies, 19; semi-monthlies, 4; binthlies, 1; quarterlies, 1; semi-annuals, 1. In each of 132 towns paper was published; in 45, two; in 19, three; in 10, four; and in five or more.

### EARLY HISTORY.

1809.—Printing was introduced at Detroit. Newspapers were pubned prior to 1840 as follows: (*a*)

1809, August 31.—*Essaie du Michigan ou Observateur Impartial* (French d English), at Detroit, by Father Gabriel Richard. Only eight or ne numbers issued.

1817, July 25.—The *Detroit Gazette* (English and French), at Detroit, Sheldon & Reed. Suspended April 26, 1830.

1825.—The *Michigan Herald*, at Detroit, by Henry Chipman. Susnded in 1829.

1825.—The *Michigan Sentinel*, at Monroe, by Edward D. Ellis. In 36 changed to the *Monroe Advocate*. In 1837 changed to the *Times*, t in the fall of the same year changed again to the *Advocate*. In 49 changed to the *Monroe Commercial*. Still published.

1829.—The *Oakland Chronicle*, by Thomas Simpson. Suspended in pril, 1829.

1829, November 20.—The *Northwestern Journal*, at Detroit, by George Whitney. In September, 1835, a semi-weekly edition issued in conction with it, as the *Journal and Advertiser*. A daily established ne 11, 1836, as the *Daily Advertiser*. Consolidated with the *Democrat d Inquirer* in 1855, and called the *Advertiser*. United with the *Tribune* 1862, and called the *Advertiser and Tribune*.

1829, December.—The *Emigrant*, at Ann Harbor, by Thomas Simpn. In 1830 changed to the *Western Emigrant*. Afterward called the *ue Democrat* and the *Michigan Argus*.

1830, December 23.—The *Detroit Courier*, at Detroit. Soon after erged in the *Journal*.

1831, May 5.—The Detroit *Free Press*, at Detroit; weekly. The *ily Free Press* established September 28, 1835 (first daily in the te). Still published, daily, tri-weekly, and weekly.

1833.—The *Herald*, at Saint Joseph, by A. E. Draper. Suspended 1838.

1834.—The *Monroe Journal and Michigan Inquirer*, at Monroe, by oner Morton. Published several months.

1834.—The *Tecumseh Democrat*, at Tecumseh. Succeeded in 1837 by e *Village Record*. Suspended in 1847.

1834, October 15.—The *Lenawee County Republican and Adrian Gatte*, at Adrian, by R. W. Ingalls. In July, 1835, changed to the *atch-Tower*. Daily edition established in June, 1853. In September, 65, changed to the *Times*. In November, 1866, consolidated with e *Michigan Expositor* and called the *Times and Expositor*. Still pubshed, daily and weekly.

1834, November 25.——— ———, at Palmer (now Saint Clair), by T. M. Perry. Suspended in 1836.

1835.—The *Kalamazoo Gazette*, at White Pigeon, by Henry, Gilbert & Chandler. Removed to Kalamazoo the same year. Daily edition established in 1877. Still published.

1835.—The *Pontiac Courier*, at Pontiac, by A. G. Sparhawk. Afterward changed to the *Jeffersonian*, and subsequently merged in the *Gazette* (established in 1842). *Gazette* still published.

1835, September 5.—The *Gazette and Advertiser*, at Niles, by Henry Barnes. Afterward merged in the *Niles Democrat* (established in 1842). *Democrat* still published.

1836.—The *Constitutionalist*, at Adrian, by J. M. Patterson. In 1838 changed to the *Michigan Whig*. Suspended in 1842.

1836.—The *Macomb Republican*, at Mount Clemens, by J. K. Bourne. Suspended in 1838.

1836.—The *Monroe Gazette*, at Monroe, by ——— Hosmer. Published several years.

1836.—The *Democratic Balance*, at Pontiac. In 1838 merged in the *Pontiac Herald*, which suspended a few years later.

1836, December.—The *Calhoun County Patriot*, at Marshall, by Henry C. Bunce. January 1, 1841, name changed to the *Democratic Expounder and Calhoun County Patriot*. In March, 1875, latter part of title dropped. Still published.

1837.—The *Coldwater Observer*, at Coldwater. Afterward changed to the *Branch County News*. Published a short time. Succeeded by the *Branch County Democrat*, which soon after suspended.

1837, March.—The *Saginaw Journal*, at Saginaw, by J. B. Bennett. Published two years.

1837, April 18.—The *Grand Rapids Times*, by George W. Pattison. In May, 1841, changed to the *Inquirer*. Daily edition established in November, 1855. In 1857 united with the *Daily Herald* (established in March, 1855), and called the *Inquirer and Herald*. Soon after suspended, but again revived, and at the close of the war name changed to the *Grand Rapids Democrat*. Still published daily and weekly.

1837, May.—The *Jacksonburg Sentinel*, at Jacksonburg (now Jackson), by Nicholas Sullivan. Succeeded in 1840 by the *Michigan State Gazette*. In 1848 changed to the *American Citizen*. Daily edition established in 1865. Now published as the *Citizen*, daily and weekly.

1837, July 1.—The *Michigan Star*, at Branch, by a company. Published a few months.

1838.—The *American Freeman*, at Jackson; semi-monthly.

1838.—The *Michigan Temperance Herald*, at Jackson.

1838, March 8.—The *Michigan Democrat*, at Jackson. Afterward suspended.

1839.—The *Statesman*, at Marshall, by Seth Lewis. Still published.

1839.—The *Flint River Gazette*, at Flint, by J. K. Averill. Published six months.

1839.—The *Plain Dealer*, at Lapeer, by an association. Suspended in 1845.

1839.—The *Pontiac Jacksonian*, at Pontiac. Suspended in May, 1873.

1839, April.—The *Hillsdale County Gazette*, at Jonesville, by Murphy & Kinman. Subsequently removed to Hillsdale. Suspended in 1856.

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*a* Prepared by George H. Green. Authorities consulted: *The History of the Press of Michigan*, by Tom. S. Applegate; *Pioneer Newspapers of Michigan*, by rofessor J. C. Holmes.

## MINNESOTA.

Area, 79,205 square miles; population, 780,773; 78 counties—newspers published in 68. The total number of newspapers and periodals published in 1860 was 49; in 1870, 95; 1880, 223. The publications uring 1880 were divided, according to periods of issue, as follows: ailies, 10; weeklies, 205; tri-weeklies, 1; monthlies, 6; semi-monthes, 1. In each of 79 towns one paper was published; in 29, two; in three; in 3, four; and in 3, five or more.

### EARLY HISTORY.

1849.—Printing was introduced at Saint Paul. The following newspers were published prior to 1862: (*a*)

1849, April 27.—The *Minnesota Register* was established; printed at Cincinnati, and dated Saint Paul; published by McLean & Owens. Consolidated with the *Chronicle* August, 1849, and called the *Chronicle and Register*. Publication suspended in 1851.

1849, April 28.—The *Minnesota Pioneer*, at Saint Paul, by James M. Goodhue. First paper printed in Minnesota. Changed to a daily May 1, 1854. Afterward merged in the *Press*, and still published as the *Pioneer-Press*.

1849, June 1.—The *Minnesota Chronicle*, at Saint Paul, by James Hughes. Merged in the *Register* in August, and called the *Chronicle and Register*. Suspended in 1851.

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*a* Compiled from the reports made to the Minnesota Editorial Association at its fourth annual meeting held at Saint Paul, June 7, 1870.

## MINNESOTA—Continued.

1850, November.—*Dakota Tawaxitku Kin* (*Dakota Friend*), at Saint Paul, by Rev. Gideon H. Pond. Published in the interest of the Indians. Publication suspended in August, 1852.

1850, December 10.—The *Minnesota Democrat*, at Saint Paul, by Daniel A. Robertson. Changed to a daily May 1, 1854, and in the fall of 1855 merged in the *Pioneer*.

1851, September 17.—The *Weekly Minnesotian*, at Saint Paul, by a company. Changed to a daily May 11, 1854. Publication suspended in January, 1861.

1854, May 15.—The *Daily Times*, at Saint Paul, by Newson, Mitchell & Clum. Publication suspended December 31, 1860.

1855.—The *Daily Press*, at Saint Paul, by A. C. Smith. Published seven months.

1856.—The *Oronocos Courier*, at Oronoco, by a stock company. (First in Olmsted county.) Published one year.

1856.—The *Minnesota Deutsche Zeitung*, at Saint Paul, by Frederick Orthwein. Changed to *Minnesota Staats Zeitung* in 1858.

1857.—The *Olmsted County Journal*, at Rochester, by Evans & Robins. Published less than a year.

1857.—The *Monticello Times*, at Monticello, by C. M. Kenton. (First in Wright county.) Publication suspended in the spring of 1859; revived June 30, 1859, as the *Wright County Republican;* changed to *Courier* in 1863, and again to *Northern Statesman*.

1857, January 1.—The *Minnesota Advertiser*, at Saint Cloud, by James Mowatt. (First paper in Stearns county.) Succeeded by *Saint Cloud Visitor* in December, 1857. Publication suspended in July, 1858.

1857, July 11.—The *Southern Minnesota Star*, at Albert Lea, by a company. (First in Freeborn county.) Published eight months.

1857, August.—The *Bancroft Pioneer*, at Bancroft. Removed to Austin at the end of the year and called the *Mirror*.

1857, September.—The *Rochester Democrat*, at Rochester, by Charles Cottom. Publication suspended in 1859.

1858, August 5.—The *Democrat*, at Saint Cloud, by Mrs. Jane Swisshelm. In 1866 changed to the *Journal*. Still published.

1858, September 11.—The *Freeborn County Eagle*, at Albert Lea, by A. P. Swineford. Publication suspended 1860.

1859, October.—The *Rochester City News*, at Rochester, by C. W. Blaisdell. Published one year.

1859, November.—The *Rochester City Post*, at Rochester, by D. & C. H. Blakeley. Still published.

1860.—*Home Views*, at Wilton, by J. W. Crawford (first in Waseca county). Publication suspended in 1861.

1860.—The *Rochester Republican*, at Rochester, by Mitchell & Kelly. Publication suspended in 1867.

1860, May 26.—The *Freeborn County Standard*, at Albert Lea, by Ruble & Hooker. Still published.

1861.—The *Minnesota Volksblatt*, at Saint Paul, by Philip Rohr.

1861, January 1.—The *Daily Press*, at Saint Paul, by W. R. Marshall. (Succeeded *Daily Times*.) Still published as the *Pioneer-Press*.

1861, May 1.—The *Saint Cloud Union*, at Saint Cloud, by S. B. Lowry. Changed to the *Times* in 1864. Still published.

## MISSOURI.

Area, 68,735 square miles; population, 2,168,380; 114 counties—newspapers published in all. The total number of newspapers and periodicals published in 1840 was 35; in 1850, 61; 1860, 173; 1870, 279; 1880, 530. The publications during 1880 were divided, according to periods of issue, as follows: Dailies, 43; weeklies, 415; semi-weeklies, 2; tri-weeklies, 8; bi-weeklies, 1; monthlies, 50; semi-monthlies, 8; bi-monthlies, 2; quarterlies, 1. In each of 83 towns one paper was published; in 56, two; in 22, three; in 10, four; and in 17, five or more.

### EARLY HISTORY.

1808.—Printing was introduced at Saint Louis.

1808.—The *Missouri Gazette* was established at Saint Louis by Joseph Charless. In 1822 changed to the *Missouri Republican*. Now published daily, tri-weekly, and weekly.

———.——— ———, at Saint Louis, by Joshua Norvell.

1816.—The *Emigrant and General Advertiser*, at Saint Louis, by Sergeant Hall. In 1818 changed to the *Saint Louis Enquirer*, and in 1827 to the *Saint Louis Beacon*. Suspended in 1832.

1820.—The *Herald*, at Saint Louis, by Orr & Fleming. Published one or two years.

1827.—The *Saint Louis Times*, at Saint Louis, by Stine & Miller. Suspended in 1832.

1831.—The *Working Men's Advocate*, at Saint Louis, by ——— Steel. Subsequently changed to the *Argus*, the *Missionary Reporter*, and the *Union*. Afterward united with the *Signal*, and called the *Missouri Democrat*.

1834.—The *Commercial Bulletin*, at Saint Louis, by Keemle, Clark & Churchill.

1837 to 1840.—The *Saint Louis Pennant*, the *Saint Louis Evening Gazette*, the *Mirror*, and the *Saturday News*, at Saint Louis.

1841.—The *People's Organ*, at Saint Louis, by ——— Higgins.

## NEBRASKA.

Area, 76,185 square miles; population, 452,402; 69 counties—newspapers published in 58. The total number of newspapers and periodicals published in 1860 was 14; in 1870, 42; 1880, 189. The publications during 1880 were divided, according to periods of issue, as follows: Dailies, 15; weeklies, 165; semi-weeklies, 1; monthlies, 7; semi-monthlies, 1. In each of 56 towns one paper was published; in 27, two; in 4, three; in 6, four; and in 4, five or more.

### EARLY HISTORY.

1854.—Printing was introduced at Belleview.

1854.—The *Belleview Palladium* was established at Belleview.

1856.—The *Nebraska Advertiser*, at Brownville. Still published.

## NEW HAMPSHIRE.

Area, 9,005 square miles; population, 346,991; 10 counties—newspapers published in all. The total number of newspapers and periodicals published in 1810 was 12; in 1840, 27; 1850, 38; 1860, 20; 1870, 51; 1880, 87. The publications during 1880 were divided, according to periods of issue, as follows: Dailies, 10; weeklies, 66; bi-weeklies, 1; monthlies, 7; semi-monthlies, 3. In each of 29 towns one paper was published; in 9, two; in 3, four; and in 4, five or more.

### EARLY HISTORY.

1751.—Printing was introduced at Portsmouth. Early newspapers were established as follows:

#### BELKNAP COUNTY.

1800.—The *Rural Museum*, at Gilmanton, by E. Russell. Published a short time.

1800.—The *Gilmanton Gazette and Farmers' Weekly Magazine*, at Gilmanton, by Leavitt & Clough. Published a short time.

1835, May.—The *Sabbath School Advocate*, at Gilmanton, by A. Prescott; semi-monthly. Suspended in May, 1839.

1840, September.—The *Parent's Magazine*, at Gilmanton, by J. Thompson; monthly. Six months afterward removed to Concord.

1842, January.—The *Biblical Journal*, at Gilmanton, by Professor H. Rood; bi-monthly. Published two years.

## NEW HAMPSHIRE—Continued.

1849.—The *Laconia Democrat*, at Laconia. Still published.

1868.—The *Lake Village Times*, at Lake village. Still published.

### CARROLL COUNTY.

1860.—The *Granite State News*, at Wolfborough. Still published.

### CHESHIRE COUNTY.

1793.—The *Farmer's Weekly Museum*, at Walpole, by I. Thomas. Afterward changed to the *Farmer's Museum or Lay Preacher's Gazette.*

1799.—The *New Hampshire Sentinel*, at Keene. Still published.

1827.—The *Cheshire Republican*, at Keene. Still published.

1863.—The *Star Spangled Banner*, at Hinsdale; monthly.

1866.—The *Monthly Miscellany*, at Stafford Corners; monthly.

1873.—The *United States*, at Keene.

### COOS COUNTY.

1855.—The *Coos Republican*, at Lancaster. Still published.

1870.—The *Northern Sentinel*, at Colebrook, by A. Barker. Still published.

1871.—The *Independent Gazette*, at Lancaster, by Emerson, Hartshorn & Co.

### GRAFTON COUNTY.

1844.—The *Granite State Free Press*, at Lebanon. Still published.

1867.—The *White Mountain Republic*, at Littleton. Still published.

1867.—The *Canaan Reporter*, at East Canaan. Still published.

1873.—The *Anvil*, at Hanover, by students of Dartmouth College.

### HILLSBOROUGH COUNTY.

———.—The *Owl*, at Manchester. Published nearly a year.

1802.—The *Farmers' Cabinet*, at Amherst, by Cushing & Preston.

1826.—The *Nashua Gazette and Hillsborough County Advertiser*, at Nashua.

1827, February.—The *Nashua Constellation*, at Nashua, by A. E. Thayer. Afterward changed to the *Nashua Gazette.* Still published as the weekly of the *Daily Gazette*, established in 1872.

1831.—The *Nashua Herald*, at Nashua, by Dr. S. J. Bard. Published a short time.

1832, September.—The *New Hampshire Telegraph*, at Nashua, by Alfred Beard. Now published as the weekly of the *Daily Telegraph*, established in 1869.

1833.—The *New Ipswich Register*, at New Ipswich, by M. Miller.

1836.—The *News Gatherer*, at Ipswich, by King & Hewes.

1838.—The *Literary Souvenir*, at Lowell, by A. B. F. Hildreth. In 1842 removed to Concord, and four months later to Manchester.

1839, October 18.—The *Amoskeag Representative*, at Manchester, by J. Caldwell. January 22, 1841, changed to the *Manchester Representative.* December 7, 1842, merged in the *Manchester Democrat.*

1840, January.—The *Manchester Magazine*, at Manchester, by J. Caldwell. Published three months.

1840, January 1.—The *Amoskeag Memorial*, at Manchester, by J. C. Emerson. January 6, 1841, changed to the *Manchester Memorial.* February 17, 1841, consolidated with the *People's Herald*, of Pembroke, and changed to the *Manchester Memorial and People's Herald.* June 5, 1842, changed to the *Manchester Memorial;* September 6, 1844, to the *Manchester American*, semi-weekly, established in September, 1845, but discontinued April 17, 1846. *Daily American* established September 4, 1854. In 1852 consolidated with the *Saturday Messenger*, and called the *American and Messenger.* 1857 merged in the *Manchester Democratic.*

1841, January 2.—The *Star of Bethlehem*, at Manchester, by the Fraternal Association. Published here one year. Then removed to Lowell, having been for a time published simultaneously at Lowell and Manchester.

1842.—The *Iris and Literary Record*, at Manchester, by Emerson & Murray; monthly. Formerly published at Hanover, by E. A. Allen. In September, 1842, consolidated with the *Souvenir*, and changed to the *Iris and Souvenir.* Suspended about 1845.

1842, April 26.—The *Manchester Democrat*, at Manchester, by Kimball & Kidder. In 1857 consolidated with the *American and Messenger*, and changed to the *Democrat and American.* In April, 1863, *Democrat* dropped from the title. In December, 1863, consolidated with the *Mirror.*

1842, November 12.—The *Gleaner*, at Manchester, by Caldwell & Hall. Suspended the latter part of 1845.

1843, January.—The *Oasis*, at Nashua, by Murray & Sawtell.

1843, January 14.—The *Manchester Allodium*, at Manchester, by Hamlet & Haradon. Changed to the *Manchester Transcript*, and a few months later removed to Great Falls and suspended.

1843, September.—The *White Mountain Torrent*, at Manchester, by Haradon, Stowell, Wilson & Young. Established at Concord in April, 1843, but removed to Manchester in September, 1843. Published there until November, 1843, and then returned to Concord.

1843, December 30.—The *Manchester Operative*, at Manchester, by W. N. Haradon. November 16, 1844, removed to Lowell and united with the *Operative's Magazine and Lowell Offering.*

1845, May 1.—The *Independent Democrat*, at Manchester, by R. C. Wetmore. After a few weeks removed to Concord and subsequently consolidated with another paper to form the *Independent Statesman.*

1845, July 3.—The *Manchester Mercantile Advertiser*, at Manchester, by C. H. Chase. Published five months.

1845, August.—The *New Hampshire Magazine*, at Manchester, by E. D. Boyleston. Published one year.

1845, November 29.—The *Manchester Saturday Messenger*, at Manchester, by C. H. Chase. In 1852 merged in the *American.*

1846, May 21.—The *Manchester Palladium*, at Manchester, by J. Caldwell. Published six months.

1847.—The *New Hampshire Temperance Banner*, at Manchester, by the New Hampshire Temperance Society; monthly. Published three or four years, then removed to Concord.

1848.—The *Peterborough Transcript*, at Peterborough. Still published.

1848, September 9.—The *Manchester Telescope*, at Manchester, by Haradon & Kiely. February 19, 1849, changed to *Haradon's Weekly Spy*, and afterward to the *Manchester Spy.* In 1852 merged in the *Farmer's Monthly Visitor.*

1848, November.—The *Merchant's Own Journal*, at Manchester, by Haradon & Stover. Published a short time.

1850, February 26.—The *Granite Farmer*, at Manchester, by Crosby & Adams. About 1854 united with the *Farmer's Monthly Visitor.*

1850, October 28.—The *Manchester Daily Mirror*, at Manchester, by J. C. Emerson; daily. February 22, 1851, issued as the *Dollar Weekly Mirror.* In 1863 consolidated with the *Daily and Weekly American* and changed to the *Daily Mirror and American.* In 1863 weekly consolidated with the *New Hampshire Journal of Agriculture* and called the *Dollar Weekly Mirror and New Hampshire Journal of Agriculture.* July 8, 1865, changed to the *Mirror and Farmer.* Still published.

1851, January.—The *Union Democrat*, at Manchester, by W. H. Gilman & Co. In 1861 changed to the *Weekly Union*, and March 31, 1863, to the *Union Democrat.*

1852, January.—The *Farmer's Monthly Visitor*, at Manchester, by Rowell, Presscot & Co.; monthly. Established at Concord in 1838 by I. Hill, but suspended in 1849 and revived at Manchester in January, 1852. United with the *Granite Farmer* under the title of the *Granite Farmer and Visitor.* July 18, 1857, changed to the *Granite State Farmer*, and in the latter part of 1859 to the *New Hampshire Journal of Agriculture.* In 1863 merged in the *Dollar Weekly Mirror.*

1852, February.—The *Crusader*, at Manchester, under the auspices of the State Temperance Society. Established at Concord about 1850. Afterward removed to Concord and united with the *Phœnix.* Subsequently absorbed by the *New Hampshire Gazette* at Portsmouth.

1853.—The *Junto Organ*, at Manchester, by Stanton and Burnham. Published a short time.

## NEW HAMPSHIRE—Continued.

1854, January.—The *Ladies' Enterprise*, at Manchester. Published a short time.

1854, September.—The *Stars and Stripes*, at Manchester, by Stevens & Tenney. Removed to Laconia and merged in the *Winnipisaukee Gazette.*

1856, July.—The *New Hampshire Journal of Medicine*, at Manchester, by Dr. G. H. Hubbard; monthly. Established at Concord in August, 1850, but in July, 1856, removed to Manchester. In December, 1859, suspended.

1857, January.—*Moore's Musical Record*, at Manchester, by J. W. Moore & Co.; monthly. Published about two years and suspended. In January, 1869, revived, but again suspended in January, 1870.

1857, January.—The *New Hampshire Journal of Education*, at Manchester, by E. Bartholomew; monthly. Suspended in 1862.

1859, January 1.—The *Literary Visitor*, at Manchester, by Batchelder & Haynes; monthly. Published eight months.

1859, February 4.—The *True Republican*, at Manchester, by B. F. Stanton. Changed to the *City Messenger and Republican*, and afterward to the *Manchester Republican.* Published about one year.

1869.—The *Hillsborough Bridge Messenger*, at Hillsborough. Still published.

1869, January.—The *Daily News*, at Manchester, by Moore & Co. Suspended May 6, 1869.

1869, February 25.—*La Voix du Peuple* (French), at Manchester, by A. L. Tremblay & Co. Published seventeen numbers.

1870, March 24.—The *Labor Journal*, at Manchester, by D. S. Holt. Published thirteen numbers.

1871, September 30.—The *Public Forum*, at Manchester, by G. J. Foster & Co. Published thirteen numbers; then removed to Dover, and changed to *Foster's Democrat.*

1872, January 1.—The *New Hampshire Journal of Music*, at Manchester, by I. S. Whitney; monthly.

1873, December 30.—The *Enterprise*, at Milford, by G. E. Foster.

1874, January 24.—The *Saturday Night Dispatch*, at Manchester, by M. S. Hunt.

1875, February 7.—The *New Hampshire Sunday Globe*, at Manchester, by Rollins & Kingdon.

### MERRIMACK COUNTY.

1790, January 6.—The *Courier of New Hampshire*, at Concord, by G. Hough. Suspended October 30, 1805.

1792, September 6.—The *Mirror*, at Concord, by M. Davis. Suspended in 1799.

1797, April.—The *New Star*, at Concord, by Russell & Davis. Published six months.

1801, February 5.—The *Republican Gazette*, at Concord, by E. Russell. Suspended in 1802.

1806, July 6.—The *Concord Gazette*, at Concord, by Tuttle & Hoit. Published until 1819.

1808, October 18.—The *American Patriot*, at Concord, by W. Hoit, jr. In 1809 changed to the *New Hampshire Patriot*, and afterward to the *New Hampshire Patriot and State Gazette.* In 1839 the *Daily Patriot* established.

1819, January 1.—The *Concord Observer*, at Concord, by G. Hough. Changed to the *New Hampshire Repository.*

1819, July.—The *Religious Informer*, at Andover, by E. Chase. Removed to Enfield, and afterward suspended.

1823, January 6.—The *New Hampshire Statesman*, at Concord, by L. Roby. Changed to the *Independent Statesman.* Now published as the weekly of the *Daily Monitor*, established in 1863.

1850, August.—The *New Hampshire Journal of Medicine*, at Concord; monthly. In July, 1856, removed to Manchester.

1867.—The *Household Messenger*, at Loudon Ridge.

1868.—The *People*, at Concord.

1870.—The *Prohibition Herald*, at Concord.

1872.—The *Merrimack Journal*, at Franklin Falls, by G. B. Wheeler Still published.

1872.—The *Weekly Star*, at Pittsfield, by J. C. Cashman.

1877.—The *Granite Monthly*, at Concord, by J. C. McClintock. Still published.

### ROCKINGHAM COUNTY.

1756.—The *New Hampshire Gazette*, at Portsmouth, by D. Fowle. In 1772 changed to the *New Hampshire Gazette and Historical Chronicle;* May 25, 1776, to the *Freeman's Journal or New Hampshire Gazette;* in January, 1788, to the *New Hampshire Gazette and General Advertiser;* in 1796 to the *New Hampshire Gazette.* Now published as the weekly of the *Daily Chronicle*, established in 1852.

1765, January 21.—The *Portsmouth Mercury and Weekly Advertiser*, at Portsmouth, by T. Furber. Suspended in 1768.

1775.—The *New Hampshire Gazette*, at Exeter, by R. Fowle. Afterward published as the *New Hampshire Gazette*, the *New Hampshire Gazette or Exeter Morning Chronicle*, the *New Hampshire State Gazette or Exeter Circulating Morning Chronicle*, the *State Journal or the New Hampshire Gazette and Tuesday's Liberty Advertiser.* Suspended in 1777.

1789.—The *Exeter Federal Miscellany*, at Exeter, by H. Ramlet.

1793.—The *Portsmouth Journal*, at Portsmouth. Still published.

1831.—The *News-Letter*, at Exeter. Still published.

1863.—The *States and Union*, at Portsmouth. Now published as the weekly of the *Evening Times*, established in 1868.

1877.—The *Candia Banner*, at Candia, by J. J. Lane. Still published.

### STRAFFORD COUNTY.

——.—The *Monthly Miscellany and Monthly Echo*, at Rochester.

——.—The *New Hampshire Republican*, at Dover.

1826.—The *Dover Gazette*, at Dover.

1826.—The *Morning Star*, at Dover.

1827.—The *Dover Inquirer*, at Dover. Still published.

1864.—The *Rochester Courier*, at Rochester.

1867.—The *Journal*, at Great Falls. Still published.

1870.—The *Dover Local Record*, at Dover, by E. O. Foss; monthly.

1871.—The *Foster's Democrat*, at Dover, by G. J. Foster & Co. Now published as the weekly of the *Daily Democrat*, established in 1873.

### SULLIVAN COUNTY.

1823.—The *New Hampshire Argus and Spectator*, at Newport. Still published.

1834.—The *National Eagle*, at Claremont. Still published.

1840.—The *Northern Advocate*, at Claremont. Still published.

1870.—The *Compendium*, at Claremont; bi-weekly.

## NEW JERSEY.

Area, 7,455 square miles; population, 1,131,116; 21 counties—newspapers published in all. The total number of newspapers and periodicals published in 1810 was 8; in 1840, 33; 1850, 51; 1860, 90; 1870, 122; 1880, 215. The publications during 1880 were divided, according to periods of issue, as follows: Dailies, 27; weeklies, 163; semi-weeklies, 6; tri-weeklies, 1; bi-weeklies, 2; monthlies, 13; bi-monthlies, 1; quarterlies, 2. In each of 43 towns one paper was published; in 22, two; in 10, three; in 8, four; and in 7, five or more.

### EARLY HISTORY.

1751.—Printing was introduced at Woodbridge. The publications prior to 1800 were as follows: (*a*)

1758, January.—The *New American Magazine*, established at Woodbridge, by James Parker; monthly; 40 pages. Publication suspended in 1760.

1765, September.—The *Constitutional Courant*, at Woodbridge, by

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[a] Prepared by W. A. Whitehead, corresponding secretary State Historical Society.

## NEW JERSEY—Continued.

William Goddard. Established in opposition to the stamp act; only one number issued.

1778, January.—The *New Jersey Gazette*, at Trenton, by Isaac Collins. Afterward removed to Burlington.

1779, February 16.—The *New Jersey Journal*, at Elizabethtown, by Shepard Kollock. Still published as a daily and weekly.

1786, June.—The *Princeton Packet and General Advertiser*, at Princeton, by James Tod.

1786, September.—The *Brunswick Gazette*, at Brunswick, by Abraham Blauvelt. Publication suspended in 1792.

1786, September.—The *Brunswick Gazette and Weekly Monitor*, at Brunswick, by Shelly Arnett. Published several years.

1791, May.—*Wood's Newark Gazette and New Jersey Advertiser*, at Newark, by John Wood. Publication suspended in November, 1797.

1792, September 12.—The *New Jersey State Gazette*, at Trenton, by Mathias Day & Co.

1792, October.—The *Guardian, or New Brunswick Advertiser*, at Brunswick, by Arnett & Blauvelt. The latter portion of the title was dropped after the fourth issue. Now published as the weekly edition of the *Daily Times*.

1795, May.—The *Jersey Chronicle*, at Mount Pleasant, by Philip Freeman.

1796, October 5.—The *Centinel of Freedom*, at Newark, by Daniel Dodge & Co. In September, 1823, changed to *Sentinel of Freedom*, and still published as the weekly edition of the *Daily Advertiser*.

1797, November.—The *Newark Gazette and New Jersey Advertiser*, at Newark, by John P. Williams. (Succeeded Wood's *Newark Gazette.*)

1799, March.—The *Trenton Federalist*, at Trenton, by Sherman & Merthon.

## NEW YORK.

Area, 47,620 square miles; population, 5,082,871; 60 counties—newspapers published in all. The total number of newspapers published in 1840 was 245; in 1850, 428; 1860, 542; 1870, 835; 1880, 1,411. The publications during 1880 were divided, according to periods of issue, as follows: Dailies, 115; weeklies, 892; semi-weeklies, 24; tri-weeklies, 5; bi-weeklies, 10; monthlies, 282; semi-monthlies, 35; bi-monthlies, 5; quarterlies, 40; semi-annuals, 3. In 207 towns one paper was published; in 85, two; in 27, three; in 19, four; and in 26, five or more.

### EARLY HISTORY.

1693.—Printing was introduced at New York. Newspapers established in the different counties as follows:

### ALBANY COUNTY.

1771, November.—The *Albany Gazette*, at Albany, by A. & J. Robertson.

1782.—The *New York Gazetteer or Northern Intelligencer*, at Albany, by Balantine & Webster. In 1784 name changed to the *Albany Gazette*. Consolidated with the *Daily Advertiser* in 1817, and called the *Albany Gazette and Daily Advertiser*. Publication suspended in 1845.

1788.—The *Albany Register*, at Albany, by John Barber. Publication suspended in 1817.

1796.—The *Albany Centinel*, at Albany, by Backus & Whiting. In 1806 changed to *Republican Crisis*.

1797.—The *Albany Chronicle*, at Albany, by John McDonald. Suspended in 1799.

1807.—The *Guardian*, at Albany, by Van Benthuysen & Wood. Suspended in 1809.

1812.—The *Albany Republican*, at Albany, by Samuel R. Brown. Merged in the *Saratoga Patriot* about 1820.

1813, January 1.—The *Albany Argus*, at Albany, by Jesse Buel. Changed to a daily in 1825. Consolidated with *Atlas* in 1856. Now published as the *Argus*.

1815, September.—The *Daily Advertiser*, at Albany, by Theodore Dwight. Consolidated with the *Gazette* in 1817.

1820.—The *Albany Microscope*, at Albany, by Charles Galpin. Suspended in 1842.

1824, May.—The *Religious Monitor*, at Albany, by Chauncey Webster. Afterward removed to Philadelphia.

1826.—The *National Observer*, at Albany, by George Galpin. Suspended in 1830.

1830, March.—The *Albany Evening Journal*, at Albany, by B. D. Packard & Co. Still published.

1835, October 12.—The *Albany Transcript*, at Albany (the first penny paper in the city).

1837, October.—The *West Troy Advocate*, at West Troy, by William Holland. Suspended after 1860.

1839, March.—The *Cultivator*, at Albany, by Jesse Buel. Consolidated with the *Country Gentleman*, and now published as the *Cultivator and Country Gentleman*.

1840.—The *Albany Patriot*, at Albany, by James C. Jackson. Suspended in 1844.

1841.—The *Albany Atlas*, at Albany, by Vance & Wendell; daily and weekly. Consolidated with the *Argus* in 1856.

1843.—The *Albany Knickerbocker*, at Albany, by Hugh J. Hastings. Now published as the *Daily Press and Knickerbocker*.

1844.—The *Albany Religious Spectator*, at Albany, by Munsell & Pease. Suspended in 1857.

1845.—The *Cohoes Advertiser*, at Cohoes, by Winants & Agnes. In 1849 changed to the *Cohoes Cataract*. Still published.

1845, April 9.—The *Albany Freeholder*, at Albany, by Thomas A. Devyr. Suspended in 1854.

1849, February 10.—The *Courier and Journal*, at Albany, by J. T. Hazen. Suspended after 1860.

1852.—The *Deutsche Freie Blaetter*, at Albany, by Bender & Miggaul; tri-weekly. Now published as a daily and called *Freie Blaetter*.

1853.—The *Country Gentleman*, at Albany, by Thomas & Tucker. Afterward consolidated with the *Cultivator*.

1856.—The *Albany Morning Times*, at Albany, by Barnes & Godfrey. Now published as the *Evening Times*.

1856.—The *Albany Morning Express*, at Albany, by Stone & Henley. Still published.

### ALLEGANY COUNTY.

1820, October.—The *Angelica Republican*, at Angelica, by Franklin Cowdery. Suspended in 1822, but revived in 1827 as the *Allegany Republican*. In 1832 changed to the *Angelica Republican and Farmers and Mechanics' Press;* and again to the *Allegany Republican and Internal Improvement Advocate*. In 1836 published as the *Angelica Republican and Allegany Whig*, and afterward as the *Angelica Reporter and Allegany Republican*. In 1856 consolidated with the *Advocate and Whig* and called the *Angelica Reporter and Angelica Advocate and Whig*. Now published as the *Allegany County Republican*.

1830.—The *Republican Argus and Allegany Democrat*, at Angelica.

1838, October 29.—The *Cuba Advocate*, established at Cuba. Published several years.

1840.—The *Allegany Gazette*, at Angelica.

1842, January.—The *Allegany County Advocate*, at Angelica, by Erastus S. Palmer. In 1852 consolidated with the *Cuba Whig*, and called the *Advocate and Whig*. In 1856 merged in the *Reporter*.

1846.—The *Republican Era*, at Oramel, by Horace E. Purdy. Publication suspended in 1857.

1853.—The *Almond Herald*, at Almond, by R. Denton. Published one year. In six months revived under the title of *Allegany Sentinel*. Suspended in 1856.

1853, January.—The *Genesee Valley Free Press*, at Belfast, by A. N. Cole. In March, 1853, removed to Wellsville. Now published at Belmont.

1856.—The *Rural Budget*, at Wellsville, by Richard O. Shaut.

## NEW YORK—Continued.

### BROOME COUNTY.

1800.—The *American Constellation*, at Union village.

1812.—The *Broome County Patriot*, at Binghamton, by Chauncey Morgan. In 1815 changed to the *Phœnix*. Publication suspended in 1819.

1818.—The *Republican Herald*, at Binghamton, by Morgan & Howard. Publication suspended in 1822.

1822.—The *Broome Republican*, at Binghamton, by Augustus Morgan. In 1849 changed to daily and weekly. Still published.

1831.—The *Broome County Courier*, at Binghamton, by J. R. Orton. In 1843 changed to the *Binghamton Courier and Broome County Democrat*. In 1847 changed to the *Binghamton Democrat*. Still published.

1839, July.—The *Iris*, at Binghamton, by C. P. Cooke; semi-monthly. In 1841 changed to a weekly. Merged in the *Binghamton Republican* in 1853.

1851.—The *Union News*, at Union, by A. F. Quinlan. Still published.

1853, October.—The *Susquehanna Journal*, at Binghamton, by W. H. Pearne. Merged in the *Broome Republican* in 1855.

1853, November.—The *Binghamton Standard*, at Binghamton, by J. Van Valkenburgh.

1855, May.—The *Broome County American*, at Binghamton, by Ransom Bostwick.

1858, July.—The *Broome County Gazette*, at Whitney's Point, by G. A. Dodge.

### CATTARAUGUS COUNTY.

1818.—The *Allegany Mercury*, at Hamilton (now Olean), by Benjamin F. Smead. In 1819 name changed to the *Hamilton Recorder*. Published only a few years.

1826.—The *Western Courier*, at Ellicottville, by Richard Hill. In 1827 name changed to the *Cattaraugus Gazette*, and publication continued two years.

1827.—The *Lodi Pioneer*, at Lodi (now Gowanda), by Lewis B. Edwards. In 1830 changed to the *Lodi Freeman and Messenger;* in 1833 to the *Cattaraugus Freeman;* in 1844 to the *People's Advocate and Lodi Banner;* in 1850 to the *Cattaraugus Chronicle*, and soon after to the *Independent Chronicle;* in 1854 changed to the *Gowanda Chronicle*. Publication suspended in 1856.

1833, May.—The *Ellicottville Republican*, at Ellicottville, by Delos E. Sill. In 1834 changed to the *Cattaraugus Republican*.

1835.—The *Allegany Mercury*, at Olean, by G. W. Cutler. In 1836 changed to the *Olean Advocate*, and in 1838 to the *Olean Times*. Changed to daily and weekly in 1879. Daily suspended during census year.

1836.—The *Hinsdale Democrat*, at Hinsdale, by J. T. Lyman. Publication suspended in 1838.

1840.—The *People's Gazette*, at Hinsdale, by G. C. Smith. In 1842 removed to Geneseo, Livingston county.

1840, July.—The *Cattaraugus Whig*, at Ellicottville, by Delos E. Sill. In 1854 changed to the *Cattaraugus Freeman*.

1842, March.—The *Randolph Herald*, at Randolph, by William Mason. In 1847 removed to Nauvoo, Illinois.

1843.—The *Freeman and Messenger*, at Hinsdale, by L. E. Smith. Name soon changed to the *Expositor*, and issued until 1846.

1848.—The *Neosophic Gem*, at Randolph, by A. M. Shattuck; monthly. Publication suspended in 1852.

1850, November.—The *Gowanda Whig*, at Gowanda, by James T. Henry. In February, 1851, removed to Ellicottville and name changed to the *Whig and Union;* name changed soon after to the *American Union*. Still published.

1851, June.—The *Cattaraugus Sachem*, at Randolph. At the close of the first year removed to Olean.

1852, July.—The *Randolph Whig*, at Randolph, by Judson & Morris. In 1857 changed to the *Randolph Reporter*. In 1858 removed to Gowanda and called the *Gowanda Reporter*.

1853.—The *Olean Journal*, at Olean, by Charles Aldrich. In 1856 changed to the *Olean Advertiser*.

### CAYUGA COUNTY.

1798, July 20.—The *Levana Gazette or Onondaga Advertiser*, at Levana (then Onondaga county), by R. Delano.

1799.—The *Western Luminary*, at Watkins settlement, in Scipio.

1799.—The *Aurora Gazette*, at Aurora, by H. & J. Pace. In 1805 removed to Auburn and called the *Western Federalist*. Published as the *Gazette, Republican and Journal* in 1841.

1812.—The *Cayuga Tocsin*, at Union Springs, by R. T. Chamberlain. Soon removed to Auburn and continued until merged in the *Cayuga Patriot* in 1847.

1814.—The *Cayuga Patriot*, at Auburn, by Samuel R. Brown. In 1847 united with the *Tocsin*, and called the *New Era*. Publication suspended in 1857.

1816.—The *Advocate of the People*, at Auburn, by H. C. Southwick.

1819.—The *Cayuga Republican*, at Auburn, by A. Buckingham. In 1833 consolidated with the *Free Press*, and issued as the *Auburn Journal and Advertiser*. In 1846 changed to the *Auburn Journal*, and the same year the *Auburn Daily Advertiser* was published in connection with it. Still published.

1824.—The *Auburn Free Press*, at Auburn, by Richard Oliphant. In 1833 consolidated with the *Cayuga Republican*.

1827.—The *Gospel Messenger* (P. E.), at Auburn, by Rev. Dr. Rudd. Afterward removed to Utica, and now published at Syracuse.

1827.—The *Weedsport Advertiser*, at Weedsport.

1830.—The *Northern Phœnix*, at Weedsport, by Frederick Prince.

1841.—The *Northern Christian Advocate* (M. E.), at Auburn, by Rev. John E. Robie. In May, 1844, it was purchased by the Methodist General Conference, and called the *Northern Advocate*. Now published at Syracuse as the *Northern Christian Advocate*.

1844, October.—The *Port Byron Herald*, at Port Byron, by Frederick Prince.

1849.—The *Auburn Daily Bulletin*, at Auburn, by Stone, Hawes & Co.

1849, January.—The *Cayuga Chief*, at Auburn, by T. W. Brown. Publication suspended in 1857.

1850.—The *Cayuga Telegraph*, at Union Springs.

1851, January.—The *Christian Ambassador* (Universalist), at Auburn.

1854.—The *Meridian Sun*, at Meridian, by Arthur White. Afterward published as the *Meridian Advertiser*, by W. H. Thomas.

1855, February.—The *Auburn American*, at Auburn, by W. J. Moses; daily and weekly. In 1859 name of daily changed to the *Daily Union*.

1855, March.—The *Journal of Specific Homeopathy*, at Auburn, by F. Humphreys; monthly.

1855–'56.—The *Family Scrap Book*, at Victory Center.

1856, August.—The *Northern Independent*, at Auburn, by a publishing committee of the M. E. Church.

1856, September.—The *Cayuga Farmer and Mechanic*, at Auburn, by P. J. Becker. In December, 1857, name changed to the *Teachers' Educational Journal*.

1857, August.—The *Auburn Democrat*, at Auburn, by Stone & Hawes.

### CHAUTAUQUA COUNTY.

1817, January.—The *Chautauque Gazette*, at Fredonia, by James Percival. In 1822 suspended, but revived in 1823. In 1826 consolidated with the *People's Gazette*, and changed to the *Fredonia Gazette*. In a short time removed to Dunkirk and called the *Dunkirk Gazette*. Removed to Westfield in a few months and merged in the *Chautauque Phœnix*.

1819, May.—The *Chautauque Eagle*, at Mayville, by Robert J. Curtis.

1821.—The *Fredonia Censor*, at Fredonia, by Henry C. Frisbee. Still published.

1824.—The *People's Gazette*, at Forestville, by W. S. Snow. In 1826 removed to Fredonia and merged in the *Chautauque Gazette*.

1826, June.—The *Western Star*, at Westfield, by Harvey Newcomb.

## NEW YORK—Continued.

Suspended in two years, but was revived soon after as the *Chautauque Phœnix.* In 1831 name changed to the *American Eagle*, and in 1838 to the *Westfield Courier.* Published but a short time afterward.

1826, June.—The *Jamestown Journal*, at Jamestown, by Adolphus Fletcher. Now published as a daily and weekly.

1828.—The *Chautauque Republican*, at Jamestown, by Morgan Bates. In 1833 changed to the *Republican Banner.* Soon after removed to Mayville, and in a few months discontinued.

1829.—The *Genius of Liberty*, at Jamestown, by Lewis C. Todd. Published two years.

1834.—The *Mayville Sentinel*, at Mayville, by Timothy Kilby. Still published.

1834, August.—The *Chautauque Whig*, at Dunkirk, by Thompson & Carpenter. In 1844 name changed to the *Dunkirk Beacon*, and discontinued in a short time.

1835.—The *Westfield Lyceum*, at Westfield, by Sheldon & Palmer. Issued but a short time.

1835.—The *Western Democrat and Literary Inquirer*, at Fredonia, by William Verrinder. In 1837 removed to Van Buren harbor and issued as the *Van Buren Times.* Publication suspended in 1839.

1835.—The *Western Farmer*, at Westfield, by Bliss & Knight. Publication suspended in 1837.

1841, August.—The *Westfield Messenger*, at Westfield, by C. J. J. & T. Ingersoll. In 1851 changed to *Westfield Transcript.* Publication suspended in 1857.

1846, June.—The *Frontier Express*, at Fredonia, by Cutler, Cattle & Perham. In 1849 changed to *Fredonia Express*, and in 1850 to *Chautauque Union.* Publication suspended in a short time.

1846, August.—The *Panama Herald*, at Panama, by Dean & Hurlbut. Publication suspended in 1848.

1847.—The *Liberty Star*, at Jamestown, by Harvey A. Smith. In 1849 changed to *Northern Citizen*, and in 1855 to the *Chautauqua Democrat.* Still published.

1848.—The *Silver Creek Mail*, at Silver Creek, by John C. Van Duzen. In 1852 changed to the *Home Register*, and in 1854 to the *Silver Creek Gazette.* Publication suspended in 1856, but revived in August of the same year as the *Lake Shore Mirror.*

1850, May.—The *Chautauque Journal*, at Dunkirk, by W. L. Carpenter. Afterward name changed to the *Dunkirk Journal.* Still published.

1851, July 4.—The *Fredonia Advertiser*, at Fredonia, by Tyler & Shepard. Consolidated with the *Dunkirk Union* in 1868, and now published as the *Union and Advertiser*, Dunkirk.

1852, August.—The *Jamestown Herald*, at Jamestown, by Dr. Asaph Rhodes. In 1853 removed to Ellington Center and called *Ellington Luminary.* Publication suspended in 1856.

1855, April 26.—The *Westfield Republican*, at Westfield, by M. C. Rice & Co. Still published.

1857.—The *Western Argus*, at Westfield, by John F. Young. In 1858 removed to Dunkirk, and changed to the *Dunkirk Press and Argus.*

### CHEMUNG COUNTY.

The *Telegraph* (the first paper in the county), at Newtown (now Elmira), by Prindle & Murphy. The exact date of its establishment is unknown. In 1816 it was changed to the *Vidette.*

1820.—The *Investigator*, at Elmira, by Job Smith. In 1822 changed to the *Tioga Register*, and in 1828 to the *Elmira Gazette.* Still published.

1820.—The *Elmira Republican*, at Elmira. In 1828 changed to the *Elmira Whig*, and published by James Durham. In 1829 changed to the *Elmira Republican*, and soon after to the *Elmira Republican and Canal Advertiser.* In 1831 name changed back to the *Elmira Republican.* Publication suspended in 1857. A daily edition of the *Republican* was issued in 1846 and from 1851 to 1855.

1837.—The *Chemung Patriot*, at Horseheads, by J. T. Bradt.

1853.—The *Elmira Advertiser*, at Elmira, by Fairman Brothers; daily and weekly. Still published.

1855, April 7.—The *Philosopher*, at Horseheads, by S. C. Taber. Merged in the *Elmira Gazette* in 1857.

1859.—The *Daily Press*, at Elmira, by Dumas, Van Gelder & Paine.

### CHENANGO COUNTY.

The *Western Oracle* (the first paper in the county), at Sherburne Four Corners, previous to 1804, by A. Romeyn. Suspended in 1808 or 1809.

1806, May.—The *Olive Branch*, at Sherburne, by Phinney & Fairchild. In 1812 name changed to the *Volunteer*, and in 1816 to the *Norwich Journal.* In 1847 merged with the *Oxford Republican* and called the *Chenango Union.* Still published.

1807.—The *Chenango Patriot*, at Oxford, by John B. Johnson. Published three or four years.

1808.—The *President*, at Oxford, by Theophilus Eaton.

1810.—The *Republican Messenger*, at Sherburne, by Petit and Percival.

1814.—The *Oxford Gazette*, at Oxford, by Chauncey Morgan. Publication suspended after 1826.

1818, December 10.—The *Republican Agriculturalist*, at Norwich, by Thurlow Weed. Published but a short time.

1824.—The *People's Advocate*, at Norwich, by H. P. W. Brainard. Suspended in a few months.

1826.—The *Chenango Republican*, at Oxford, by Benjamin Cory. In 1831 changed to the *Oxford Republican.* In 1847 merged with the *Oxford Journal* and called the *Chenango Union.*

1829, November.—The *Anti-Masonic Telegraph*, at Norwich, by E. P. Pellet. Name afterward changed to the *Chenango Telegraph.* Still published.

1830.—The *Chenango Patriot*, at Greene, by Nathan Randall. Afterward changed to the *Chenango Democrat*, and shortly discontinued.

1831.—The *New Berlin Herald*, at New Berlin, by Samuel L. Hatch. Afterward name changed to the *New Berlin Sentinel.* Publication suspended about 1840.

1836.—The *Oxford Times*, at Oxford, by a joint-stock company. Still published.

1843.—The *Bainbridge Eagle*, at Bainbridge, by J. Hunt, jr. In 1846 name changed to the *Bainbridge Freeman*, and in 1849 merged in the *Chenango Free Democrat*, commenced at Norwich January 1, 1849, by Alfred G. Lawyer. It was early removed to Cobleskill, Schoharie county.

1849.—The *New Berlin Gazette*, at New Berlin, by Fox & Durham. Publication suspended in 1850.

1850.—The *Chenango News*, at New Berlin, by A. T. Boynton. Afterward removed to Norwich, where the *Temperance Advocate* was published one year.

1852.—The *Saturday Visitor*, at New Berlin, by Joseph K. Fox. Name soon after changed to the *Social Visitor.* Published five years.

1852.—The *Spirit of the Age*, at New Berlin, by J. K. Fox. Published but a short time.

1853.—The *Oxford Transcript*, at Oxford, by G. N. Carhart. Published six months.

1855.—The *Sherburne Transcript*, at Sherburne, by James M. Scarritt. Publication suspended in 1857.

1855, September 20.—The *Chenango American*, at Greene, by Denison & Fisher. Still published.

1857.—The *Daily Reporter*, at Norwich, by G. H. Smith. Suspended about 1858.

1858.—The *Literary Independent*, at Norwich, by Pellet & Spry. Published four months.

1859, February 19.—The *New Berlin Pioneer*, at New Berlin, by Squires & Fox.

### CLINTON COUNTY.

1807.—The *American Monitor*, at Plattsburg, by W. Nichols and Samuel Lowell. Continued a short time.

1811, July.—The *Plattsburg Republican*, at Plattsburg, by ——— Reynolds. Still published.

## NEW YORK—Continued.

1813, April 10.—The *Northern Herald*, at Plattsburg, by Fred. C. Powell. In 1815 changed to the *Plattsburg Herald*, and soon after discontinued.

1821, May.—The *Northern Intelligencer*, at Plattsburg, by Fred. R. Allen. In 1832 consolidated with the *Aurora Borealis*, which was established in 1828, the combined papers taking the name of the *Plattsburg Aurora.* Continued but a short time.

1834.—The *Democratic Press*, at Plattsburg, by J. K. Averill.

1835.—The *Whig*, at Plattsburg, by G. W. Platt. In 1838 changed to the *Clinton County Whig*, and in October, 1855, to the *Plattsburg Express.*

1848.—The *Free Democrat*, at Plattsburg, by Oliver Hart.

1849.—The *Northern Lancet*, at Plattsburg, by Dr. Horace Nelson; monthly. Soon changed to the *Lancet.* Suspended in 1856.

1850.—The *Champlain Beacon*, at Champlain, by Ketchum & Averill. In 1852 changed to the *Rouse's Point Advertiser.*

1855, January 10.—The *American Sentinel*, at Plattsburg, by Warren Dow. Soon changed to the *Plattsburg Sentinel.* Still published.

### COLUMBIA COUNTY.

1785, April 7.—The *Hudson Gazette*, at Hudson, by A. Stoddard and C. R. Webster. Publication suspended in 1803 or 1804.

1802.—The *Balance and Columbia Repository*, at Hudson, by Sampson, Chittenden & Croswell. In 1808 removed to Albany, and in 1811 publication suspended.

1802.—The *Wasp*, printed for a short time by "Robert Rusticoat", at Hudson.

1802, August 17.—The *Bee* was removed from New London, Connecticut, to Hudson, by Charles Holt. In 1820 name changed to the *Columbia Centinel*, and in 1822 merged in the *Columbia Republican.*

1806, October.—The *Hudson Newspaper and Balance Advertiser*, at Hudson, by Harry Croswell.

1806, December.—The *Republican Fountain*, at Hudson, by Sylvester Roberts. Published one year.

1808.—The *Northern Whig*, at Hudson, by W. B. Stebbins. Publication suspended in 1824.

1817.—The *Spirit of the Forum and Hudson Remarker*, at Hudson, by a literary association.

1818, August.—The *Columbian Republican*, at Hudson, by Solomon Wilbur. Now published as the weekly edition of the *Hudson Daily Republican.*

1824.—The *Hudson Gazette*, at Hudson, by P. G. Sturtevant. Now published as the weekly edition of the *Hudson Daily Register.*

1824.—The *Messenger of Peace*, at Hudson, by Richard Carrique. Published one year.

1824, June 12.—The *Rural Repository*, at Hudson, by W. B. Stoddard; semi-monthly. Suspended in 1851.

1825, June.—The *Kinderhook Sentinel*, at Kinderhook, by Peter Van Schaack. In January, 1832, changed to *Columbia's Sentinel.* Afterterward changed to *Rough Notes.* Still published.

1831.—The *Columbia and Greene County Envoy*, at Hudson, by E. G. Lindsley. Published two years.

1833.—The *Diamond*, at Hudson, by G. F. Stone; semi-monthly.

1834.—The *Magnolia*, at Hudson, by P. D. Carrique; semi-monthly.

1842.—The *Columbia Washingtonian*, at Hudson, by J. R. S. Van Vliet. December 28, 1847, changed to the *Daily Evening Star.* Afterward merged with the *Columbian Republican*, and now published as the weekly edition of the *Daily Republican*, under the title of *Columbia Republican and Star.*

1846.—The *Equal Rights Advocate*, at Chatham Four Corners, by an anti-rent association. In 1848 removed to Hudson and changed to the *Democratic Freeman.* Publication suspended in 1855–'56.

1847.—The *Columbia Democrat*, at Chatham Four Corners.

1850.—The *Columbia County Journal*, at Chatham Four Corners, by Philip H. Ostrander.

1855.—The *Hudson Daily News*, at Hudson, by Richard Van Antwerp.

1857.—The *Journal of Materia Medica*, at New Lebanon, by H. A. Tilden. Still published.

### CORTLAND COUNTY.

1810.—The *Cortland Courier*, at Homer, by J. & S. Percival. In 1812 name changed to the *Farmers' Journal;* in 1813 to the *Cortland Repository;* in 1825 to the *Cortland Observer;* in 1836 to the *Homer Eagle.* In 1837 merged with the *Cortland Republican*, and called the *Republican and Eagle.* In 1852 changed to the *Cortland County Whig*, and in 1856 to the *Cortland County Republican.* Now published as the *Homer Republican.*

1814.—The *Cortland Republican*, at Cortland, by Benj. S. & David Campbell. Publication suspended in 1821.

1817.—The *Cortland Repository*, by Jesse Searl.

1821.—The *Western Courier*, at Homer, by Roberts & Hull, and soon after removed to Cortland. In 1824 changed to the *Cortland Journal;* in 1832 to the *Cortland Advocate;* in 1845 to the *Cortland Democrat;* and in 1857 to the *Cortland Gazette.*

1828.—The *Cortland Chronicle*, at Cortland, by Reed & Osborn. In 1832 name changed to the *Anti-Masonic Republican*, and in 1833 to the *Cortland Republican.* In 1837 merged with the *Homer Eagle.*

1831.—The *Protestant Sentinel*, at Homer, by John Maxson. Publication suspended in 1833.

1840.—The *Cortland Democrat*, by Seth Haight and Henry N. Depuy.

1844.—The *Liberty Herald*, semi-monthly, at Cortland, by E. F. Graham. Published two years.

1845.—The *True American and Religious Examiner*, at Cortland, by C. B. Gould. The following year changed to the *True American.* Publication suspended in 1848.

1850.—The *Morning Star*, at McGrawville.

1858.—The *Republican Banner*, at Cortland, by Van Slyck & Bateson.

1858.—The *Central Reformer*, at McGrawville.

1867, June.—The *Cortland Standard*, by Frank G. Kinney; in 1876 consolidated with the *Journal*, and still published.

### DELAWARE COUNTY.

1819, November 18.—The *Delaware Gazette*, at Delhi, by John J. Lappan. Still published.

1822, July 4.—The *Delaware Republican*, at Delhi, by E. J. Roberts. Published two years.

1834.—The *Delaware Journal*, at Delhi, by George Marvine. Published one year.

1839, January.—The *Delaware Express*, at Delhi, by Norwood Bowne. Still published by the original publisher.

1845.—The *Voice of the People*, an anti-rent paper, at Delhi, by W. S. Hawley. Publication suspended in 1845.

1849, March.—The *Deposit Courier*, at Deposit, by C. E. Wright. Still published.

1851, May 28.—The *Bloomville Mirror*, at Bloomville, by S. B. Champion. Now published as the *Stamford Mirror* by the original publisher.(a)

1855, January.—The *Hobart Free Press*, at Hobart, by E. B. Fenn.

1855, April 14.—The *Weekly Visitor*, at Franklin, by George W. Reynolds. Afterward changed to the *Franklin Visitor.*

1856.—The *Walton Journal*, at Walton, by E. P. Berray. Published two years.

1856.—The *Village Record*, at Hobart, by G. W. Albright.

### DUCHESS COUNTY.

1734.—The *New York Journal*, in New York city, by John Holt. Removed to Poughkeepsie in 1776, in consequence of the British occupation. In 1785 its name was changed to the *Poughkeepsie Journal;* in 1786 to the *Country Journal and Poughkeepsie Advertiser;* in 1789 to the *Country Journal and Duchess and Ulster Family Register;* in 1808 to the *Poughkeepsie Journal and Constitutional Republican;* in 1812 to the *Poughkeepsie Journal.* In 1844 it was consolidated with the *Eagle* and called the *Journal and Poughkeepsie Eagle.* In 1850 changed to the *Poughkeepsie Eagle.* Still published.

1776, October 1.—The *New York Packet and American Advertiser.* Removed from New York to Fishkill Returned to New York at the close of the war.

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(a) The first number of the *Bloomville Mirror* contained 101 words, and until July no price was fixed. The office, located in one corner of a mill, consisted of ten pounds of type, without a press. The paper was printed by striking with a mallet on a block laid over the type.

## NEW YORK—Continued.

1798, August.—The *American Farmer and Duchess County Advertiser*, Poughkeepsie, by John Woods. Published a short time.

1802, May.—The *Barometer*, at Poughkeepsie, by Isaac Mitchell. ı 1806 changed to the *Political Barometer*, and afterward to the *North-n Politician*. Soon after discontinued.

1806.—The *Farmer*, at Poughkeepsie. Published two years.

1811, November.—The *Republican Herald*, at Poughkeepsie, by D. . Stockholm and Thomas Brownjohn.

1815, May 10.—The *Duchess Observer*, at Poughkeepsie, by Barnum Nelson. In 1826 consolidated with the *Telegraph*, and called the *oughkeepsie Telegraph and Observer*. In 1844 changed to the *Telegraph*. ı 1852 consolidated with the *Democrat* and called the *Poughkeepsie 'elegraph and Duchess Democrat*. Now called the *Telegraph*, and pub-shed as the weekly edition of the *Daily Press*.

1824, May 5.—The *Republican Telegraph*, at Poughkeepsie, by Sands ; Platt. In 1826 merged in the *Observer*.

1828, April 30.—The *Duchess Intelligencer*, at Poughkeepsie, by Ames ; Parsons. In 1833 united with the *Republican* and called the *Intel-gencer and Republican*. In 1834 changed to the *Poughkeepsie Eagle*, nd in 1844 united with the *Journal*.

1828.—The *Duchess True American*, at Poughkeepsie, by Peter K. ıllen.

1829, August.—The *Duchess Inquirer*, at Poughkeepsie, by P. K. Allen. n 1830 name changed to the *Anti-Mason*. Publication suspended in 831, but soon after revived and published for a short time as the *Inde-endence*.

1831, August.—The *Duchess Republican*, at Poughkeepsie, by Thomas . Ranney. In 1833 merged in the *Intelligencer*.

1836.—The *Poughkeepsie Casket*, by Killey & Lassing.

1837.—The *Youth's Guide*, at Poughkeepsie, by Isaac Harrington, jr.; emi-monthly.

1840.—The *Thomsonian* (medical), at Poughkeepsie, by Thomas .apham.

1840.—The *Rhinebeck Advocate*, at Rhinebeck, by Robert Marshall. Afterward changed to the *Duchess County Advocate*. Publication suspended about 1850.

1841.—The *Free Press*, at Fishkill, by F. W. Ritter. In 1842 removed to Poughkeepsie and called the *Duchess Free Press*. Publication suspended in 1844.

1842, August 2.—The *Fishkill Standard*, at Fishkill Landing, by W. R. Addington. Still published.

1843.—The *Temperance Safeguard*, at Poughkeepsie, by G. R. Lyman. Published two or three years.

1845, November.—The *American*, at Poughkeepsie, by A. T. Cowman. Soon changed to the *Poughkeepsie American*, and in 1853 to the *Duchess Democrat*. In 1856 merged in the *Telegraph*.

1846.—The *Rhinebeck Gazette*, at Rhinebeck, by Smith & Carpenter. In 1850 merged in the *Mechanic*.

1849.—The *American Mechanic*, at Poughkeepsie, by G. W. Clark. In 1850 removed to Rhinebeck and united with the *Gazette* under the itle, the *American Mechanic and Rhinebeck Gazette*. Soon changed to he *Rhinebeck Gazette and Duchess County Advertiser*. Still published is the *Rhinebeck Gazette*.

1852, April 7.—The *Amenia Times*, at Ameniaville, by Joel Benton. Still published.

1852, May 1.—The *Daily City Press*, at Poughkeepsie, by Nichols, Bush & Co. Soon changed to the *Daily Press*. Still published.

1853.—The *Fishkill Journal*, at Fishkill, by H. A. Guild. Suspended n 1855.

1855, February.—The *Independent Examiner*, at Poughkeepsie, by Henry A. Gill. Published three years.

1856.—The *American Banner*, at Poughkeepsie, by Charles J. Ackert. n 1857 removed to Fishkill and called the *Duchess County Times*.

1858, June 12.—The *American Citizen*, at Rhinebeck, by George W. Clark.

1859, January 1.—The *Poughkeepsie Gazette*, by B. L. Hannah.

1859, February 1.—The *Pine Plains Herald*, at Pine Plains, by L. Piester. Still published.

1859, April 20.—The *Red Hook Journal*, at Red Hook. Still published.

### ERIE COUNTY.

1811, October 3.—The *Buffalo Gazette*, at Buffalo, by S. H. & H. A. Salisbury. In 1819 name changed to the *Niagara Patriot*, and in 1820, upon the erection of Erie county, to the *Buffalo Patriot*.

1815, July.—The *Niagara Journal* established at Buffalo, by David M. Day. In 1820 name changed to the *Buffalo Journal*. Publication suspended in 1835.

1822.—The *Gospel Advocate* (Universalist), at Buffalo, by Rev. Thomas Gross. In 1828 removed to Auburn.

1822.—The *Black Rock Beacon*, at Black Rock, by L. G. Hoffman. Published two years.

1824.—The *Buffalo Emporium*, at Buffalo, by J. A. Lazelle and Simeon Francis. Publication suspended in 1829.

1824.—The *Black Rock Gazette*, at Black Rock, by Bartemus Ferguson. In 1827 removed to Buffalo and changed to the *Buffalo and Black Rock Gazette*. Publication suspended in 1828.

1826, February.—The *Black Rock Advocate*, at Black Rock, by D. P. Adams. Published one year.

1828, April.—The *Buffalo Republican*, at Buffalo, by W. P. M. Wood. In 1842 name changed to the *Democratic Economist;* a few months afterward to the *Mercantile Courier and Democratic Economist;* in February, 1843, to the *Buffalo Courier and Economist;* and in the following March to the *Buffalo Courier*. July 1, 1846, it was consolidated with the *Pilot*, and published as the *Courier and Pilot*, daily, tri-weekly, and weekly. In December, 1846, changed to the *Buffalo Courier*. Still published.

1830.—The *Buffalo Bulletin*, at Buffalo, by Horace Steel. In 1835 merged in the *Republican*.

1832.—The *Gospel Banner*, at Buffalo, by Benjamin Clark. Published two years.

1833, January 1.—The *Literary Enquirer*, at Buffalo, by William Verrinder; semi-monthly. Published two years.

1834.—The *Daily Star*, at Buffalo, by James Faxon. In 1835 merged in the *Republican*.

1834.—The *Buffalo Whig*, at Buffalo, by D. M. Day. In 1835 merged with the *Buffalo Journal*, and called the *Buffalo Whig and Journal*. In February, 1838, changed to the *Buffalo Daily Journal*. In 1839 merged in the *Buffalo Patriot and the Commercial Advertiser*.

1835.—The *Young Men's Temperance Herald*, at Buffalo, by Grosvenor & French. Published one year.

1835, January 1.—The *Daily Commercial Advertiser*, issued from the *Patriot* office. In August, 1838, the *Aurora Standard* was merged in the two papers. In May, 1830, they were united with the *Buffalo Journal*, and the weekly published as the *Patriot and Journal* and the daily as the *Buffalo Commercial Advertiser*. Still published.

1835, August.—The *Transcript*, at Buffalo, by H. Faxon; daily and weekly. Published six months.

1835, October.—The *Aurora Standard*, at East Aurora, by A. M. Clapp. In 1838 removed to Buffalo and merged in the *Commercial Advertiser*.

1836.—The *Buffalo Spectator* (Presbyterian), at Buffalo, by J. & W. Butler. Published two years.

1836.—The *Bethel Magazine*, at Buffalo, by the Bethel Society; monthly. Afterward changed to the *Bethel Flag*, and in 1846 consolidated with the *Sailor's Magazine* of New York.

1837.—The *Buffalonian*, at Buffalo. In 1838 united with the *Mercury*. Publication suspended in 1840.

1837.—*Der Weltbuerger*, at Buffalo, by George Zahm. In 1853 united with the *Buffalo Democrat* and called the *Buffalo Democrat and Weltbuerger;* daily and weekly. Still published.

1838.—The *Sun*, at Buffalo, by Abraham Densmore; daily and weekly. Published one year.

## NEW YORK—Continued.

1839.—The *Bristol's Gazette and Herald of Health*, at Buffalo, by C. C. Bristol; monthly. In 1840 changed to *Bristol's Gazette*. Publication suspended in 1842.

1839.—The *Friend of Youth*, at Buffalo, by Rev. A. T. Hopkins; monthly. Published one year.

1840.—The *Morning Tattler*, at Buffalo, by Langdon, Fouchette & Schaeffer; daily. Soon changed to the *Morning Times*. Published but a short time afterward.

1840.—The *Buffalo Garland*, at Buffalo, by George W. Bungay.

1840.—The *Honest Industry*, at Buffalo, by Dr. Daniel Lee.

1840.—The *Volksfreund* (German), at Buffalo, by Adolphus Meyer.

1841, March.—The *Western Presbyterian*, at Buffalo, by Rev. J. C. Lord. Published one year.

1841, July.—The *Western Literary Messenger*, at Buffalo, by J. S. Chadbourne; semi-monthly. Publication suspended in 1857.

1842.—The *Buffalo American*, at Buffalo, by Foster & Butler. Published one year.

1842.—The *Old School Jeffersonian* and the *Daily Gazette*, at Buffalo, by Charles Faxon. Published one year.

1842.—The *Temperance Standard*, at Buffalo, by Salisbury & Clapp.

1842.—*Prescott's Telegraph*, at Buffalo, by W. Prescott.

1843.—The *Buffalo Gazette*, at Buffalo, by Salisbury, Manchester & Brayman; daily and weekly. Published three years.

1843.—The *Freimüthige* (German), at Buffalo, by Krause & Meyer. Published two years.

1844, May.—The *Springville Express*, at Springville, by Edwin Hough. Publication suspended in 1848.

1845.—The *Western Cataract*, at Buffalo, by L. P. Judson. In January, 1847, changed to the *Western Temperance Standard*, and discontinued the following year.

1845, June.—The *Buffalo Medical Journal and Monthly Review of Medical and Surgical Science*, at Buffalo, by Dr. Austin Flint.

1845, November.—The *Telegraph* (German), at Buffalo, by H. B. Miller; daily and weekly. Suspended after 1860.

1846.—The *Tonawanda Commercial*, at Tonawanda, by Sylvester Hoyt. Published one year.

1846.—The *Western Evangelist* (Universalist), at Buffalo, by Rev. L. S. Everett. Published one year.

1846, January 14.—The *Morning Express*, at Buffalo, by A. M. Clapp & Co. In 1855 the *Daily Democracy* was merged with it, and called the *Buffalo Morning Express and Daily Democracy*. Now published as the *Morning Express*, with a weekly edition.

1847, January 26.—The *Republic*, at Buffalo, by Livingston, Albro & Co.; daily and weekly. In 1857 the *Daily Times* was united with the *Republic* and called the *Buffalo Republic and Times*, daily, tri-weekly, and weekly.

1848.—*Der Freie Demokrat*, at Buffalo.

1849.—The *Wool Grower and Magazine of Agriculture and Horticulture*, at Buffalo, by T. C. Peters; monthly. Published three years.

1850.—The *Daily Queen City*, at Buffalo, by G. J. Bryan; a penny daily. In 1852 name changed to the *Buffalo Evening Post*.

1850.—The *Buffalo Christian Advocate*, at Buffalo, by John E. Robie. In 1857 changed to the *Advocate*. Now published under its original title.

1850.—The *Common Sense*, at Buffalo, by D. P. Stile.

1850.—*Die Aurora*, at Buffalo, by Christian Wieckmann. Still published by the original publisher.

1850, May.—The *Springville Herald*, at Springville, by Lucius C. Sanders. Now published as the *Journal and Herald*.

1851.—The *Youth's Casket*, at Buffalo, by Beadle & Vanderzee; monthly.

1851.—The *American Miller*, at Buffalo, by W. C. Hughes.

1851.—The *Evangelical Christian*, at Buffalo, by G. Stanbro & Co.

1851, July.—*Das Kirchliche Informatorium*, at Buffalo, by Conrad Bär; semi-monthly.

1852.—*Der Homeopath and Diætetischer Hausfreund*, at Buffalo, by Conrad Bär. Published one year.

1852.—*Sontaggs Blatt*, at Buffalo, by Brunck, Held & Co. Published one year.

1852.—The *Sunday Visitor*, at Buffalo, by Reed & Moore. Published one year.

1852.—The *United States Mail*, at Buffalo, by Jewett, Thomas & Co.

1852.—The *Buffalo Daily Ledger*, at Buffalo, by T. Richardson. Published only a few months.

1852.—The *Pathfinder*, at Buffalo, by Charles Faxon.

1852, March.—The *Rough Notes*, at Buffalo, by George Reese; daily. In 1854 united with the *Democracy*.

1852, June.—The *American Celt and Catholic Citizen;* removed from Boston to Buffalo. In May, 1853, removed to New York.

1853.—The *Niagara River Pilot*, at Tonawanda, by Packard & Foxlonger. In November, 1857, changed to the *Niagara Frontier*.

1853.—The *Library and Garden*, at Buffalo, by D. S. Manly & Co.

1853, June.—The *Buffalo Catholic Sentinel*, at Buffalo, by Michael Hogan.

1853, March.—The *School and House Friend* (German), at Buffalo, by Conrad Bär; semi-monthly. Published one year.

1854.—*Illustrirte Abend Schule*, at Buffalo, by Rev. C. Dichlman.

1854.—The *Age of Progress*, at Buffalo, by Stephen Albro. Published four years.

1854, May.—The *Democracy*, at Buffalo, by G. W. Haskins; daily and weekly. In August, 1855, united with the *Express*.

1854, September.—The *American Rights*, at Buffalo, by George Reese & Co. Publication suspended in July, 1855.

1855, June.—*Zeichen der Zeit*, at Buffalo, by ——— Drexler.

1856.—The *Atlantis*, monthly; removed from Cleveland, Ohio, to Buffalo.

1856.—The *American Citizen*, at Springville, by Lucius C. Sanders. Published one year.

1856, January.—The *Home*, at Buffalo, by E. F. Beadle.

1856, May.—The *Buffalo Allgemeine Zeitung*, at Buffalo, by Frederick Reinecke.

1857, May.—*Das Historiche Zeitblatt und Literarischer Anzeiger*, at Buffalo, by Conrad Bär; monthly.

1857, August.—The *Buffalo Daily Times*, at Buffalo, by the *Times* Association. In 1858 united with the *Republic*.

### ESSEX COUNTY.

——.—The *Essex County Times*, at Elizabethtown, by R. W. Livingston. Suspended in 1834.

1810.—The *Reveille*, at Elizabethtown, by Luther Marsh.

1817.—The *Essex Patriot*, at Elizabethtown, by L. & O. Person. Published one year.

1822.—The *Essex County Republican*, at Essex, by J. K. Averill. Publication suspended in 1833.

1825.—The *Keeseville Herald*, at Keeseville, by E. P. Allen. Suspended in 1841.

1831.—The *Keeseville Argus*, at Keeseville, by Adonijah Emmons. Published five or six years.

1839.—The *Essex County Republican*, at Keeseville, by J. B. Dickinson. Still published.

1840.—The *Berean Guide*, at Essex, by Rev. M. Bailey. Published one year.

1845.—The *Westport Patriot and Essex County Advertiser*, at Westport, by D. Truair.

1847.—The *Essex County Patriot*, at Essex, by A. H. Allen. Afterward changed to *Westport Herald*, and published six or seven years.

1847.—The *Au Sable River Gazette*, at Keeseville, by D. Truair. Published five or six years.

1849.—The *Old Settler*, at Keeseville, by A. H. Allen; monthly. Afterward removed to Saratoga Springs.

1851.—The *Elizabethtown Post*, at Elizabethtown, by R. W. Livingston. Subsequently united with the *Northern Standard*, Keeseville. Now published as the *Elizabethtown Post and Gazette*.

## NEW YORK—Continued.

1851.—The *Northern Gazette*, at Keeseville. Published several ears.

1851.—The *Essex County Times*, at Westport.

1854.—The *Northern Standard*, at Keeseville, by A. W. Lansing.

### FRANKLIN COUNTY.

1821.—The *Franklin Telegraph*, at Malone, by Francis Burnap. In 829 it was removed to Potsdam.

1827.—The *Franklin Republican*, at Fort Covington, by J. K. Averill. uspended in 1833.

1827.—The *Franklin Gazette*, at Fort Covington, by F. D. Flanders. n 1847 removed to Malone. Still published.

1830.—The *Northern Spectator*, at Malone, by John G. Clayton. Susended in 1835.

1835, March.—The *Palladium*, at Malone, by F. P. Allen. Still ublished.

1850.—The *Salmon River Messenger*, at Fort Covington, by James isk. Subsequently published as the *Messenger*.

1853.—The *Jeffersonian*, at Malone, by J. R. Flanders. Published wo years.

### FULTON COUNTY.

——.—The *Northern Banner*, at Union Mills, Broadalbin, by John lark. In a few months removed to Johnstown and called the *Northrn Banner and Montgomery Democrat.* In 1837 name changed to the *Montgomery Republican*, and in 1838 to the *Fulton County Democrat.* Still published.

1796.—The *Johnstown Gazette* was published at Johnstown.

1796.—The *Montgomery Advertiser*, at Johnstown, by Jacob Doxtoder. Published several years.

1806, August.—The *Montgomery Republican*, at Johnstown, by William Child. Office burned in November, 1836, and paper suspended.

1806.—The *Montgomery Intelligencer*, at Johnstown. Published two years.

1806.—The *Montgomery Monitor*, at Johnstown, by Robbins & Andrews. In 1828, removed to Fonda, thence to Canajoharie, and afterward to Schoharie.

1824.—The *Johnstown Herald*, removed from Amsterdam, by Philip Reynolds. In 1837 removed to Fonda and called *Fonda Herald.*

1836.—The *Christian Palladium*, at Johnstown, by Joseph Badger; semi-monthly. Removed to Albany in 1846 or 1847.

1838.—The *Fulton County Republican*, at Johnstown, by Darius Wells.

1843.—The *Literary Journal*, at Kingsboro', by S. R. Sweet.

1856, January.—The *Johnstown American*, at Johnstown, by N. J. Johnson. In April, 1858, changed to the *Johnstown Independent.*

1856.—The *Gloversville Standard*, at Gloversville, by W. H. Case. Still published.

### GENESEE COUNTY.

1807.—The *Genesee Intelligencer*, at Batavia, by Elias Williams. First paper published west of the Genesee river. Published six months.

1808.—The *Cornucopia*, at Batavia, by Blodgett & Peck. Suspended in 1811.

1811.—The *Republican Advocate*, at Batavia, by Blodgett & Miller. In 1854 merged in the *Genesee County Whig*, and called the *Republican Advocate and Genesee County Whig.* In 1855 name again changed to *Republican Advocate.* Still published.

1819, February 3.—The *Spirit of the Times*, at Batavia, by Oran Follett. Still published.

1825.—The *People's Press*, at Batavia, by an association. Afterward merged in the *Spirit of the Times and The People's Press.*

1826.—The Le Roy *Gazette*, at Le Roy, by J. O. Balch. Still published.

1829.—The *Genesee Republican and Herald of Reform*, at Le Roy, by Freeman & Son. Published one or two years.

1837, November 4.—The *Farmers and Mechanics' Journal*, at Alexander, by Peter Lawrence. In June, 1840, removed to Batavia and called the *Batavia Times and Farmers and Mechanics' Journal.* In 1843 merged in the *Spirit of the Times.*

1842, March.—The *Temperance Herald*, at Batavia, by Lucas Seaver. Published one year.

1844.—The *Genesee Courier*, at Le Roy, by Edward Bliss. Published about a year.

1852.—The *Genesee County Whig*, at Batavia, by Kimberly & Tyrell. Merged in the *Republican Advocate* in 1854.

1852, December.—The *Le Roy Democrat*, at Le Roy, by Henry Todd. In November, 1853, removed to Batavia and called the *Batavia Democrat.* In December, 1856, changed to the *Genesee Weekly Democrat.*

1854.—The *Genesee Herald*, at Le Roy, by W. C. Grummond. In 1857 removed to Batavia.

1857, April.—The *Le Roy Advertiser*, at Le Roy, by Thomas B. Tufts. Suspended in July, 1858.

1858.—The *Genesee Daily Herald*, issued from the above office.

1859, May.—The *Daily Advocate*, at Batavia, by D. D. Waite.

### GREENE COUNTY.

1800, prior to.—The *Catskill Packet* was published.

1801.—The *Catskill Recorder*, at Catskill, by Mackey Croswell. In 1828 name changed to the *Catskill Recorder and Greene County Republican.* In 1849 united with the *Democrat* and called the *Catskill Recorder and Democrat.* Still published as the *Catskill Recorder.*

1813.—The *Catskill Emendator*, at Catskill. Published a short time.

1814.—The *Greene and Delaware Washingtonian*, at Catskill, by M. J. Kappel. In 1816 changed to the *Middle District Gazette.*

1826.—The *Greene County Republican*, at Catskill, by ——— Hyer. In 1829 merged in the *Recorder.*

1830.—The *Catskill Messenger*, at Catskill, by Ira Dubois. In 1849 changed to the *Greene County Whig*, and in 1857 to the *Catskill Examiner.* Still published.

1832.—The *Greene County Advertiser*, at Coxsackie, by Henry Van Dyck. In 1836 changed to the *Standard*, and subsequently to the *Coxsackie Standard.*

1843.—The *Catskill Democrat*, at Catskill, by Joseph Josebury. In 1849 united with the *Recorder.*

1843.—The *Baptist Library*, at Prattsville, by L. L. and R. H. Hill. In 1845 removed to Lexington.

1846.—The *Prattsville Advocate*, at Prattsville, by John L. Hackstaff. Suspended in 1858.

1851.—The *Coxsackie Union*, at Coxsackie, by Fred. W. Hoffman.

1852.—The *Prattsville Bee*, at Prattsville.

1854.—The *American Eagle*, at Prattsville, by Bullock & Allen. Removed to Catskill the same year. In 1855 name changed to the *Banner of Industry*, and in 1857 to the *Catskill Democratic Herald.*

1857.—The *Windham Journal*, at Windham Center, by W. R. Steele. Still published.

1858.—The *Athens Visitor*, at Athens, by R. Denton.

### HAMILTON COUNTY.

1845.—The *Hamilton County Sentinel*, at Sageville (printed at Johnstown), by Clark & Thayer.

### HERKIMER COUNTY.

1802, about.—The *Telescope*, at Herkimer, by Benjamin Corey. Suspended in January, 1805.

1805.—The *Farmer's Monitor*, at Herkimer, by Holt & Robbins. Published two years.

1807.—The *Herkimer Pelican*, at Herkimer, by Benjamin Corey. Suspended in 1810.

1810.—The *Herkimer American*, at Herkimer, by J. H. & H. Prentiss. Suspended in 1831.

1810.—*Bunker Hill*, at Herkimer, by G. G. Phinney. In 1812 name changed to the *Honest American.* Published a few years.

## NEW YORK—Continued.

1821, September.—The *People's Friend*, at Little Falls, by Edward M. Griffin. In 1830 changed to the *People's Friend and Little Falls Gazette*, and in July, 1834, to the *Mohawk Courier*.

1828.—The *Herkimer Herald*, at Herkimer, by John Carpenter. Removed in a few years to Oswego.

1830.—The *Republican Farmer's Free Press*, at Herkimer, by David Holt. In 1834 removed to Little Falls, and name changed to the *Herkimer County Whig*, under which title published about two years by L. W. Smith.

1837, December.—The *Herkimer County Journal*, at Herkimer, by a company, J. C. Underwood, editor. In 1846 purchased by O. Squires, and removed to Little Falls. Still published, now as *Journal and Courier*.

1839.—The *Enterprise*, at Little Falls, by E. M. Griffin. In 1841 changed to the *Mohawk Mirror*. Suspended in 1844.

1842.—The *Frankfort Democrat*, at Frankfort, by Lyon & Holmes. In 1844 removed to Herkimer and called the *Herkimer County Democrat*. In December, 1855, changed to the *Herkimer American*, and in 1857 again changed to the *Herkimer County Democrat*. Still published.

1844.—The *Herkimer Freeman*, at Little Falls, by O. A. Bowe. In 1850 removed to Mohawk and called the *Mohawk Times*. Soon after discontinued.

1855, January.—The *Ilion Independent*, at Ilion, by Fish & Lyman. In January, 1858, removed to Utica.

1855, January.—The *Mohawk Valley Sentinel*, at Mohawk, by Peters & Gould.

1859, June.—The *Standard Bearer*, at West Winfield, by W. H. Dixon.

### JEFFERSON COUNTY.

1817.—The *Jefferson and Lewis Gazette*, at Watertown, by D. Abbey and J. H. Lord, jr. Published two years.

1817.—The *Sackett's Harbor Gazette and Advertiser*, at Sackett's Harbor, by George Camp. In February, 1821, changed to the *Jefferson Republican*, and continued one year.

1819.—The *Independent Republican*, at Watertown, by S. A. Abbey. Suspended in 1825.

1822.—The *Herald of Salvation* (Universalist), at Watertown, by Rev. Pitt Morse; semi-monthly. Published two years.

1824.—The *Watertown Freeman*, at Watertown. In 1833 changed to the *Democratic Standard*. In July, 1835, united with the *Watertown Eagle* and called the *Eagle and Standard*.

1824.—The *Farmer's Advocate*, at Sackett's Harbor, by T. W. Hascall. Suspended in 1828.

1826.—*Thursday's Post*, at Watertown, by Theron Parsons & Co. In 1828 changed to the *Register*. Afterward united with the *Genius of Philanthropy*, and in 1830 called the *Watertown Register and General Advertiser*. In 1835 changed to the *North American;* in 1839 to the *Watertown Register*, and in 1843 to the *Black River Journal*. Publication suspended in 1846.

1828.—The *Genius of Philanthropy*, at Watertown, by Henry L. Harvey. Afterward merged in the *Register*.

1828.—The *Censor*, at Adams, by Theron Parsons. Soon after removed to Watertown. In 1830 changed to the *Anti-Masonic Sun*, and shortly after to the *Constellation*. In 1832 called the *Jefferson Reporter*. Publication suspended in 1834.

1828.—The *Independent Republican and Anti-Masonic Recorder*, at Watertown. Published two years.

1832, September.—The *Watertown Eagle*, at Watertown, by J. Calhoun. In 1835 united with the *Democratic Standard*, and called the *Eagle and Standard*. In 1837 changed to the *Jeffersonian*, and afterward to the *Watertown Jeffersonian*. In 1855 united with the *Democratic Union*, and called the *Jefferson County Union*. Now published as the *Re-Union*.

1837.—The *Jefferson County Whig*, at Sackett's Harbor, by E. H. Purdy.

1838, October.—The *Sackett's Harbor Journal*, at Sackett's Harbor, by E. M. Luff. Suspended in 1851.

1839, December.—The *Carthaginian*, at Carthage. In 1843 changed to the *Black River Times*. Discontinued soon after.

1843.—The *Daily Journal*, at Watertown, by Joel Greene. Soon after changed to the *Watertown Journal*, tri-weekly. Suspended in 1846.

1844, June.—The *Jefferson County Democrat*, at Adams, by J. C. Hatch. Afterward changed to the *Jefferson County News*.

1846.—The *Democratic Union*, at Watertown, by T. Andrews. In 1855 united with the *Jeffersonian*.

1846, August.—The *Northern State Journal*, at Watertown, by A. W. Clark. Afterward changed to the *Northern New York Journal*.

1847, January.—The *Watertown Spectator*, at Watertown, by Joel Greene. Published two years.

1848, March.—The *Sackett's Harbor Observer*, at Sackett's Harbor, by O. H. Harris. In 1852 changed to the *Jefferson Farmer*, and published two or three years.

1848.—The *Theresa Chronicle*, at Theresa, by E. C. Burt. Published six months.

1850, August.—The *New York Reformer*, at Watertown, by Ingalls, Burdick & Co. Now published as weekly edition of *Daily Times*.

1851.—The *Daily Jeffersonian*, at Watertown. Published one year.

1858, January.—The *Carthage Standard*, at Carthage, by W. R. Merrill. Suspended in 1859.

1858.—The *Cape Vincent Gazette*, at Cape Vincent, by P. A. Leach.

1859, May.—*Le Phare des Lacs* (the *Beacon of the Lakes*), at Watertown, by Petit & Grandpre.

### KINGS COUNTY.

1799, June 26.—The *Courier and New York and Long Island Advertiser* (the first newspaper on Long island), at Brooklyn, by Thomas Kirk.

1806.—The *Long Island Weekly Intelligencer*, at Brooklyn, by Robinson & Little.

1809, June 1.—The *Long Island Star*, at Brooklyn, by Thomas Kirk. Suspended after 1860. The *Daily Evening Star* was established in connection with it January 4, 1841.

1821, March 7.—The *Long Island Patriot*, at Brooklyn, by George L. Birch. In 1833 changed to the *Brooklyn Advocate*, and in 1835–'36 to the *Brooklyn Advocate and Nassau Gazette*.

1835.—The *Williamsburg Gazette*, at Brooklyn, by F. G. Fish. Afterward changed to *Williamsburg Daily Gazette*, and published a short time.

1836.—The *American Native Citizen and Brooklyn Evening Advertiser*, at Brooklyn, by F. G. Fish.

1840.—The *Mechanics' Advocate*, at East New York.

1840, June 3.—The *Williamsburg Democrat*, by Thomas A. Devyr.

1841.—The *Brooklyn Daily Eagle*, at Brooklyn, by Isaac Van Auden. Still published. In the same office was published the *Brooklyn Weekly Eagle*, changed in 1855 to the *Saturday Evening Miscellany*.

1841.—The *Brooklyn Daily News*, at Brooklyn, by Northall & Watts. Suspended in November, 1843.

1843.—The *Brooklyn News and Times*, at Brooklyn, by J. S. Noble.

1844.—The *Age*, at Williamsburg. Published a short time.

1844.—The *Democratic Advocate*, at Williamsburg, by J. G. Wallace.

1844.—The *Brooklyn Daily Advertiser*, at Brooklyn, by Lees & Foulkes. Suspended in 1852.

1844.—The *American Champion*, at Brooklyn. Published a short time.

1845.—The *Daily Long Islander*, at Williamsburg, by Bishop & Kelley.

1847.—The *Williamsburg Morning Post*, at Williamsburg, by Devyr & Taylor.

1848.—The *Orbit*, at South Brooklyn.

1848.—The *Kings County Patriot*, at Williamsburg, by Thompson & Hasbrook.

1848.—The *Williamsburg Times*, at Williamsburg, by Bennett, Smith & Co. After the consolidation of Williamsburg and Brooklyn changed to *Brooklyn Daily Times*. Still published.

## NEW YORK—Continued.

49.—The *Brooklyn Daily Freeman*, at Brooklyn.

50, July 16.—The *Daily Independent Press*, at Williamsburg, by op & Kelley. Suspended in 1855.

51.—The *Brooklyn Morning Journal*, at Brooklyn, by Hogan & ghway.

54, September 2.—The *Long Island Anzeiger* (German), at Brooklyn, dward Rohr.

55, April 7.—*Der Triangel* (German), at Brooklyn, by Edward r; semi-monthly. Still published.

57, May.—The *Kings County Advertiser and Village Guardian*, semi- thly, at East New York, by C. W. Hamilton.

### LEWIS COUNTY.

07, March 10.—The *Black River Gazette*, at Martinsburgh, by es B. Robbins. Removed to Watertown the following year. s was the first paper in the state north of Utica.

21.—The *Lewis County Gazette*, at Lowville, by Lewis G. Hoffman. lished two years.

24, October 12.—The *Lewis County Sentinel*, at Martinsburgh, By rles Nichols. Published one year.

25, October 19.—The *Black River Gazette*, at Lowville, by William Easton. Suspended in 1831.

828.—The *Martinsburg Sentinel*, at Martinsburgh, by —— Pearson. pended in March, 1830.

830.—The *Lewis County Republican*, at Martinsburgh, by James eeler. In 1844 removed to Lowville, but afterward returned to rtinsburgh. Now published at Lowville as *Journal and Republican*.

834, March 25.—The *Lewis Democrat*, at Lowville, by Le Grand ngton. Published one year.

838, February 14.—The *Northern Journal*, at Lowville, by A. W. rk. Afterward merged with the *Republican*.

846, September 22.—The *Lewis County Democrat*, at Turin, by H. Labe. Removed to Martinsburgh in 1849 and shortly after discon- ued.

854.—The *Dollar Weekly Northern Blade*, at Constableville. In ril, 1857, changed to the *News Register*, and afterward removed to rthage.

1856, September 3.—The *Lewis County Banner*, at Lowville, by N. Sylvester.

### LIVINGSTON COUNTY.

1817.—The *Moscow Advertiser and Genesee Farmer*, at Moscow, by zekiah Ripley. In 1821 sold to James Percival, who removed it to neseo and changed the name to *Livingston Register*. In 1837 sus- ded, but soon after revived. Discontinued in 1840.

1822.—The *Livingston Journal*, at Geneseo, by Chauncey Morse. spended in 1834, but revived the following year under the name of *Livingston Democrat*. Suspended again in 1837, but the same fall ived as the *Livingston Republican*. Still published.

830.—The *Dansville Chronicle*, at Dansville, by Mitchell & Denni- . Changed soon after to the *Village Record*, and shortly suspended.

83-.—The *Western New Yorker*, at Dansville, by A. Stevens & Son. n after changed to the *Dansville Whig*. In 1848 name changed to *Dansville Courier*, and in 1849 or 1850 to the *Dansville Democrat*. sequently removed to Geneseo and called the *Geneseo Democrat*. blication suspended in 1859.

831.—The *Livingston Courier*, at Geneseo, by C. Dennison. Sus- ded in 1833.

832.—The *Livingston Courier*, at Geneseo, by A. Bennett.

834.—The *Mount Morris Spectator*, at Mount Morris, by Hugh Hard- . In 1848 united with the *Livingston County Whig* and called the *ingston Union*. Now published as the *Union and Constitution*.

835.—The *Dansville Times*, at Dansville, by D. C. Mitchell.

841.—The *Nunda Gazette*, at Nunda, by Ira G. Wisner. The fol- ing year removed to Mount Morris and called the *Genesee Valley order*. Suspended in 1843.

1842.—The *Dansville Republican*, at Dansville, by David Fairchild.

1843.—The *Livingston County Whig*, at Mount Morris, by George B. Phelps. In 1848 merged in the *Spectator*.

1843.—The *Geneseo Democrat*, at Geneseo, by Gilbert F. Shankland. Removed to Nunda in 1847, and in 1848 to Ellicottville, Cattaraugus county.

1843.—The *Livingston Express*, at Mount Morris, by I. G. Wisner; semi-monthly.

1847.—The *Cuylerville Telegraph*, at Cuylersville, by Franklin Cowdery.

1848, June.—The *Dansville Chronicle*, at Dansville, by Richardson & Co. Suspended in 1851.

1848.—The *Nunda Democrat*, at Nunda, by M. D. Chamberlain. Published a short time.

1849.—The *Fountain*, monthly, at Dansville, by J. R. Trembly. Published two years.

1849.—The *Dansville Herald*, at Dansville, by G. A. Sanders.

1850.—The *Nunda Telegraph*, at Nunda, by Charles Atwood. Published one year.

1852, January.—The *Nunda Times*, at Nunda, by N. T. Hackstaff. Suspended in July, 1853.

1853.—The *Lima Weekly Visitor*, at Lima, by Tilton & Miller. Subsequently changed to the *Genesee Valley Gazette*. Suspended about 1856.

1854.—The *New Era*, at Hunt's Hollow, by D. B. & M. Galley (boys fifteen and seventeen years of age). In 1855 removed to Nunda and called the *Young America*. Suspended in 1856.

1857.—The *Livingston Sentinel*, at Dansville, by H. C. Page. Suspended in 1860.

1858.—The *Letter Box*, removed from Glen Haven, Cayuga county, to Dansville, by J. M. Jackson and Miss H. N. Austin; monthly.

1859.—The *Dansville Daily Sentinel*, at Dansville, by W. J. La Rue. Published one year.

1859.—The *Valley City Register*, at Dansville, by W. J. La Rue. Suspended in 1860.

### MADISON COUNTY.

1808, about.—The *Madison Freeholder*, at Peterboro', by Jonathan Bunce & Co. Soon after changed to the *Freeholder*. In 1813 changed to the *Madison County Herald* and published several years.

1808, August.—The *Pilot*, at Cazenovia, by Oran E. Baker. Suspended in August, 1823.

1817, May.—The *Gazette and Madison County Advertiser*, at Peterboro', by J. B. Johnson & Son. Removed to Morrisville in 1819 and suspended in 1822.

1817.—The *Hamilton Recorder*, at Hamilton, by Stower & Havens. In 1829 merged in the *Morrisville Observer*.

1821, January.—The *Madison Observer*, at Cazenovia, by Rice & Hale. In 1822 removed to Morrisville. In 1829 united with the *Hamilton Recorder* and called the *Observer and Recorder*. In 1835 again called the *Madison Observer*. Still published.

1823, September.—The *Republican Monitor*, at Cazenovia, by L. L. Rice. Suspended March 4, 1841.

1830, July 27.—The *Civilian*, by Lorin Dewey. Suspended in November, 1831.

1830.—The *Canastota Register*, at Canastota, by Silas Judd.

1831.—The *Student's Miscellany*, at Cazenovia, by A. Owen and L. Kidder; semi-monthly.

1832.—The *Chittenango Herald*, at Chittenango, by Isaac Lyon. Published successively as the *Chittenango Republican*, the *Phœnix*, and the *Democratic Gazette*. Suspended in 1856.

1834, February.—The *Hamilton Courier*, at Hamilton, by G. R. Waldron. In 1835 called the *Hamilton Courier and Madison County Advertiser*. Suspended in 1838.

1835, May.—The *Union Herald*, by Myrick & Clark. Suspended in 1840.

## NEW YORK—Continued.

1835.—The *De Ruyter Herald*, at De Ruyter, by C. W. Mason.

1836, September.—The *Cazenovia Democrat*, at Cazenovia, by J. W. Chubbuck & Co. Suspended in February, 1837.

1836, November.—The *Protestant Sentinel*, removed from Schenectady to De Ruyter, by J. & C. H. Maxson. In the fall of 1837 changed to the *Protestant Sentinel and Seventh-Day Baptist Journal*, and in February, 1840, to the *Seventh-Day Baptist Register*. Suspended in 1845.

1838.—The *Hamilton Palladium*, at Hamilton, by John Atwood. Published six years.

1839.—The *Hamilton Eagle*, at Hamilton, by G. R. Waldron.

1840, February.—The *Madison County Eagle*, at Cazenovia, by Cyrus O. Pool. In May, 1845, changed to the *Madison County Whig;* in October, 1853, to the *Madison County News;* and in May, 1854, again changed to the *Madison County Whig*. Suspended in January, 1857.

1841.—The *Abolitionist*, at Cazenovia, by Luther Myrick. Published two years.

1842.—The *Literary Visitor*, at Hamilton, by Dennis Redman. Published three months.

1842.—The *Democratic Reflector*, at Hamilton, by G. R. Waldron. In 1856 united with the *Madison County Journal*, and called the *Democratic Republican*. Still published.

1847, October.—The *National Banner*, at De Ruyter, by A. C. Hill. Published two years.

1848, September.—The *Central New Yorker*, at De Ruyter, by E. F. & C. B. Gould. Suspended in May, 1851.

1849, September.—The *Madison County Journal*, at Hamilton, by E. F. & C. B. Gould. Afterward published by Thomas L. James. In 1856 united with the *Democratic Reflector*.

1850, January.—The *Madison Republic*, at Cazenovia, by W. H. Phillips. Published three months.

1851, September.—The *Oneida Telegraph*, at Oneida, by D. H. Frost. In June, 1854, changed to the *Oneida Sachem*.

1851, October.—The *Cazenovia Gazette*, at Cazenovia, by Baker & Debnam. Suspended in May, 1852.

1852.—The *Circular*, at Oneida Community. Suspended 1879.

1853, April.—The *Progressive Christian*, at Cazenovia, by A. Pyrne. Published two years.

1854, May 1.—The *Cazenovia Republican*, at Cazenovia, by Seneca Lake. Still published.

1854.—The *Christian and Citizen*, at Peterboro', by Pruyn & Walker.

1854.—The *New York State Radii*, removed from Fort Plain to Hamilton, by L. S. Backus. Returned to Fort Plain in eighteen months.

1856.—The *Democratic Union*, at Hamilton, by Levi S. Backus. Now published at Oneida by Baker & Maxon.

1857.—The *Canastota Times*, at Canastota, by George H. Merriam. Suspended in 1858.

1858, November 4.—The *Canastota Eagle*, at Canastota, by J. E. N. Backus.

### MONROE COUNTY.

1816.—The *Rochester Gazette*, at Rochester, by A. G. Dauby. In 1821 name changed to the *Monroe Republican*, and in July, 1827, to the *Rochester Republican*. Now published as the weekly edition of *Daily Union and Advertiser*.

1818, July 7.—The *Rochester Telegraph*, at Rochester, by Everard, Peck & Co. In 1827 *Semi-Weekly Telegraph* published, and subsequently changed to the *Rochester Daily Telegraph*. January 1, 1829, daily united with *Daily Advertiser*, and in 1830 the weekly merged in the *Rochester Republican*.

1824.—The *True Genesee Farmer*, at Rochester, by W. A. Welles. Published a short time.

1825, October.—The *Rochester Album*, at Rochester, by Marshall, Spaulding & Hunt. In 1827 united with the *Telegraph*.

1826, October 25.—The *Rochester Daily Advertiser* (first daily west of Albany), at Rochester, by Luther Tucker & Co. January 1, 1829, united with *Daily Telegraph* and called the *Rochester Daily Advertiser and Telegraph*. In 1830 *Telegraph* dropped from title. September 1, 1856, united with *Daily Union*, and now called the *Rochester Daily Union and Advertiser*.

1827, January.—The *Rochester Mercury*, at Rochester, by Luther Tucker & Co. Issued weekly in connection with *Daily Advertiser*, and afterward merged in the *Republican*.

1827.—The *Rochester Observer*, at Rochester, by Josiah Bissell, jr. Merged in the *New York Evangelist* in 1832.

1828, January.—The *Rochester Balance*, at Rochester, by D. D. Stephenson. Soon after changed to the *Anti-Masonic Inquirer*. In 1834 merged in the *National Republican*.

1828.—The *Craftsman* (Masonic), at Rochester, by E. J. Roberts. Removed to Albany the following year.

1828.—The *Western Wanderer*, at Rochester, by Peter Cherry. Soon after changed to the Rochester *Gem*. Suspended in 1843.

1828.—The *Brockport Recorder*, at Brockport, by A. M. Harris. Published two years.

1830.—The *Jeffersonian*, at Clarkson, by ——— Balch.

1830.—The *Spirit of the Age*, at Rochester, by Ames & Barnum; semi-monthly.

1830.—The *Rochester Morning Courier*, at Rochester, by E. J. Roberts.

1831, January.—The *Genesee Farmer*, at Rochester, by Tucker & Stevens. In 1839 united with the *Cultivator*, at Albany.

1831.—The *National Republican*, at Rochester, by Sidney Smith. In 1833 the *Morning Advertiser* was issued. Soon after changed to *Evening Advertiser*. In 1834 the *Republican* was united with the *Inquirer* and called the *Monroe Democrat*, and the daily changed to the *Daily Democrat*. In December, 1857, united with daily and weekly *American* and called—the daily, the *Daily Democrat and American*, and the weekly, the *Monroe Democrat*. Now published as *Rochester Democrat and Chronicle*.

1831.—The *Brockport Free Press*, at Brockport, by Harris & Hyatt.

1832.—The *Western Star*, at Brockport, by Justin Carpenter.

1832.—The *Rochester Mirror*, at Rochester, by Scranton & Holstein.

1833.—The *Age*, at Rochester.

1833.—The *American Revivalist and Rochester Observer*, at Rochester, by N. C. Saxton.

1833.—Goodsell's *Genesee Farmer*, at Rochester, by Nahum Goodsell. Published a short time.

1833.—The *Monroe Chronicle and Brockport Advertiser*, at Brockport.

1834.—The *Rights of Man*, at Rochester, by the Anti-Slavery Society.

1834.—The *Family Journal and Christian Philanthropist*, at Rochester, by W. B. Van Brunt.

1835.—The *Atlas*, at Brockport, by D. D. Wait.

1836.—The *Monthly Genesee Farmer*, at Rochester, by Luther Tucker. Was made up from *Weekly Genesee Farmer*, and was united with *Albany Cultivator* in 1839.

1838.—The *Watchman*, at Rochester, by Delazon Smith.

1838.—McKenzie's *Gazette*, at Rochester, by A. McKenzie. Suspended in 1839.

1839.—The *Honeoye Standard*, at Honeoye Falls, by G. A. Hough.

1839.—The *Workingman's Advocate*, at Rochester, by the Typographical Association; daily. In April, 1840, sold to Vick & Frost, and changed to the *Evening Advocate*. In 1841 changed to the *Evening Post*. The *Western New Yorker*, weekly, published in connection with it. Suspended in November, 1843.

1840.—The *New Genesee Farmer*, at Rochester, M. B. Bateman, editor; monthly. Afterward changed to the *Genesee Farmer*.

1840.—The *Daily Sun*, at Rochester, by Alfred Oakley. Published a few months.

1841.—The *American Citizen*, at Rochester and Perry (Wyoming county), by W. L. Chaplin.

1842.—The *Jeffersonian*, at Rochester, by Thomas L. Nichols; daily. Published a short time.

1842.—The *Christian Guardian*, at Rochester, by Rev. J. Whitney. Published a short time.

1843.—The *Mechanics' Advocate*, at Rochester, for a short time.

## NEW YORK—Continued.

1844.—The *Brockport Watchman*, at Brockport, by E. F. Bridges.

1844.—The Rochester *Herald*, at Rochester, by E. S. Watson; daily.

1844.—The *Voice of Truth and Glad Tidings of the Kingdom at Hand* econd Advent), at Rochester, by Joseph Marsh. In 1848 changed the *Advent Harbinger*, and in 1849 to the *Advent Harbinger and Bible vocate.* Afterward changed to the *Prophetic Expositor and Bible Ad-cate.*

1844, December 23.—The *Rochester Daily American*, at Rochester, by rome & Patterson. December 1, 1857, united with *Daily Democrat* d called the *Democrat and American.*

1846.—The *Rochester Temperance Journal*, at Rochester. Published short time.

1846.—The *Genesee Evangelist*, at Rochester, by Rev. John E. Roby.

1847.—The *Christian Offering*, at Rochester, by S. B. Shaw. Pub-shed a short time.

1847.—The *Genesee Olio*, at Rochester, by Franklin Cowdery; semi-onthly.

1847.—The *North Star*, at Rochester. Suspended in 1848.

1848.—*Algemeen Handeelsblad*, at Rochester.

1848.—*Frederick Douglass's Paper*, at Rochester, by Frederick Doug-ss.

1848.—The *Washingtonian*, at Rochester, by C. H. Sedgwick.

1849.—The *Rochester Germania*, at Rochester.

1849.—The *Groninge Courant*, at Rochester. Published a few onths.

1849.—The *Christian Sentinel*, at Rochester.

1849.—Brewster's *Insurance Reporter*, at Rochester, by H. A. Brewster.

1849.—The *Rochester Daily Magnet*, at Rochester, by Lawrence & inants. Suspended in 1850.

1849, July.—The *Wool Grower and Stock Register*, at Rochester. Af-erward merged in the *Rural New Yorker.*

1850.—The *Investigator*, at Rochester. Published a short time.

1850.—The *Annunciator*, at Rochester.

1850.—The *Signet*, at Rochester, by the Young Men's Temperance ssociation.

1850.—The *Flag of Freedom*, at Rochester, by Calvin H. Chase.

1850, November.—The *Advent Review and Sabbath Herald*, by James Vhite. The *Youth's Instructor* also published. Now published at attle Creek, Michigan.

1850.—Moore's *Rural New Yorker*, at Rochester, by D. D. T. Moore. ow published at New York.

1850.—The *Rochester Daily Herald*, at Rochester. In a few months hanged to Rochester *Daily Times.* Suspended in 1851.

1852.—*Anzeiger des Nordens*, at Rochester, by Kraneer & Felix; eekly and tri-weekly.

1852, September.—The *Brockport Weekly Journal*, at Brockport, by V. Gardiner & Co. Published one year.

1852.—*Beobachter am Genesee*, at Rochester, by Adolphe Nolte. ow published as *Beobachter*, daily, and *Wochenblatt*, weekly, by the riginal publisher.

1852, August 16.—The *Rochester Daily Union*, at Rochester, by Curtis Butts. In September, 1858, united with *Daily Advertiser.* Still ublished as *Union and Advertiser.*

1855.—The *Rochester Daily Tribune*, at Rochester, by Snow & Inger-oll. Suspended in 1856.

1855, October 1.—The *Brockport Gazette*, at Brockport, by William askell. Published three months.

1856, October.—The *Daily Advertiser*, at Brockport, by W. H. Smith.

1857, January.—The *Brockport Republican*, at Brockport, by H. N. each, editor. Now published as the *Republic.*

1859, January 24.—The *Rochester Daily Times*, at Rochester, by Charles V. Hebard. Suspended in April, but revived in the following June as he *Daily Express.* Now published as the *Evening Express.*

### MONTGOMERY COUNTY.

1825.—The *Canajoharie Telegraph*, at Canajoharie, by Henry Hoogh-irk. Suspended in 1826.

1827.—The *Canajoharie Sentinel*, at Canajoharie; Samuel Caldwell, editor.

1827.—The *Canajoharie Republican*, at Canajoharie; Henry Bloomer, editor. Suspended in 1828.

1827.—The *Watch Tower*, at Fort Plain, by S. M. S. Gant. In 1830 changed to the Fort Plain *Sentinel.*

1831.—The *Montgomery Argus*, at Canajoharie, by J. McVean. Suspended in 1836.

183-.—The *Mohawk Advertiser*, at Amsterdam, by Darius Wells. In 1834 changed to the *Intelligencer and Mohawk Advertiser*, and in 1854 to the Amsterdam *Recorder.* Still published.

1833.—The *Fort Plain Gazette*, at Fort Plain, by H. L. Gras.

1833.—The *Canajoharie Investigator*, at Canajoharie, by Andrew H. Calhoun. Suspended in 1836.

1833.—The *Mohawk Gazette*, at Amsterdam, by J. A. Nooman. Published one year.

1835.—The *Fort Plain Republican*, at Fort Plain, by E. W. Gill. In 1836 succeeded by the *Tocsin*, H. Link, publisher.

1837.—The *Radii*, at Canajoharie, by Levi S. Backus, a deaf mute. In 1840 removed to Fort Plain, and in 1856 to Madison county. Subsequently returned to Canajoharie. Still published.

1837.—The *Fonda Herald*, at Fonda, by J. Reynolds, jr.

1838.—The *Fort Plain Journal*, at Fort Plain, by W. L. Fish.

1839.—The *Montgomery Whig*, at Fultonville, by F. J. Mills. In 1855 changed to the *Montgomery Republican.* Still published.

1841.—The *Montgomery Phœnix*, at Fort Plain, by L. S. Backus. In March, 1854, changed to the *Mohawk Valley Register.* Still published.

1845.—The *Fonda Sentinel*, at Fonda. In 1859 changed to the *Montgomery Democrat.* Now published as the *Mohawk Valley Democrat.*

1847.—The *Mohawk Valley Gazette*, at Canajoharie, by W. H. Riggs. Suspended in 1849.

1850.—The *Montgomery Union*, at Canajoharie, by W. S. Hawley. Suspended in 1853.

1855, April 5.—The *American Star*, at Canajoharie, by W. S. Hawley. Removed to Fonda in following May. In 1857 changed to *Mohawk Valley American;* in 1858 to the *American Star*, and afterward to the *Montgomery County Star.*

### NEW YORK. (a)

1725, October 16.—The *New York Gazette*, at New York, by William Bradford; cap sheet, 14 by 17 inches. Publication suspended in 1741.

1733, November 5.—The *New York Weekly Journal*, at New York, by John P. Zenger; cap sheet, 14 by 17 inches. Publication suspended in 1746.

1743, January.—The *New York Gazette or Weekly Post Boy* (successor to *Gazette*), at New York, by James Parker; cap sheet, 14 by 17 inches. Publication suspended in 1773.

1746, about.—The *New York Evening Post*, at New York, by Henry De Forest. Suspended publication about 1747.

1752, August 3.—The *New York Mercury*, at New York, by Hugh Gaine; crown sheet, 15 by 19 inches. Publication suspended in 1783.

1752, November 30.—The *Independent Reflector* (literary), at New York, by James Parker. Publication suspended in 1754.

1753.—The *New York Pacquet*, at New York. Published a short time.

1759, February 17.—The *New York Gazette*, at New York, by William Weyman; crown sheet, 15 by 19 inches. Publication suspended in 1767.

1761.—The *American Chronicle*, at New York, by Samuel Farley; crown sheet, 15 by 19 inches. Publication suspended about 1762.

1766, May 29.—The *New York Journal or General Advertiser*, at New York, by John Holt. Publication suspended after first number until October 9, 1766. In 1787, sold to Thomas Greenleaf, who published daily and semi-weekly, and changed the name, the daily being called the *Argus or Greenleaf's New Daily Advertiser;* and the semi-weekly *Greenleaf's New York Journal and Patriotic Register.* Sold to James Cheetham

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[a] Chronological history brought down only to the Revolution, 1776.

## NEW YORK—Continued.

about 1800, who changed the name of daily to the *American Citizen*, and the semi-weekly to the *American Watchman.* Publication of *Citizen* suspended in 1810.

1768.—The *New York Chronicle*, at New York, by A. & J. Robertson. Publication removed to Albany, where it suspended about 1772.

1773, April 22.—*Rivington's New York Gazetteer;* or, *the Connecticut, New Jersey, Hudson's River and Quebec Weekly Advertiser*, by James Rivington; medium sheet, 18 by 23 inches. Obliged to suspend publication November 27, 1775. Recommenced publishing October 4, 1777, under title of *Rivington's New York Loyal Gazette;* afterward changed to *Royal Gazette.* Publication finally suspended in 1783.

1775, August.—The *Constitutional Gazette*, at New York, by John Anderson; half crown sheet, 9½ by 15 inches. Published but a few months.

1776, January.—The *New York Packet and the American Advertiser*, at New York, by Samuel Loudon; royal sheet, 19 by 24 inches. Removed to Fishkill during the war, and afterward returned to New York and changed to a daily. Published several years.

1776.—*John Englishman, in Defence of the English Constitution*, at New York, by Parker & Weyman; cap sheet, 14 by 17 inches. Published three months.

### NIAGARA COUNTY.

1821.—The *Niagara Democrat*, at Lewiston, by Benjamin Furguson. In 1822 removed to Lockport, and called the *Lockport Observatory.* In 1828 united with the *Niagara Sentinel*, and called the *Sentinel and Observatory.* In 1828 changed to the *Lockport Journal*, and in 1829 to the *Lockport Balance.* In 1834 united with *Gazette*, and called the *Balance and Gazette.* Soon afterward changed to the *Lockport Balance.* In 1837 merged in the *Niagara Democrat.*

1823.—The *Lewiston Sentinel*, at Lewiston, by James O. Daily. Soon after removed to Lockport and called the *Niagara Sentinel.* In 1828 united with the *Lockport Observatory.*

1827, May 1.—The *Niagara Courier*, at Lockport, by M. Cadwallader.

1833.—The *Gazette*, at Lockport, by P. Baker. In 1834 united with the *Balance.*

1835.—The *Niagara Democrat*, at Lockport, by Turner & Lyon. In 1837 united with the *Balance*, and called the *Niagara Democrat and Lockport Balance.* The latter part of the title was afterward dropped. In 1858 united with the *Lockport Advertiser.* Now called the *Niagara Democrat*, and issued as weekly edition of *Daily Union.*

1836.—The *Lewiston Telegraph*, at Lewiston, by J. A. Harrison & Co. Published three years.

1837.—The *Frontier Sentinel*, at Lockport, by T. P. Scoville.

1837.—The *Niagara Falls Journal*, by Francis & Ward. Published a short time.

1838.—The *Niagara Chronicle*, at Niagara Falls, by J. Simpson.

1844.—The *Lockport Daily Courier*, at Lockport, by Crandall & Brigham; daily and weekly. In 1859 united with the *Journal*, and the daily called the *Journal and Courier*, and the weekly the *Intelligencer.* Now published as the Lockport *Journal.*

1846.—The *Niagara Cataract*, at Lockport, by R. H. Stevens. Suspended in 1851.

1846.—The *Iris*, at Niagara Falls, by G. H. Hackstaff. Suspended in 1854.

1851, July.—The *Lockport Journal*, at Lockport, by M. C. Richardson. In 1852 *Daily Journal* established. In 1859 both united with the *Courier.*

1854, February.—The *Lockport Daily Advertiser*, at Lockport, by A. S. Prentiss. June 1, 1858, united with the *Democrat*, and called the Lockport *Daily Advertiser and Democrat.*

1854, May 17.—The *Niagara Falls Gazette*, at Niagara Falls, by Pool & Sleeper. Still published.

1855, October.—The *Niagara Times*, at Niagara Falls, by W. E. Tunis. Suspended in October, 1857.

1855, October.—The *Niagara City Herald*, at Suspension Bridge, by G. H. Hackstaff.

1859, April 9.—The *Lockport Chronicle*, at Lockport, by S. S. Pomroy & Co.

### ONEIDA COUNTY.

1793, June.—The *Whitestown Gazette*, at Whitestown, by William McLean. In 1798 removed to Utica and continued as the *Whitestown Gazette and Cato's Patrol.* In 1803 merged in the *Utica Patriot*, commenced by Asahel Seward and Ira Merrill. In 1816 united with the *Patrol* (commenced in January, 1815, by Seward & Williams), and called the *Patriot and Patrol.* In 1821 name changed to the *Utica Sentinel.* In 1825 united with *Columbian Gazette*, and published as the *Sentinel and Gazette.* In 1834 changed to the *Oneida Whig*, and in 1848 merged in the *Oneida Weekly Herald.* The *Utica Daily Gazette* was established in 1842. In January, 1857, united with the *Utica Morning Herald*, and called the *Utica Morning Herald and Gazette.* Still published, daily and weekly.

1794, January.—The *Western Centinel*, at Whitestown, by Oliver P. Eaton. Published six years.

1799, August.—The *Columbian Patriotic Gazette*, at Rome, by Thomas Walker and Ebenezer Eaton. In 1803 removed to Utica and called the *Columbian Gazette.* In 1825 united with *Utica Sentinel.*

1813.—*Utica Christian Magazine*, at Utica, by the Oneida Association and Presbytery. Published three years.

1814.—The *Club*, at Utica, by H. Goodfellow & Co. Published three months.

1815.—The *Civil and Religious Intelligencer*, at Sangerfield, by J. Tenney. In 1825 changed to the *Sangerfield Intelligencer*, and in 1835 removed to Franklin Village (now Fabius), Onondaga county.

1816.—The *Utica Observer*, at Utica, by E. Dorchester. In 1818 removed to Rome, and called the *Oneida Observer.* In 1819 returned to Utica, and resumed original title. In 1848 the *Daily Observer* was issued. In 1853 united with *Democrat*, and called *Observer and Democrat.* Now published as the *Daily and Weekly Observer.*

1822.—The *Utica Christian Repository*, at Utica, by William Williams; monthly. About 1825 name changed to the *Western Recorder*, and published as such several years.

182-.—The *Baptist Register*, at Utica, by Galusha & Wiley. In 1854 united with the *New York Recorder*, at New York.

1825.—The *Universalist*, at Utica, by Thompson, Smith & Lislier; monthly. Removed to Philadelphia the following year.

1825, February.—The *Rome Republican*, at Rome, by Lorin Dewey. In 1830 united with the *Oneida Republican* (established in 1828 by J. P. Van Sice), and called the *Republican.* In 1831 changed to the *Rome Telegraph*, in 1838 to the *Democratic Sentinel*, and in 1845 to the *Rome Sentinel.* The *Rome Daily Sentinel* established in 1852 and published several years. Weekly still published.

1826.—The *Utica Intelligencer*, at Utica, by E. S. Ely. In 1831 united with the *Mechanics' Press* (established in 1829), and published a short time as the *Utica Intelligencer and Mechanics' Press.*

1826.—The *Western Sunday School Visitant and Christian Miscellany*, at Utica, by G. S. Wilson.

1827.—The *Utica Magazine*, at Utica. Soon purchased by Rev. Dolphus Skinner, and published semi-monthly as the *Evangelical Magazine.* In 1830 united with the *Gospel Advocate*, Auburn, and published weekly as the *Evangelical Magazine and Gospel Advocate.* In 1851 merged in the *Christian Ambassador.*

1828.—The *Baptist Sunday School Journal*, at Utica, by C. Bennett; monthly.

1829.—The *Elucidator*, at Utica, by B. B. Hotchkin and W. Williams. United with the *Oneida Whig* in 1834.

1830.—The *American Citizen*, at Utica, by George S. Wilson.

1830.—The *Christian Journal*, at Utica, by E. S. Barrows.

1832.—The *Co-Operator*, at Utica, by Quartus Graves; semi-monthly.

1832.—The *Lever*, at Utica, by W. S. Spear.

## NEW YORK—Continued.

1832.—*Y Cenhadwr Americanaidd* (Welsh), at Utica; monthly. In 334 removed to Remsen. Still published.

1833.—The *Oneida Democrat*, at Utica. Published two years.

1833.—The *Oneida Standard*, at Waterville. Subsequently removed Utica, and after the suspension of the *Democrat* published as the *tandard and Democrat*. October 21, 1835, type and material thrown nto the street by a mob, because of its abolition principles.

1834.—*Youth's Miscellany*, at Utica, by Bennett & Bright.

1835.—The *Gospel Messenger*, removed from Auburn by Rev. J. C. udd, and called the *Gospel Messenger and Church Record*. Afterward hanged to the *Gospel Messenger*. Now published at Syracuse.

1835.—The *Christian Visitant*, at Utica, by A. B. Grosh; monthly.

1835.—The *Talisman*, at Utica, by Bennett & Bright.

1835, July.—The *Vernon Courier*, at Vernon. In 1840 removed to ome, and called the *Roman Citizen*. Still published.

1836.—The *Utica Democrat*, at Utica, by John G. Floyd. In 1853 nited with the *Observer*.

1836.—The *Friend of Man*, at Utica, by the New York State Antilavery Society; William Goodsell, editor. In 1842 united with the *bolitionist*, of Cazenovia, and called the *Liberty Press*. Suspended in 849.

1836.—*Mothers' Monthly Journal*, at Utica, by Kingsford, Bennett & right.

1836.—The *Examiner*, at Utica, by E. Dorchester.

1837.—The *Freeman*, at Utica, by E. Dorchester.

1839.—*Anti-Slavery Lecturer*, at Utica, by William Goodell. Pubished a short time.

1840.—The *Compass*, at Verona.

1841.—*Y Cyfaill* (Welsh), removed from New York to Utica, by Rev. W. Rowlands. In 1844 returned to New York. In 1854 removed to Rome, and in 1857 to Utica. Still published.

1841.—The *Wesleyan Methodist*, at Utica, by David Plumb. Aftervard changed to *Methodist Reformer*. In 1843 merged in the *True Wesleyan*, New York.

1842, January.—The *Utica Daily News*, at Utica, by J. M. Lyon, John Arthur, C. E. Lester, and J. M. Hatch. Published seven months.

1842.—*Central New York Washingtonian*, at Utica and Rome.

1842.—The *Uticanian*, at Utica, by Squires & Saliss. Published a short time.

1842.—The *Camden Gazette*, at Camden, by Munger & Stewart.

1843.—The *American Journal of Insanity*, at Utica, by Dr. A. Brigham, of the state lunatic asylum; quarterly. Still published.

1843.—The *Washingtonian*, at Utica, by J. C. Donaldson.

1843.—*Cysell Hen Wladyn Americanaidd* (Welsh), at Utica, by E. E. Roberts.

1843.—*Young Ladies' Miscellany*, at Utica, by Bennett, Backus & Hawley.

1843.—The *Parlor Journal and Literary News-Letter of Central New York*, at Rome, by Graham & Co.; monthly.

1844.—*Seren Arllewinol* (Welsh), at Utica; monthly. In 1846 removed to Pennsylvania.

1845.—*Washingtonian News*, at Utica, by Matteson Baker.

1845.—The *Primitive Christian*, at Rome, by R. Mattison; semimonthly.

1846.—The *Clinton Signal*, at Clinton, by Paine & McDonald. In 1848 changed to the *Radiator*, and in 1849 original title resumed. In —— called *Oneida Chief*. In 1857 changed to the *Clinton Courier*. Still published.

1846.—The *Central News*, at Utica, by M. Baker.

1847.—The *Oneida Morning Herald*, at Utica, by Roberts, Sherman & Coleston. Weekly edition also published, called *Oneida Weekly Herald*. In 1857 united with *Daily Gazette*.

1847.—*Haul Gomer* (Welsh); semi-monthly. Published one year.

1848.—The *Spiritual Magazine*, at the Oneida Reserve; monthly.

1849.—The *Utica Teetotaler*, at Utica, by Wesley Bailey. In 1858 united with *Ilion Independent*, and called the *Central Independent*.

1849.—The *Central City Cadet*, at Utica, by James and Howard. In 1850 changed to the *Cadet's Banner*, and soon after suspended.

1849.—The *Oneida Mirror*, at Camden, by Edward Packard.

1850.—The *American Baptist*, at Utica, by the Free Mission Society. In 1856 removed to New York city.

1850.—The *Diamond*, at Utica; monthly. Published two months.

1850.—The *Central State Journal*, by L. W. Paine. Soon after changed to the *Central New York Journal*, and in January, 1853, to the *Vernon Transcript*. Suspended in 1856.

1851.—The *Opal*, monthly, at Utica, by the patients of the Lunatic Asylum. Published several years.

1851.—The *Mechanics' National Reporter*, at Utica. Published a short time.

1851.—The *Waterville Advertiser*, at Waterville, by R. W. Hathaway.

1851.—The *Empire State Health Journal*, at Rome.

1852, January.—The *Northern Farmer*, at Utica; monthly.

1852, May.—The *Utica Evening Telegraph*, at Utica, by T. R. McQuade. Suspended in 1868.

1852.—The *Boonville Ledger*, at Boonville, by James H. Norton. In March, 1855, changed to the *Black River Herald*. Now published as the *Boonville Herald*.

1853, January.—The *Scientific Daguerrean*, monthly, at Utica, by Davies & Evans.

1854.—*Y Gwyliedydd* (Welsh), at Utica, by a company, Morgan A. Ellis, editor. In 1856 removed to New York and united with *Y Drych*.

1854.—The *Oneida Demokrat*, at Utica, by Paul Keiser & Co.; semiweekly. Now published as the *Deutsche Zeitung*, tri-weekly

1855, January.—The *Waterville Journal*, at Waterville, by A. P. Fuller & Co. Suspended in March, 1856.

1856, January.—The *Rural American*, at Utica; semi-monthly. In 1859 changed to weekly.

1857.—The *Waterville Times*, at Waterville, by McKibbin & Wilkinson. Still published.

1858, January.—*Y Arweinydd* (Welsh), at Rome, by R. R. Meredith.

1858, July.—*Young Folks' Advocate*, at Utica; monthly.

### ONONDAGA COUNTY.

1806.—The *Derne Gazette*, at Manlius, by Abraham Romeyn. Published one year.

1808.—The *Herald of the Times*, at Manlius, by Leonard Kellogg. In 1813 name changed to the *Manlius Times;* in 1818 to the *Onondaga Herald*, and soon after to the *Times*. In 1821 again changed to the *Onondaga County Republican;* in 1824 to the *Onondaga Republican*, and subsequently to the *Manlius Repository*. Afterward purchased by L. Silson and continued five years.

1811.—The *Lynx*, at Onondaga Hollow, by Thomas C. Fay. Published two years.

1814.—The *Onondaga Register*, at Onondaga Hollow, by L. H. Redfield. In 1829 removed to Syracuse and united with the *Gazette*, and called the *Onondaga Register and Syracuse Gazette*. In 1832 changed to *Syracuse Argus* and published two years.

1816.—The *Onondaga Gazette*, at Onondaga Hill, by Evander Morse. In 1821 changed to the *Onondaga Journal*. In 1829 removed to Syracuse, united with *Syracuse Advertiser*, and published as the *Onondaga Standard*. The *Daily Standard* established in June, 1846, and published three months. Revived January 1, 1850. Still published, daily and weekly.

1823, April.—The *Onondaga Gazette*, at Syracuse, by John Durnford. In about a year changed to the *Syracuse Gazette and General Advertiser*. In 1829 united with *Onondaga Register*.

1825.—The *Syracuse Advertiser*, at Syracuse, by Wyman & Barnum. In 1829 united with the *Journal* and called the *Onondaga Standard*.

1826, October.—The *Salina Sentinel*, at Salina, by Reuben St. John. In 1827 changed to the *Salina Herald*, and continued a short time.

1829.—The *Skaneateles Telegraph*, at Skaneateles, by W. H. Child. Continued several years.

## NEW YORK—Continued.

1830.—The *Onondaga Republican*, at Syracuse, by W. S. Campbell. In 1834 changed to the *Constitutionalist;* in 1835 to the *Onondaga Chief*, and in 1837 to the *Syracuse Whig*. Suspended in 1839.

1831.—The *Courier*, at Jordan, by Fred. Prince. In 1832 removed to Salina and called the *Salina Courier and Inquirer*. Only a few numbers published.

1831.—The *Columbian*, at Skaneateles, by John Greves. Suspended in 1853.

1832.—The *Citizen's Press*, at Onondaga Hollow, by Webb & Castle.

1833.—The *Friendly Visitant*, a child's paper, by Joseph Talcott. In 1837 changed to the *Child's Companion*, and continued several months.

1835.—The *Syracuse American*, at Syracuse, by John Adams. Published one year.

1836.—The *American Patriot*, at Franklin village (now Fabius), by J. Tenney. Published several months.

1836.—The *Fayetteville Times*, at Fayetteville, by H. W. De Puy.

1838.—The *Juvenile Repository*, at Skaneateles, by Luther Pratt. In 1840 removed to New York, and soon after discontinued.

1839.—The *Western State Journal*, at Syracuse, by V. W. & S. F. Smith. In 1844 name changed to the *Syracuse Weekly Journal*. The *Daily Journal* was established July 4, 1844, by S. F. Smith. Still published daily and weekly.

1840.—The *Empire State Democrat and United States Review*, at Syracuse, by Hiram Cummings. Published three years.

1840.—The *Skaneateles Democrat*, at Skaneateles, by W. M. Beauchamp. Still published.

1841.—The *Acorn*, at Skaneateles, by Mr. Talcott. Published two or three years.

1841.—The *Onondaga Messenger*, at Syracuse, by Joseph Barber. In 1842 changed to the *Syracusean* and published one year.

1843, January.—The *Morning Sentinel*, at Syracuse, by N. M. D. Lathrop. In 1844 changed to the *Onondaga Sentinel*, weekly. Suspended in 1850.

1844.—The *Democratic Freeman*, at Syracuse, by J. N. T. Tucker. Subsequently changed to the *Syracuse Star*, and in October, 1853, to the *Syracuse Republican*. The *Syracuse Daily Star* was established in 1846. In 1853 changed to *Daily Republican*. Daily and weekly suspended in 1854.

1844.—The *Baldwinsville Republican*, at Baldwinsville, by Samuel B. West. In October, 1846, changed to the *Onondaga Gazette*. Now published as the *Gazette*.

1844, November 27.—The *Communatist*, at Mottville, by John A. Collins, as the organ of the Skaneateles Community. Published one year.

1844.—The *Religious Recorder* (Presbyterian), at Syracuse, by Terry & Platt. Suspended in 1853.

1845.—The *Liberty Intelligencer*, by Silas Hawley. Published one year.

1846.—The *Teachers' Advocate*, at Syracuse, by L. W. Hall. In 1848 removed to New York.

1846.—The *Onondaga Democrat*, at Syracuse, by Clark & West. In 1847 changed to the *Syracuse Democrat*, and in 1848 merged in the *Onondaga Standard*.

1847.—The *District School Journal*, removed from Albany to Syracuse. Published three years and returned to Albany.

1848.—The *Syracuse Reveille*, at Syracuse, by Palmer & Summers; daily. Suspended January 1, 1850.

1848.—The *Impartial Citizen*, at Syracuse, by Samuel R. Ward. Published one year.

1848.—The *Crystal Fountain*, at Syracuse, by A. B. F. Ormsby. Published three months.

1849.—The *Jordan Tribune*, at Jordan, by J. P. Becker. In 1853 changed to the *Jordan Transcript*.

1849.—The *Adventist*, at Syracuse, by L. D. Mansfield. Published three months.

1849.—The *Literary Union*, at Syracuse, by Newman, Winchell & Johonnot. Published eighteen months.

1849.—The *Liberty Party Paper*, at Syracuse, by John Thomas. Published two years.

1849.—The *Central City*, at Syracuse, by Henry Barnes; daily. Published a short time.

1850.—The *Syracusean*, at Syracuse, by W. H. Moseley; monthly. In 1851 changed to the *Syracusean and United States Review*, and in 1856 to the *Syracusean and Onondaga County Review*.

1850.—The *Syracuse Independent*, at Syracuse. Published three months.

1850.—The *Evening Transcript*, at Syracuse, by W. Van Zandt. Published two months.

1850.—The *Archimedian*, at Syracuse, by B. F. Sleeper. Suspended in 1851.

1850.—The *Central New Yorker*, at Syracuse, by L. P. Rising. Published a short time.

1850.—The *Family Companion*, at Syracuse; monthly. Published a short time.

1850.—The *Temperance Protector*, at Syracuse, by W. H. Burleigh; semi-monthly. Published two years.

1851.—The *Corson League*, at Syracuse, by Thomas L. Carson. Removed to Albany in 1853.

1851, January.—The *American Medical and Surgical Journal*, by Potter & Russell; monthly. Suspended in 1856.

1851.—The *Journal of Health*, at Syracuse, by S. H. Potter.

1852, September.—The *Onondaga Demokrat* (German), at Syracuse, by George Saul. In October, 1856, changed to the *Syracuse Democrat*.

1852.—The *Deutsche Republican* (German), at Syracuse. Published a short time.

1852.—The *Free Democrat*, at Syracuse, by J. E. Masters. In February, 1853, changed to the *Syracuse Chronicle*. In February, 1856, office burned and paper merged in the *Journal*. The *Evening Chronicle*, daily, published during existence of weekly of that name.

1852.—The *Seraph's Advocate*, at Syracuse, by Miss K. E. Prescott; monthly. Published one year.

1854, January.—The *Evangelical Pulpit*, at Syracuse, by Rev. Luther Lee. Published two years.

1855.—The *Home Circle*, at Syracuse, by L. W. Hall. Published one year.

1855.—The *American Organ*, at Syracuse, by Way & Minier; daily. Published about a year.

1855, August 15.—The *Syracuse Zeitung* (German), at Syracuse, by Otto Reventlow.

1856.—The *Syracuse Daily News*, at Syracuse, by C. B. Gould. Published a short time.

1856, October 1.—The *Syracuse Weekly Courier*, at Syracuse, by F. L. Hagadorn. In November, 1858, changed to the *Onondaga Courier*. The *Syracuse Daily Courier* established at the same time. Both still published.

1858, January 1.—The *Wesleyan*, removed from New York to Syracuse, by Rev. L. E. Matlock. Now published as the *American Wesleyan*.

1858, July 2.—The *Syracuse Central Demokrat* (German), at Syracuse, by Joseph A. Hofman. Still published.

1858, August.—The *State League*, at Syracuse, by T. L. Carson.

### ONTARIO COUNTY.

1797, April.—The *Ontario Gazette and Genesee Advertiser*, at Geneva, by Lucius Carey. Removed to Canandaigua in 1799. In 1802 name changed to the *Western Repository and Genesee Advertiser;* in 1803 to the *Western Repository*, and in 1808 to the *Ontario Repository*. In February, 1856, office burned and paper suspended, but in following May revived as the *National New Yorker and Ontario Repository*. Now published as the *Ontario Repository and Messenger*.

1800.—The *Impartial American or Seneca Museum*, at Geneva, by Ebenezer Eaton.

1803.—The *Ontario Freeman*, at Canandaigua, by Isaac Tiffany. In 1806 changed to the *Ontario Messenger*. After 1860 consolidated with the *Ontario Repository*, and still published.

## NEW YORK—Continued.

1806, November 19.—The *Expositor*, at Geneva, by James Bogert. n 1809 changed to the *Geneva Gazette.* Still published.

1816.—The *Geneva Palladium*, at Geneva, by Young & Crosby. Sus-ended in 1828.

1824.—The *Republican*, at Canandaigua, by A. N. Phelps.

1827.—The *Ontario Phœnix*, at Canandaigua, by W. W. Phelps. oon after changed to the *Freeman.* In 1836 united with the *Repos-ory.*

1828.—The *Geneva Chronicle*, at Geneva, by ——— Jackson. Pub-shed two years.

1830.—The *Geneva American*, at Geneva, by Franklin Cowdery.

1830.—The *Geneva Courier*, at Geneva, by John C. Merrill. Still ublished.

1831.—The *Geneva American*, at Geneva, by T. C. Strong.

1831.—The *Vienna Republican*, at Vienna (now Phelps), by Lowre & ilmer. In 1834 changed to the *Phelps Journal*, and soon after to the *helps Journal and Vienna Advertiser;* in 1838 to the *Phelps Democrat;* n 1845 to the *Western Atlas*, and in 1856 to the *Ontario Free Press.* ow published as the *Phelps Citizen.*

1832.—The *Naples Free Press*, at Naples, by Waterman & Coleman. ublished two years.

1834.—The *Herald of Truth* (Universalist), at Geneva, by Prescott & hase. In 1837 removed to Rochester.

1840.—The *District School Journal*, at Geneva, by Francis Dwight; onthly. Removed to Albany in 1841.

1840.—The *Neapolitan*, at Naples, by David Fairchild. In 1845 hanged to the *Naples Visitor*, and soon after discontinued.

1842.—The *Village Record*, at Naples.

1848.—The *New York State Intelligencer*, at Geneva.

1850.—The *Ontario Whig*, at Geneva, by W. C. Busted; semi-weekly. uspended in 1852.

1851.—The *Seminarian*, at Canandaigua; monthly.

1851.—The *Geneva Independent and Freeman's Gazette*, at Geneva, by V. K. Fowle. In 1857 changed to the *Geneva Ledger.*

1852.—The *Geneva Budget*, at Geneva, by Sproul & Tanner. Sus-ended in 1852.

1852.—The *Ontario County Times*, at Canandaigua, by N. J. Milliken. n 1855 changed to the *Ontario Times.* Still published.

1858, September 3.—The *Phelps New Democratic Star*, at Phelps, by . N. Phelps.

### ORANGE COUNTY.

1788.—The *Goshen Repository*, at Goshen, by David Mandeville. n 1800 changed to the *Orange County Patriot;* in 1801 or 1802 to the *riend of Truth*, and in 1804 to the *Orange Eagle.* Soon after office urned and paper discontinued.

1795.—The *Newburgh Packet*, at Newburgh, by Lucius Carey. Pub-shed several years.

1796, September 22.—The *Mirror*, at Newburgh, by P. Van Horne. n 1803 merged in the *Recorder of the Times*, published by Dennis oles. In 1806 changed to the *Political Index;* in 1829 to the *Orange elegraph*, and soon after to the *Newburgh Telegraph.*

1797.—The *New Windsor Gazette*, at New Windsor, by Jacob Schultz. n 1799 removed to Newburgh, and called the *Orange County Gazette.* In 803 changed to the *Citizen*, and soon after merged in the *Rights of an* (established at Newburgh in 1799, by Elias Winfield). Suspended 1809 or 1810.

1805.—The *Orange County Gazette*, at Goshen, by Hurton & Denton. 1813 changed to the *Independent Republican*, and removed to Mont-omery. Afterward returned to Goshen. Still published.

1806.—The *Orange County Republican*, at Ward's Bridge.

1808.—The *Orange County Patriot and Spirit of '76*, at Goshen, by abriel Denton. In 1818 changed to the *Orange County Patriot;* in 22 to the *Goshen Democrat;* in 1845 united with *True Whig*, and lled the *Goshen Democrat and Whig.* The *Whig* was afterward ropped from the title. Still published.

1822.—The *Newburgh Gazette*, at Newburgh, by J. D. Spaulding. spended after 1860.

1824.—The *Evangelical Witness*, at Newburgh, by Rev. J. R. Wilson; monthly. Published a short time.

1826.—The *Orange County Farmer*, at Goshen, by Samuel Williams. Afterward removed to Montgomery, and soon after suspended.

1828.—The *Beacon*, at Newburgh, by ——— Beebe.

1830.—*Journal of the American Association*, at West Point; monthly.

1831.—The *Orange Herald*, at Slate Hill, in Wawayanda, by John G. Wallace.

1831, June.—The *Republican Banner*, at Walden. Published several years.

1832.—The *Signs of the Times*, at New Vernon, by Gilbert Beebe; semi-monthly. In 1847 removed to Middletown. Still published.

1832.—The *Tablets of Rural Economy*, at Newburgh, by J. W. Risevels.

1833.—The *Sentinel*, at Minisink (now Wawayanda), by Peter K. Allen.

1833.—The *Newburgh Journal*, at Newburgh, by J. D. Spaulding. Afterward changed to the *Highland Courier.* Now published as the *Newburgh Journal*, daily and weekly.

1836.—The *Reformed Presbyterian*, at Newburgh, by Rev. Moses Roney. In a short time removed to Pittsburgh, Pennsylvania.

1839.—The *Family Visitor*, at Newburgh, by D. L. Proudfit. Published a short time.

1840, April.—The *Middletown Courier*, at Middletown, by A. A. Bensel. In 1846 removed to Kingston, and called the *Ulster Democrat.*

1842, August 5.—The *True Whig*, at Goshen, by R. C. S. Hendries. In 1845 merged in the *Goshen Democrat.*

1843.—The *Democratic Standard*, at Goshen, by Vait & Donovan. In 1844 changed to the *Goshen Clarion.* Suspended in 1849.

1845.—The *Christian Instructor*, at Newburgh, by D. L. Proudfit. In a short time removed to Philadelphia.

1846, July.—The *Orange County News*, at Goshen, by J. L. Brown. Suspended in 1849.

1848, August.—The *Banner of Liberty*, at Middletown, by G. A. Beebe. Suspended after 1860.

1849, August.—*Freedom's Guard*, at Middletown, by W. L. Beebe.

1849.—The *Newburgh Excelsior*, at Newburgh, by Thomas George. In 1851 merged in the *Newburgh Telegraph.*

1851, November 7.—The *States Union*, at Port Jervis, by J. J. Minford.

1851.—The *Mirror of Temperance*, at Port Jervis, by J. L. Barlow. Suspended in 1855.

1851, November 26.—The *Whig Press*, at Middletown, by J. W. Hasbrouck. Now published as the *Press*, daily and weekly.

1852.—The *Separate American*, at Middletown, Rev. David James, editor. Suspended in 1856.

1855.—The *Sentinel*, at Port Jervis, by John Williams. In June of the same year removed to Susquehanna, Pennsylvania.

1855.—The *Literary Scrap-Book*, at Newburgh, by R. Denton; monthly.

1855, August.—The *Hardware Man's Newspaper*, at Middletown, by John Williams; monthly.

1855.—The *Newburgh American*, at Newburgh, by R. P. L. Shafer & Co. Soon after discontinued.

1855.—The *Catholic Library*, at Newburgh, by John Ashurst; monthly.

1856.—The *Newburgh Times*, at Newburgh, by R. B. Hancock.

1856.—The *Daily News*, at Newburgh, by E. W. Gray.

1856.—The *Catholic Literary Magazine*, at Newburgh.

1856, July.—The *Sibyl*, at Middletown, by Mrs. Dr. L. S. Hasbrouck; semi-monthly.

1859, April.—The *Iron Age*, at Middletown, by John Williams; monthly.

### ORLEANS COUNTY.

1822.—The *Gazette*, at Gaines, by Seymour Tracy. Published four years.

1824, February 9.—The *Newport Patriot*, at Newport (now Albion), by Franklin Cowdery. In February, 1825, changed to the *Orleans*

## NEW YORK—Continued.

*Advocate;* in 1828 to the *Orleans Advocate and Anti-Masonic Telegraph;* in 1829 to the *Orleans Anti-Masonic Telegraph*, and later to the *Orleans Telegraph;* soon after to the *American Standard*, and in 1832 to the *Orleans American.*

1827, July.—The *Orleans Whig*, at Gaines, by John Fisk. Published several years.

1829, October.—The *Orleans Republican*, at Albion, by C. S. McConnell. Still published.

1832.—The *Medina Herald*, at Medina, by Daniel P. Adams. Published two or three years.

1837, August.—The *Medina Sentinel*, at Medina, by J. & J. H. Denio. In 1838 changed to the *Orleans Sentinel.* Suspended in May, 1842.

1840.—The *Bucktail*, at Medina, by S. M. Burroughs. Subsequently changed to the *Medina Democrat*, and continued two or three years.

1850.—The *Medina Citizen*, at Medina, by H. A. Smith. In 1852 changed to the *Medina Tribune.* Still published.

1853, October 23.—The *Albion Times*, at Albion, by J. O. Nickerson. In 1855 changed to the *Spirit of Seventy-Six.* Suspended in 1858.

1858.—The *People's Journal*, at Medina, by J. W. Swan. Published a short time.

### OSWEGO COUNTY.

1807, prior to.—The *American Farmer*, at Oswego.

1817.—The *Oswego Gazette*, at Oswego, by A. Buckingham. Published two years.

1819.—The *Oswego Palladium*, at Oswego, by Lord & Abbey. *Republican Chronicle* added to title in 1830, but dropped in 1845. The *Daily Palladium* established in 1850. Still published, daily and weekly.

1825.—The *Oswego Republican*, at Oswego, by W. W. Abbey. In 1827 changed to the *Oswego Gazette and Advertiser;* in 1828 to the *Oswego Advertiser;* in 1829 to the *Freeman's Herald.* In 1830 suspended, but revived in 1832 as the *National Republican.* Suspended in 1833.

1830.—The *Oswego Democratic Gazette*, at Oswego, by James Cochran. Published a short time.

1830.—The *Oswego Free Press*, at Oswego, by R. Oliphant. In 1834 changed to the *Oswego Democrat.* Suspended in 1835.

1830.—The *Pulaski Banner*, at Pulaski, by Nathan Randall. In 1834 suspended, but in 1836 appeared as the *Pulaski Advocate.* In 1838 united with *Port Ontario Aurora*, and called the *Advocate and Aurora.* Suspended in 1842.

1835, February.—The *Oswego Observer*, at Oswego, by Bailey & Hawks. Suspended in 1836.

1837.—The *Commercial Herald*, at Oswego, by Hull & Henry. Suspended in 1843.

1837, November.—The *Fulton Chronicle*, at Fulton, by Thomas Johnson. In 1840 changed to *Ben. Franklin.* Succeeded in 1841 by the *Weekly Despatch.* Suspended in 1842.

1837.—The *Port Ontario Aurora*, at Port Ontario, by ——— Van Cleve. In 1839 united with the *Pulaski Advocate.*

1838.—The *Oswego County Democrat*, at Mexico, by Thomas Messenger. Afterward called the *Messenger.* Suspended in 1839.

1838.—The *Oswego Patriot*, at Oswego, by John Bonner. Suspended in 1839.

1838.—The *Oswego County Whig*, at Oswego, by Richard Oliphant. In 1847 changed to the *Oswego Commercial Times.* In 1854 united with *Oswego Journal*, and called the *Weekly Times and Journal.* In 1857 changed to the *Oswego Times.* Still published, daily and weekly.

1841.—The *Fulton Sun*, at Fulton, by N. P. Northrop. In 1842 united with the *Mirror.*

1842, August 20.—The *Fulton Mirror*, at Fulton, by Daniel Ayer. Soon after united with the *Sun*, and called the *Fulton Sun and Mirror.* Succeeded in 1844 by *Fulton Patriot.* Still published.

1843.—The *Pulaski Courier*, at Pulaski, by W. Winans. In 1847 changed to the *Richland Courier*, and in 1850 to the *Pulaski Democrat.* Still published.

1845.—The *Oswego Daily Advertiser*, issued in connection with the *Whig.* In 1847 changed to the *Daily Commercial Times*, and in 1857 to the *Daily Times.* Still published.

1849, March.—The *People's Journal*, at Oswego, by O'Leary & Dean. The *Daily News* established in connection with it in 1851. Daily changed to *Journal* in 1852. Merged with the *Times* in 1854.

1851.—The *Phœnix Gazette*, at Phœnix, by Jerome Duke. In 1853 removed to Fulton.

1852.—The *Phœnix Democrat*, at Phœnix, by an association. In 1854 sold to James H. Field, and in 1855 changed to the *Phœnix Banner.* In 1855 published a short time as the *American Banner and Oswego County Times.* Suspended in 1855, and in 1856 revived as the *American Banner and Literary Gem.* In 1857 changed to the *Phœnix Reporter.*

1853.—The *Oswego County Gazette*, at Fulton, by G. E. Williams. In 1858 merged with the *Patriot.*

### OTSEGO COUNTY.

1795, April 3.—The *Otsego Herald and Western Advertiser*, at Cooperstown, by Elihu Phinney. Publication suspended in 1821.

1808.—The *Impartial Observer*, at Cooperstown, by William Andrews. Soon after changed to the *Cooperstown Federalist*, and in 1828 to the *Freeman's Journal.* Still published.

1812.—The *Otsego Republican*, at Cherry Valley, by Clark & Crandall.

1813.—The *Watch Tower*, at Cherry Valley. In 1814 removed to Cooperstown. Suspended in 1831.

1818, October.—The *Cherry Valley Gazette*, at Cherry Valley, by William McLean. In 1853-'54 published a year as the *American Banner.* Now published as the *Gazette.*

1828.—The *Tocsin*, at Cooperstown, by Dutton & Hews. In 1831 changed to the *Otsego Republican.* In October, 1855, united with the *Otsego Democrat*, and called the *Republican and Democrat.* Now published as the *Otsego Republican.*

1840, September.—The *Susquehanna News*, at Unadilla, by E. A. Graves. In 1841 changed to the *Unadilla News*, and soon after suspended.

1841.—The *Otsego Farmer*, at Cherry Valley.

1843, March.—The *Weekly Courier*, at Unadilla, by E. S. Jennings.

1845.—The *Otsego County Courier*, at Louisville, by W. H. S. Wynans. Succeeded by the *Village Advertiser* in 1851.

1845, March.—The *Unadilla Weekly Herald*, at Unadilla, by W. S. Hawley. Soon after changed to the *Otsego County Herald.* Removed the same year to Delhi, Delaware county, and called the *Voice of the People.*

1846.—The *Otsego Democrat*, at Cooperstown, by James I. Hendrix. Merged with the *Republican* in 1855.

1853, February 9.—The *Oneonta Herald*, at Oneonta, by L. P. Carpenter. Now published as *Herald and Democrat.*

1854.—The *Otsego Examiner*, at Cooperstown, by R. Shankland. Suspended in 1857.

1856, June.—The *Unadilla Times*, at Unadilla, by John Brown. Still published.

### PUTNAM COUNTY.

1814.—The *Putnam County Courier*, at Carmel. Successively published as the *Putnam Republican*, the *Putnam Democrat*, and the *Democratic Courier.* In 1852 changed to the *Putnam County Courier.* Still published.

1858, June 12.—The *Putnam Free Press*, at Carmel, by W. J. Blake. Now published as the *Putnam Republican.*

### QUEENS COUNTY.

——.—The *Long Island Farmer*, at Jamaica, by H. C. Sleight. Still published.

1830, May.—The *Long Island Telegraph and General Advertiser*, at Hempstead, by Hutchinson & Le Fevre. In November, 1831, changed to the *Hempstead Inquirer.* Still published.

1832.—The *Union Hall Gazette*, at Jamaica, by L. Booth; semi-monthly.

## NEW YORK—Continued.

835, May 1.—The *Long Island Democrat*, at Jamaica, by J. J. Brenton. ll published by the founder.

840.—The *Church Record*, at Flushing. Published three and a half rs.

842, March 19.—The *Flushing Journal*, at Flushing, by C. R. Lin-n. Now published daily and weekly.

843.—The *Journal and Messenger*, at Jamaica, by S. V. Berry.

846, December.—The *North Hempstead Gazette*, at Manhasset Val-. In 1850 removed to Roslyn, and called the *Plain Dealer*. Sub-quently removed to Glen Cove, and suspended in 1855.

1848.—The *Flushing Pomologist*, at Flushing, by W. R. Prince.

1852.—The *Public Voice*, at Flushing. In 1855 changed to the *Long and Times*. Now published daily and weekly.

1853.—The *Woodhaven Advertiser*, at Woodhaven. Published a short ne.

1853.—The *Astoria Gazette*, at Astoria, by W. L. S. Harrison. Pub-hed eighteen months.

1854.—The *Glen Cove Sentinel*, at Glen Cove, by Bright & Perry.

1857, May.—The *Glen Cove Gazette*, at Glen Cove, by E. M. Lincoln. ill published.

1858, May.—The *Queens County Sentinel*, at Hempstead, by J. H. entz. Still published.

### RENSSELAER COUNTY.

1787, May 15.—The *Northern Centinel and Lansingburgh Advertiser*, at nsingburgh, by Claxton & Babcock. Subsequently removed to lbany.

1796.—The *Farmers' Oracle*, at Troy, by Luther Pratt. Published short time.

1798.—The *Northern Budget*, at Troy, by R. Moffit and Col. Wells. till published.

1798.—The *Lansingburgh Gazette*, at Lansingburgh. Afterward pub-shed as the *Rensselaer County Gazette*. Now published as the *Gazette*.

1798.—The *Farmer's Register*, at Lansingburgh, by Francis Adan-urt. Afterward removed to Troy, and suspended in 1832.

1802.—The *Troy Gazette*, at Troy, by Thomas Collier. Suspended efore 1818.

1812.—The *Troy Post*, at Troy, by Parker & Bliss. In 1823 changed *Troy Sentinel*. Suspended in 1833. From May 1, 1830, to August, 331, a daily edition was issued.

1825.—The *Evangelical Restorationist*, at Troy, by Dolphus Skinner; mi-monthly.

1826, January 4.—The *Troy Review, or Religious and Musical Reposi-ry*, at Troy. Published two years.

1828.—The *Evangelical Repository* (Universalist), at Troy.

1828.—The *Troy Republican*, at Troy, by Austin & Wellington. Sus-ended in 1829.

1831.—The *Northern Watchman*, at Troy, by E. Wellington. In 1832 lled the *Troy Watchman*. Continued one or two years.

1831.—The *Gospel Anchor* (Universalist), at Troy, by J. M. Austin. uspended in 1834.

1832.—The *Troy Press*, at Troy, by Yates & Richards. Suspended 1834. Daily edition issued in 1833.

1834.—The *Troy Whig*, at Troy, by J. M. Stevenson; daily and eekly. Now published as the *Telegram and Whig*.

1834.—The *Troy Statesman*, at Troy, by T. J. Sutherland.

1834.—The *Botanic Advocate*, at Troy, by Russell Buckley.

1835.—The *Trojan*, at Troy; daily. Published several months.

1836.—The *State Journal*, at Troy, by Richards & Mastin. Suspended 1837.

1837.—The *New York State Journal*, at Troy, by T. Haxtun.

1837.—The *Troy Daily Mail*, at Troy, by Wellington & Nafew. Sus-ended in 1841.

1838.—The *Lansingburgh Democrat*, at Lansingburgh, by W. J. amb. Suspended after 1860.

1841.—The *Golden Rule*, at Lansingburgh, by Rev. R. W. Smith. ublished several years.

1841, December.—The *Troy Daily Bulletin*, at Troy, by R. Thompson.

1843.—The *Troy Daily Herald*, at Troy, by J. D. Ayers.

1843.—The *Troy Temperance Mirror*, at Troy, by Bardwell & Kneeland.

1844.—The *Lutheran Herald*, at West Sand Lake, by H. L. Dox; semi-monthly.

1844.—The *Family Journal*, at Troy, by Fisk & Co. In 1848 changed to the *New York Family Journal*.

184-.—The *Troy Post*, at Troy, by Alexander McCall. In 1845 changed to the *Troy Traveler*, daily and weekly.

1845.—The *Trojan*, at Troy. Published several years.

1845, September 1.—The *Juvenile Pearl*, at Lansingburgh, by Rev. J. A. Pitman.

1846.—The *Rensselaer County Temperance Advocate*, at Troy, by S. Spicer.

1846.—The *Daily Telegraph*, at Troy.

1846.—The *Journal of Temperance*, at Troy, by W. Hager.

1847.—The *National Watchman*, at Troy, by Allen & Garnet.

1850, December.—The *Nassau Gazette*, at Nassau, by J. M. Geer.

1851.—The *Troy Daily Times*, at Troy, by J. M. Francis. Still published, daily and weekly.

1851.—*La Ruche Canadienne*, at Troy, by Dorian & Mathiot.

1856, August.—The *Greenbush Guardian*, at Greenbush, by A. J. Goodrich.

### RICHMOND COUNTY.

1828.—The *Richmond Republican*, at Tompkinsville, by C. N. Baldwin. Published two years.

1833.—The *Richmond County Free Press*, at Richmond, by William Hagadom. Published three years.

1840.—The *Staten Islander*, at Stapleton, by F. L. Hagadom.

1855.—The *Deutsche Staten Islander*, at Stapleton, by August Fries.

1859, February 12.—The *Richmond County Gazette*, at Stapleton, by W. C. Anderson. Still published.

### ROCKLAND COUNTY.

1812.—The *Palladium*, at Warren, by Ezekiel Burroughs. Published a short time.

1828.—The *Rockland Register*, at Warren, by E. Burroughs. In 1830 changed to the *Rockland Gazette*, and in 1834 united with the *Advertiser*.

1833, May.—The *Rockland Advertiser*, at Warren, by John Douglas. In 1834 united with the *Gazette* under the name of the *Rockland Advertiser and Family Gazette*. In 1843 changed to the *Rockland News and General Advertiser*.

1834.—The *North River Times*, at Warren, by A. H. Wells. Published a short time.

1838.—The *Mirror*, at Warren. Published a short time.

1846.—The *Rockland County Messenger*, at Warren (Haverstraw), by R. Marshall. Still published.

1850, July.—The *Rockland County Journal*, at Nyack, by W. G. Haeselbarth. Still published.

### SAINT LAWRENCE COUNTY.

1810.—The *Palladium*, at Ogdensburg, by Kip & Strong. Suspended in 1814.

1815.—The *Saint Lawrence Gazette*, at Ogdensburg, by Strachan & Fairchild. In 1830 united with the *Saint Lawrence Republican*, removed to Ogdensburg from Canton. Now published as weekly edition of *Daily Journal*.

1816.—The *Potsdam Gazette*, at Potsdam, by F. C. Powell. Suspended in April, 1823.

1824, January.—The *Potsdam American*, at Potsdam, by F. C. Powell. Published as the *Herald* from May to August, 1829.

1826.—The *Saint Lawrence Republican*, at Potsdam, by W. H. Wyman. Removed to Canton in 1827, and called the *Canton Advertiser and Saint Lawrence Republican*. In 1830 removed to Ogdensburg.

## NEW YORK—Continued.

1827.—The *Daily Star*, at Potsdam, by J. Wallace. Published six months.

1831, July 7.—The *Northern Light*, at Ogdensburg, by W. B. Rogers. In 1834 changed to the *Times;* in 1837 to the *Times and Advertiser;* in 1844 to the *Frontier Sentinel*, and in 1847 to the *Ogdensburg Sentinel.* In 1858 merged in the *Daily Journal.*

1832.—The *Northern Telegraph*, at Canton, by C. C. Bill. Afterward changed to the *Canton Democrat*, and published a short time.

183–, April.—The *Patriot*, at Potsdam, by William Hughes. Published one year.

1834, July.—The *Luminary of the North*, at Canton. Published a short time.

1840, September.—The *Saint Lawrence Democrat*, at Canton, by E. A. Barber. Published two years.

1843, January.—The *Northern Cabinet and Literary Repository*, at Canton, by Charles Boynton; semi-monthly. In 1845 removed to Potsdam.

1844.—The *Engineer*, at Canton, by C. Boynton.

1845.—The *Northern Cabinet* removed from Canton to Potsdam. The *Repository* issued from same office in 1846. The latter changed to the *Saint Lawrence Mercury* in 1848. In 1851 changed to *Saint Lawrence Journal.* In 1852 united with the *Courier.*

1848.—The *Ogdensburg Forum*, at Ogdensburg, by A. Tyler. Suspended in 1851.

1848, April.—The *Daily Sentinel*, at Ogdensburg, by S. Foote. Published five months.

1849, April.—The *Northern New Yorker*, at Gouverneur, by Goodrich & Wilson. Published about a year.

1850.—The *True Democrat*, at Madrid, by Wilson & Ray. In 1852 changed to the *Columbian Independent.* In 1853 removed to Canton, and called *Canton Independent.*

1850.—The *Saint Lawrence Advertiser*, at Gouverneur. Published a short time.

1851.—The *Potsdam Courier*, at Potsdam, by V. Harrington. In July, 1852, united with *Journal*, and called the *Courier and Journal.* Now published as *Courier and Freeman.*

1852, July.—The *Laborer*, at Gouverneur, by M. Mitchell. Succeeded by the *Saint Lawrence Free Press* in 1853. Removed to Ogdensburg in 1854, and united with the *Sentinel.*

1855.—The *Saint Lawrence Plain Dealer*, at Canton, by Goodrich & Remington. Still published.

1855, June.—The *Progressive Age*, at Gouverneur, by G. D. Greenfield. Removed to Potsdam in 1856, and called the *Northern Freeman.* Now published as *Courier and Freeman.*

1856.—The *Evangelical Herald*, at Potsdam, by J. A. Livingston; monthly.

### SARATOGA COUNTY.

1801.—The *Waterford Gazette*, at Waterford, by H. L. Wadsworth. Suspended after 1816.

1804.—The *Saratoga Advertiser*, at Ballston, by S. B. Brown. Soon after changed to the *Aurora Borealis and Saratoga Advertiser;* in 1810 changed to the *Advertiser*, and continued several years.

1808, September 27.—The *Independent American*, at Ballston, by William Child. In 1818 changed to the *People's Watch Tower;* in 1820 to the *Saratoga Farmer;* in 1821 to the *Ballston Spa Gazette and Saratoga Farmer;* in 1822 to the *Ballston Spa Gazette;* in 1847 to the *Ballston Democratic Whig Journal*, and in 1848 to the *Ballston Journal.* Still published.

1810.—The *Saratoga Gazette*, at Saratoga Springs.

181–.—The *Saratoga Patriot*, at Saratoga. In 1812 removed to Albany.

1818.—The *Saratoga Courier*, at Ballston, by W. F. Doubleday.

1819.—The *Saratoga Sentinel*, at Saratoga, by G. M. Davidson. In 1845 merged into the *Republican.*

1822.—The *Waterford Reporter*, at Waterford, by W. L. Fisk.

1830.—The *Anti-Masonic Recorder*, at Waterford, by J. C. Johnson.

1831.—The *Saratoga Recorder and Anti-Masonic Democrat*, at Ballston, by D. Tehan.

1830.—The *New York Palladium*, at Ballston, by A. Warren.

1832.—The *Schenectady and Saratoga Standard*, at Ballston, by Israel Sackett. Suspended in 1833.

1832, December 1.—The *Waterford Atlas*, at Waterford, by W. Holland & Co. In 1834 changed to the *Waterford Atlas and Manufacturers', Mechanics', and Farmers' Journal.* Soon after discontinued.

1839.—The *Saratoga Whig*, at Saratoga, by Huling & Watts. In 1851 changed to the *Saratoga County Press.* A daily edition established in 1844.

1840.—The *Democratic Champion*, at Waterford, by H. Wilbur.

1842.—The *Daily Sentinel*, at Saratoga, by Wilbur & Palmer. Issued two years—1855–1857—as the *Daily Post.* In 1859 merged in the *Republican.*

1843.—The *Ballston Democrat*, at Ballston, by Newell Hine. In 1853 united with the *Northern Mirror* as the *Ballston Democrat and Mirror.* Afterward changed to the *Ballston Atlas.*

1844.—The *Republican*, at Saratoga, by J. A. Corey; daily and weekly. January 1, 1859, united with the *Republican*, and called the *Republican and Sentinel.*

1844.—The *Schuylerville Herald*, at Schuylerville, by J. L. Cramer.

1845.—The *Stillwater Gazette*, at Stillwater, by I. A. Pitman. Published three years.

1845.—The *Cold Water Battery*, at Stillwater, by I. A. Pitman.

1848.—*Old Saratoga*, at Schuylerville, by J. L. Cramer. Suspended in 1852.

1849.—The *Old Settler*, at Saratoga, by A. H. Allen.

1850.—The *Advent Review and Sabbath Herald*, at Saratoga, by J. White; semi-monthly.

1853.—The *Temperance Helper*, at Saratoga. In 1856 changed to the *Saratogian.* Now published daily and weekly.

1853.—*Battle Ground Herald*, at Schuylerville, by R. N. Atwell & Co. Suspended in 1857.

1854.—The *Saratoga Sentinel*, at Saratoga, by Allen Corey.

1854.—The *Morning Star*, at Mechanicsville, by C. Smith & Co. Suspended in 1856.

1856, October.—The *Hudson River Chronicle*, at Mechanicsville, by Samuel Heron. Suspended in March, 1858.

1857, December.—The *Saratoga County American*, at Schuylerville, by J. R. Rockwell.

### SCHENECTADY COUNTY.

1807, prior to.—The *Western Spectator*, at Schenectady.

1809, January.—The *Schenectady Cabinet*, at Schenectady, by Isaac Riggs. Suspended in 1857.

1809.—The *Western Budget*, at Schenectady. Published a short time.

1810.—The *Mohawk Advertiser*, at Schenectady, by R. Schermerhorn.

1811.—The *Floriad*, at Schenectady; monthly.

1812.—The *Schenectady Gazette*, at Schenectady, by R. Schermerhorn.

1828.—The *Schenectady Democrat*, at Schenectady, by G. G. & A. Palmer. In 1837 changed to the *Reflector and Schenectady Democrat.* Now called the *Reflector*, and issued as weekly edition of *Evening Star.*

1830.—The *Schenectady County Whig*, at Schenectady, by C. G. & A. Palmer. Suspended in 1834.

1831.—The *Schenectady Standard*, at Schenectady, by T. J. Sutherland.

1834.—The *Censor*, at Schenectady, by students of Union college.

1835.—The *Mohawker*, at Schenectady, by Riggs & Norris.

1835.—The *Protestant Sentinel*, at Schenectady, by Rev. John Maxon. Published two years.

1835.—The *Wreath*, at Schenectady, by W. H. Burleigh. Published one year.

1845.—The *Antiquarian and General Review*, at Schenectady, by Rev. W. Arthur; monthly. Published two years.

1846.—The *Parthenon*, at Schenectady, by students of Union college; monthly. Suspended in 1847.

## NEW YORK—Continued.

1853.—The *Schenectady Democrat*, at Schenectady, by Colborne & Clark.

1857, September.—The *Schenectady Republican*, at Schenectady, by Colborne & Landon.

1859, February 24.—The *Schenectady Morning Star*, by Colborne & Clark. Soon after changed to *Daily Evening Star*. Still published.

1859, April.—The *Schenectady Daily News*, at Schenectady, by F. W. Hoffman.

### SCHOHARIE COUNTY.

1809, June.—The *American Herald*, at Schoharie, by Derick Van Veghten. In 1812 changed to the *Schoharie Herald*, and soon after discontinued.

1809, December.—The *True American*, at Schoharie, by T. M. Tillman. Suspended in 1812 or 1813.

1817, June.—The *Schoharie Budget*, at Schoharie, by D. Van Veghten. In 1820 changed to the *Schoharie Republican*. Still published.

1818, October.—The *Observer*, at Schoharie. Published several years.

1824, January.—The *Evangelical Luminary*, at Schoharie, by Lintner & Cuthbert. Published one year.

1827, February.—The *Lutheran Magazine*, at Schoharie; monthly. Published several years.

1830, June 9.—The *Schoharie Free Press*, at Schoharie, by Duncan McDonald. In 1832 removed to Esperance, and called the *Esperance Sentinel and Schoharie and Montgomery Reporter*. Suspended in 1835 or 1836.

1838, February.—The *Schoharie Patriot*, at Schoharie, by Peter Mix. Now published as the *Union*.

1838, April.—The *Star*, at Schoharie, by S. H. Mix.

1841.—The *Helderbergh Advocate*, by W. H. Gallup. Changed in 1843 to the *Guardian of the Soil*, and published one year.

1847, January.—The *American Christian*, at Leesville, by J. D. Lawyer. Published a short time.

1852, January.—The *Schoharie County Sentinel*, at Cobleskill, by Hiram C. Page. Afterward merged with the *Schoharie Republican*.

1854.—The *Charlotteville Journal*, at Charlotteville, by Furman & Brown. In 1855 removed to Cobleskill and called the *Cobleskill Journal*. Soon after suspended.

1859.—The *Schoharie County Jeffersonian*, at Cobleskill, by M. Freeman.

### SCHUYLER COUNTY.

1828, June.—The *Tioga Patriot*, at Havana, by L. B. & S. Butler. Published a short time.

1830.—The *Havana Observer*, at Havana, by F. W. Ritter.

1835.—The *Havana Republican*, at Havana, by Nelson Colgrove. In 1849 changed to *Life in the Country and Havana Republican*. Suspended in 1850.

1840.—The *Chemung Democrat*, removed from Horseheads to Havana in 1840, and to Jeffersons (Watkins) in 1842. Soon after changed to the *Democratic Citizen*. Suspended in 1850.

1850, June 15.—The *Independent Freeman*, at Watkins, by W. B. Slawson & Co. In 1851 changed to the *Jefferson Eagle* and continued a few months.

1853, April 16.—The *Havana Journal*, at Havana, by J. B. Look. Still published.

1854, June.—The *Watkins Republican*, at Watkins, by S. M. Taylor. Now published as *Watkins Express*.

1855, April.—The *Schuyler County Democrat*, at Havana, by Averil & Baxter. Published a short time.

### SENECA COUNTY.

1815.—The *Seneca Patriot*, at Ovid, by George Lewis. In 1816 changed to the *Ovid Gazette*. In 1817 removed to Waterloo, and called the *Waterloo Gazette*. Continued several years.

1822.—The *Seneca Farmer*, at Waterloo, by William Child. In 1832 removed to Seneca Falls and united with the *Seneca Falls Journal*.

1822.—The *Waterloo Republican*, at Waterloo. Issued a short time.

1826.—The *Waterloo Observer*, at Waterloo, by Charles Sentell. Subsequently changed to the *Seneca Observer*. Now published as the *Waterloo Observer*.

1827.—The *Seneca Republican*, at Ovid, by Michael Hayes. In 1830 changed to the *Ovid Gazette and Seneca County Register*, and continued a short time.

1829.—The *Seneca Falls Journal*, at Seneca Falls, by O. B. Clark. In 1832 united with *Seneca Farmer*, and called the *Seneca Farmer and Seneca Falls Advertiser*. Suspended in 1835.

1830.—The *Western Times*, at Waterloo, by E. P. Mason.

1832.—The *Ovid Emporium*, at Ovid, by Bishop Orenshier.

1835.—The *Seneca Falls Register*, at Seneca Falls, by J. K. Brown. Published two years.

1837.—The *Seneca County Courier*, at Seneca Falls, by Isaac Fuller & Co. Still published.

1838.—The *Ovid Bee*, at Ovid, by D. Fairchild & Son.

1839.—The *Seneca Falls Democrat*, at Seneca Falls, by J. T. Miller. Suspended in 1849.

1840.—The *Memorial*, at Seneca Falls, by Ansel Bascom. Suspended in 1846.

1848.—The *Free-Soil Union*, at Seneca Falls, by N. J. Milliken. Published one year.

1849.—The *Lily*, at Seneca Falls, by Mrs. A. Bloomer. In 1854 removed to Ohio.

1855, January.—The *American Reveille*, at Seneca Falls, by Wilcoxen, Sherman & Baker. Still published.

### STEUBEN COUNTY.

1796.—The *Bath Gazette and Genesee Advertiser*, (a) at Bath, by William Kersey and James Eddie. Published several years.

1815.—The *Steuben and Allegany Patriot*, at Bath, by Benjamin Smead. In 1822 changed to the *Farmers' Advocate and Steuben Advertiser*. Now published as the *Steuben Farmers' Advocate*.

1816.—The *Farmers' Gazette*, at Bath, by David Rumsey.

1828, April.—The *Steuben Messenger*, at Bath, by David Rumsey. In 1834 changed to the *Constitutionalist*, and subsequently to the *Steuben Democrat*. In 1844 suspended, but revived in 1849 and continued until 1852.

1840.—The *Addison Record*, at Addison, by I. D. Booth. Suspended in 1842.

1840.—The *Corning and Blossburg Advocate*, at Corning, by Charles Adams. In 1843 merged in the *Steuben Courier*, Bath.

1843.—The *Steuben Courier*, at Bath, by Hull & Whittemore. Still published.

1846.—The *Painted Post Gazette*, by ——— Fairchild. Published one year.

1847, May.—The *Corning Journal*, at Corning, by Thomas Messenger. Still published.

1848.—The *Painted Post Herald*, by Hawley & Bennett. Suspended in 1850.

1848.—The *Addison Advocate*, at Addison, by H. D. Dyer. Suspended in 1849.

1850.—The *Canisteo Express*, at Addison, by T. Messenger.

1851.—The *Addison Journal*, at Addison, by R. Denton. Removed to Allegany county in 1852.

1851, November.—The *Hornellsville Tribune*, at Hornellsville, by Edwin Hough. Still published, daily and weekly.

1852.—The *Voice of the Nation*, at Addison, by R. Denton. In 1856 removed to Bath, and called the *Steuben American*. Suspended in May, 1857.

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[a] The first newspaper published in western New York appears to have been the *Bath Gazette and Genesee Advertiser*. The date was 1796. A year afterward one Lucius Carey commenced the *Geneva Gazette and Genesee Advertiser*, but it soon expired. As late as 1803 the *Canandaigua Repository and Advertiser* was the only paper in the state of New York west of Utica. It was distributed by a man on horseback. In his saddle-bags he carried about two hundred papers, and over them was a small portmanteau in which was the United States mail for that region of country.—J. F. BABCOCK, before Connecticut Editorial Association, 1855.

## NEW YORK—Continued.

1853.—The *Addison Democrat*, at Addison, by C. L. Phelps. Merged in the *Voice of the Nation* in 1854.

1853.—The *Corning Sun*, at Corning, by Pomeroy & Van Gelder. In 1854 changed to the *Elmira Southern Tier Farmer and Corning Sun*, and continued until 1856.

1856.—The *National American*, at Hornellsville, by C. M. Harmon. In November, 1858, changed to the *Canisteo Valley Journal*.

1857.—The *Corning Democrat*, at Corning, by C. T. Huston. Still published.

1858.—The *Addison Advertiser*, at Addison, by Johnson & Baldwin. Still published.

### SUFFOLK COUNTY.

1791, May 10.—*Frothingham's Long Island Herald*, at Sag Harbor, by David Frothingham. In 1802 changed to the *Suffolk County Herald*, and in 1804 to the *Suffolk Gazette*. Suspended in February, 1811.

1816, October 19.—The *Suffolk County Recorder*, at Sag Harbor, by S. A. Seabury. In 1817 changed to the *American Eagle*, and continued two years.

1821.—The *American Eagle*, at Huntington, by S. A. Seabury. In May, 1825, changed to the *Long Island Journal of Philosophy and Cabinet of Variety*, and in 1827 to the *Portico*. Suspended in 1829.

1822, August 3.—The *Corrector*, at Sag Harbor, by H. W. Hunt. Still published.

1826, September.—The *Republican Watchman*, at Sag Harbor, by S. Phillips. In September, 1844, removed to Greenport. Still published.

1838, July.—The *Long Islander*, at Huntington, by Walter Whitman. Still published.

1847, February 17.—The *Suffolk Democrat*, at Huntington, by Edward Strahan. Now published as the *Suffolk Bulletin*.

1849, August.—The *Suffolk Gazette*, at Riverhead. In 1851 removed to Sag Harbor, but returned to Riverhead in 1854. Soon after discontinued.

1857, August.—The *Suffolk Times*, at Greenport, by John J. Riddell. Still published.

1858, August 14.—The *Suffolk Herald*, at Patchogue, by Van Zandt & Co.

1859.—The *Suffolk Union*, at Riverhead, by W. Van Zandt.

1859.—The *Sag Harbor Express*, at Sag Harbor. Still published.

### SULLIVAN COUNTY.

1821.—The *Sullivan County Whig*, at Bloomingburgh, by John J. Tappan. Removed to Monticello in 1828, and called the *Republican and Watchman*. Still published.

1833.—The *Sullivan County Herald*, at Monticello, by M. Smith. Suspended in 1837.

1844.—The *Sullivan County Whig*, at Bloomingburgh, by J. S. Brown. In 1855 changed to the *Sullivan County Democratic Republican*. Now published as the *Sullivan County Republican*, at Monticello.

1854.—The *Union Democrat*, at Monticello, by F. A. Devoe. Afterward united with the *Whig*.

### TIOGA COUNTY.

1810.—The *American Farmer*, at Owego, by Stephen Mack. In 1813 changed to the *Owego Gazette*, and in 1844 to the *Tioga Freeman*. Continued a few years.

1833.—The *Republican*, published one year at Owego, by ——— Chatterton.

1836.—The *Owego Advertiser*, at Owego, by A. H. Calhoun. In 1852 changed to the *Southern Tier Times*, and in 1854 to the *Owego Times*. Still published.

1844.—The *Owego Gazette*, (*a*) at Owego, by H. A. Beebe. Still published.

1852.—The *Waverly Advocate*, at Waverly, by F. H. Baldwin. Still published.

1853.—The *St. Nicholas*, at Waverly; monthly. Published one year.

### TOMPKINS COUNTY.

1815, July 4.—The *Seneca Republican*, at Ithaca, by Jonathan Ingersoll. In 1816 changed to the *Ithaca Journal;* in 1827 to the *Ithaca Journal, Literary Gazette, and General Advertiser*, and in 1828 to the *Ithaca Journal and Advertiser*. Now published as the *Ithaca Journal*, daily and weekly.

1820, June.—The *Republican Chronicle*, at Ithaca, by Spencer & Stockton. In 1828 changed to the *Ithaca Republican*, and in 1831 or 1832 to the *Tompkins American*. Suspended in 1834.

1826.—The *Western Messenger*, at Ithaca, by A. P. Searing. Published two years.

1827.—The *Lake Light*, at Trumansburg, by W. W. Phelps. Published two years.

1828.—The *Ithaca Chronicle*, at Ithaca, by D. D. & A. Spencer. In 1855 changed to the *American Citizen*.

1831.—The *Philanthropist* (Universalist), at Ithaca, by O. A. Brownson. Published one year.

1833.—The *Trumansburgh Advertiser*, at Trumansburg, by D. Fairchild. Published a short time.

1836.—The *Jeffersonian and Tompkins Times*, at Ithaca, by C. Robbins. Soon after changed to the *Ithaca Herald*. In 1837 merged with the *Journal and Advertiser*.

1837.—The *Christian Doctrinal Advocate and Spiritual Monitor*, at Mott's Corners. Published several years.

1840.—The *Tompkins Volunteer*, at Ithaca, by H. C. Goodwin. In 1843 changed to the *Anti-Masonic Sentinel*, and continued a few weeks.

1840, December.—The *Trumansburgh Sun*, at Trumansburg, John Gray, editor. Published three years.

1843.—The *Trumansburgh Gazette*, at Trumansburg, by J. H. Hawes. Published a short time.

1846, March.—The *Trumansburgh Herald*, at Trumansburg, S. M. Day, editor. Published one year.

1848.—The *Flag of the Union*, at Ithaca, by J. B. Gosman. In 1850 merged with the *Journal and Advertiser*.

1853.—The *Templar and Watchman*, at Ithaca, by Orlando Lund.

1856.—*Rumsey's Companion*, at Dryden, by H. D. Rumsey. Soon after changed to the *Fireside Companion;* in a few months to the *Dryden News;* and in 1857 to the *New York Confederacy*. Soon after discontinued, but revived in 1858 as the *Dryden News*. Still published.

1856.—The *Tompkins County Democrat*, at Ithaca, by Timothy Maloney. Still published.

### ULSTER COUNTY.

The *New York Journal and Advertiser*, which was removed from New York to Poughkeepsie during its occupation by the British, was published at Kingston from July to October, 1777.

1792.—The *Farmers' Register* was established at Kingston, by N. Power and W. Copp.

1793.—The *Rising Sun*, at Kingston, by W. Copp and S. S. Frear.

1798.—The *Ulster Gazette*, at Kingston, by S. S. & A. Frear.

1805, November.—The *Plebeian*, at Kingston, by Jesse Buell. In 1827 changed to the *Plebeian and Ulster County Advertiser*.

1826.—The *Ulster Sentinel*, at Kingston, by C. G. De Witt. Suspended in 1828.

1828.—The *Ulster Republican*, at Kingston, by S. Curtiss, jr. Published many years.

1828.—The *Ulster Palladium*, at Saugerties, by Fish & Frary. Subsequently changed to the *Ulster Palladium and Manufacturers' Journal*.

1830.—The *National Pioneer*, at Milton, by D. S. Tuthill.

1833, January.—The *Ulster Star*, at Saugerties, by W. Cully.

1835.—The *Ulster County Whig*, at Kingston, by Wallace & Brown.

1837.—The *Kingston Democratic Journal*, at Kingston, by W. H. Romeyn. Still published.

1840.—The *Political Reformer*, at Kingston, by H. M. Romeyn.

1843.—The *Ulster Huguenot*, at Kingston, by Cully & Baldwin.

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[a] The publishers claim a direct succession from the *Gazette* published in 1813. Other authority says the two papers were published as opposition organs several months in 1844.

## NEW YORK—Continued.

1846.—The *Ulster Democrat*, at Kingston, by A. A. Bensall. *Daily Chronicle* issued from same office.

1846.—The *Ulster Telegraph*, at Saugerties, by S. S. Hommell. Afterward changed to the *Saugerties Telegraph*. Still published.

1847.—The *Rondout Courier*, by J. P. Hogeman. Still published, daily and weekly.

1847.—The *Ellenville Journal*, at Ellenville, by O. A. Campbell. Still published.

1859.—The *Rondout Freeman*. Still published, daily and weekly.

### WARREN COUNTY.

1813, about.—The *Warren County Patriot*, at Glens Falls, by J. Cunningham.

1817, ———, at Caldwell, by T. Hoskins. In 1821 or 1822 changed to the *Guardian*. After several years removed to Glens Falls.

1828.—The *Glens Falls Observer*, at Glens Falls, by E. G. Sidney. In about two years changed to the *Glens Falls Republican*, and afterward to the *Warren County Messenger*. In 1835 changed to the *Warren County Messenger and Glens Falls Advertiser;* in 1840 to the *Glens Falls Gazette;* in 1842 to the *Glens Falls Clarion*, and in 1850 to the *Glens Falls Free Press*.

1840.—The *Glens Falls Spectator*, at Glens Falls, by D. Ellis.

1842.—The *Glens Falls Republican*, at Glens Falls, by M. & T. J. Strong. Still published.

1845.—The *Rechabite and Temperance Bugle*, semi-monthly, at Glens Falls, by M. & T. J. Strong. Published several months.

1855.—The *Star of Destiny*, at Glens Falls, by A. D. Milne.

1856.—The *Glens Falls Messenger*, at Glens Falls, by A. D. Milne. Still published.

### WASHINGTON COUNTY.

1798.—The *Times*, at Salem, by Mr. Gerrish. Subsequently called the *Washington Patriot*. In 1810 changed to the *Northern Post;* in 1827 to the *County Post and North Star*, and in 1840 to the *Washington County Post*. Still published.

1802.—The *Washington Register*, at Salem, by J. P. Reynolds. Published several years.

1819.—The *Salem Messenger*, at Salem.

1822.—The *Whitehall Emporium*, at Whitehall. Suspended in 1828.

1824.—The *Sandy Hill Herald*, at Sandy Hill. Still published.

1832.—The *Whitehall Republican*, at Whitehall, by J. K. Averill.

1832.—The *Free Press*, at Sandy Hill, by A. Emmons. The *Sun*, by the same publisher, issued in 1826.

1832.—The *Independent Politician*, at Sandy Hill, by C. Y. Haynes & Co.

1832.—The *Temperance Advocate*, at Sandy Hill, by S. P. Hines.

1836.—The *Banner*, at Union Village (now Greenwich), by Wells & Lansing.

1836.—The *Union Village Courant*, at Union Village, by Ormsby & Holmes.

1839.—The *Union Village Democrat*, at Union Village, by J. W. Lawton. In 1842 changed to the *Democratic Champion*. Suspended in 1846.

1840, June.—The *Whitehall Chronicle*, at Whitehall. Still published.

1840.—The *Washington County Sentinel*, at Union Village.

1843.—The *Washington County People's Journal*, at Union Village. Still published.

1843.—The *Champion*, at Union Village, by J. Holmes.

1845.—The *Whitehall Democrat*, at Whitehall, by Dudley & Wilkins.

1845.—The *Eagle*, at Union Village, by J. L. Cramer. Suspended in 1848.

1847.—The *Whitehall Telegraph*, at Whitehall; tri-weekly. Published a short time.

1849.—The *Whitehaller*, at Whitehall, by W. S. Southmaid.

1849.—The *Union Village Democratic Standard*, at Union Village, by W. A. McCall.

1849.—The *Washington Telegraph*. Afterward changed to the *Granville Register*.

1854.—The *Public Ledger*, at Fort Edward, by H. F. Blanchard. Afterward called the *Fort Edward Ledger*.

1855.—The *American Sentinel*, at Whitehall, by J. E. Watkins.

1856.—The *Fort Edward Institute*, at Fort Edward, by W. A. Halley; monthly.

### WAYNE COUNTY.

1817, November 26.—The *Palmyra Register*, at Palmyra, by T. C. Strong. In 1823 issued as the *Western Farmer and Canal Advocate*. Soon after changed to the *Wayne Sentinel*, and published many years.

1821, August 3.—The *Lyons Republican*, at Lyons, by George Lewis. Suspended in February, 1822.

1822, May 31.—The *Lyons Advertiser*, at Lyons, by Hiram T. Day. Successively published as the *Wayne County Gazette*, the *Lyons Argus*, the *Lyons Gazette*, the *Wayne County Patriot*, and the *Western Argus*. In 1841 changed to the *Lyons Gazette*, and in 1855 or 1856 merged with the *Democratic Press*.

1828, March 11.—The *Palmyra Freeman*, at Palmyra, by D. D. Stephenson. Soon after removed to Lyons, and called the *Countryman*. In 1831 suspended, but revived afterward as the *Lyons American*. In 1836 removed to Clyde, and called the *Clyde Gazette*. Continued until 1838.

1828.—The *Reflector*, at Palmyra, by O. Dogberry, jr.; monthly. Suspended in 1830.

1829, November.—The *Newark Republican*, at Newark, by J. O. Balch. Suspended in 1831.

1830, January.—The *Western Spectator and Wayne Advertiser*, at Palmyra, by Howard & Shepard. In 1831 changed to the *Spectator and Anti-Masonic Star*. Removed to Rochester the same year, and merged with the *Anti-Masonic Inquirer*.

1830.—The *Clyde Standard*, at Clyde, by E. P. Moon. Published six months.

1838, February.—The *Palmyra Whig*, at Palmyra, by W. N. & S. Cole. Removed to Lyons, and called the *Wayne County Whig*. In September, 1856, changed to the *Lyons Republican*. (*a*) Still published.

1838, June.—The *Wayne Standard*, at Newark, by David M. Keeler. In 1839 changed to the *New Ægis*. Discontinued in May, 1840, but revived in the following July as the *Wayne Standard*. In 1844 again suspended, but afterward revived as the *Newark Courier*. Subsequently published as the *Newark Journal*, and in 1854 changed to the *Newark Whig*. In 1856 changed to the *Newark Weekly Courier*. Still published.

1843, May 28.—The *Palmyra Courier*, at Palmyra, by Frederic Mosley. Still published.

1844.—The *Clyde Eagle*, at Clyde, by B. Frazee. In 1847 changed to the *Clyde Telegraph*. Soon after discontinued.

1849.—The *Northern Methodist Protestant*, at Clyde, by an association.

1850, February.—The *Clyde Industrial Times*, at Clyde, by Payn & Smith. In 1851 changed to the *Clyde Weekly Times*. Still published.

1850.—The *Wayne Banner*, at Walcott, by John McIntyre. Removed to Clyde and merged with the *Industrial Times*.

1853, July.—The *Farming Mirror*, at Lyons, by R. L. Adams & Co. Published one year.

1855.—The *Wayne Democratic Press*, at Palmyra. Removed to Lyons the same year. Still published.

### WESTCHESTER COUNTY.

1810.—The *Somers Museum* was published at Somers, by M. F. Cushing.

1810.—The *Westchester Gazette*, at Peekskill, by Robert Crombie. Afterward changed to the *Westchester and Putnam Gazette*. In 1832 issued as the *Westchester and Putnam Sentinel*. Afterward published two years as the *Sentinel*, and continued as the *Westchester and Putnam Republican*. In 1844 changed to the *Peekskill Republican*. In 1857 removed to Sing Sing, and called the *Republican*. Still published.

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*a* The present publishers claim a direct succession from the *Republican* of 1821, but all authorities say the original paper of that name suspended in 1822.

## NEW YORK—Continued.

1812.—The *Westchester Patriot*, at West Farms. Published a short time.

1817.—The *Westchester Herald and Putnam Gazette*, at Sing Sing. Subsequently called the *Westchester Herald*. Suspended in 1856.

1832.—The *Westchester Spy*, at White Plains, by ——— Harpending. Suspended in 1848.

1837.—The *Hudson River Chronicle*, at Sing Sing, by A. H. Wells. Still published.

1845.—The *Port Chester Banner*, by W. A. McMillan.

1845.—The *Eastern State Journal*, at White Plains, by E. G. Sutherland. Still published.

184-.—The *Westchester and Putnam Democrat*, at Peekskill, by Bailey & Marks. In 1851 changed to the *Highland Eagle*, and in 1858 to the *Highland Democrat*. Still published.

1849.—The *Westchester Gazette*, at Morrisania. Suspended in 1856.

1849.—The *Westchester Gazetteer*, at West Farms, by H. Coggshell. Removed to Mott Haven in 1852, and discontinued in 1852.

1852.—The *Yonkers Herald*, at Yonkers, by T. Smith. Now published as the *Yonkers Gazette*.

1853.—The *Westchester News*, at New Rochelle, by Thomas Towndrow. Removed to Yonkers in 1854. Suspended in 1856.

1856.—The *Yonkers Examiner*, at Yonkers, by M. F. Rowe. Now published as the *Yonkers Statesman*.

1856.—The *Westchester County Journal*, at Morrisania, by James Stillman.

### WYOMING COUNTY.

1828.—The *Genesee Register*, at Warsaw, by L. & W. Walker. Published six months.

1830, May.—The *Warsaw Sentinel*, at Warsaw, by A. W. Young. In December, 1831, merged into the *Republican Advocate*, at Batavia.

1833.—The *Attica Republican*, at Attica, by David Scott. Afterward changed to the *Attica Republican and Genesee Advertiser*, the *Attica Balance*, and the *Attica Democrat*. Suspended in 1846.

1834.—The *Genesee Recorder*, at Perry, by G. M. Shipper. Published two years.

1836.—The *American Citizen*, at Warsaw, by J. A. Hadley. Removed to Perry in 1837. In 1841 removed to Rochester.

1838.—The *Pike Whig*, at Pike, by Thomas Carrier. Soon after changed to the *Pike Gazette*, and continued one year.

1839.—The *Watchtower* (Baptist), at Pike, by Ansel Warren. Published one year.

1841.—The *Perry Democrat*, at Perry, by P. Lawrence. Suspended in 1853.

1841.—The *Western New Yorker*, at Perry, by J. H. Bailey. Removed to Warsaw the same year. Still published.

1843.—The *Countryman*, at Perry, by N. S. Woodward. Subsequently changed to the *Impartial Countryman*, and in 1846 to the *Free Citizen*. Suspended in August, 1847.

1844.—The *Wyoming Republican*, at Warsaw, by E. L. Fuller. Suspended in March, 1847.

1846, October.—The *Attica Telegraph*, at Attica, by A. Dinsmore. Published two years.

1848, April.—The *Old Eighth Whig*, at Attica, by Dibble & Civer. After six months changed to the *Spirit of the Old Eighth*, and continued until 1850.

1848.—The *Wyoming County Mirror*, at Warsaw, by A. Holley.

1851, January.—The *Attica Atlas*, at Attica, by S. Folsom.

1853, December.—The *Wyoming County Advertiser*, by Horace Wilcox. Published one year.

1855, May.—The *Wyoming Times*, at Perry, by T. S. Gillet.

1859, March 31.—The *Arcade Enterprise*, at Arcade, by J. H. Gibson.

### YATES COUNTY.

1818, May.—The *Penn Yan Herald*, at Penn Yan, by A. H. Bennett. In 1820 changed to the *Penn Yan Democrat*. Still published.

1824, December.—The *Yates County Republican*, at Penn Yan, by E. J. Fowle. In 1834 changed to the *Penn Yan Inquirer*, and continued two years.

1833.—The *Western Star*, at Penn Yan, by H. Gilbert.

1833.—The *Miscellany*, at Penn Yan, by T. H. Bassett.

1837.—The *Democratic Whig*, at Penn Yan, by W. Child. In 1839 changed to the *Yates County Whig*, and in 1856 to the *Yates County Chronicle*. (*a*) Still published. The *Daily Telegraph*, issued from *Whig* office six months in 1846.

1844.—The *Democratic Organ*, at Penn Yan, by H. L. Winants. Published two years.

1844.—The *Dundee Record*, at Dundee, by G. J. Booth. Still published.

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*a* The publishers claim 1823 as the date of establishment.

## NORTH CAROLINA.

Area, 48,580 square miles; population, 1,399,750; 94 counties—newspapers published in 51. The total number of newspapers and periodicals published in 1810 was 10; in 1840, 27; 1850, 51; 1860, 74; 1870, 64; 1880, 142. The publications during 1880 were divided, according to periods of issue, as follows: Dailies, 13; weeklies, 113; semi-weeklies, 3; tri-weeklies, 2; monthlies, 7; semi-monthlies, 4. In each of 40 towns one paper was published; in 13, two; in 5, three; in 4, four; and in 5, five or more.

### EARLY HISTORY.

Printing was introduced at New Berne in 1749. A partial list and summary of the early publications is as follows: (*a*)

1749.—The *North Carolina Gazette* was established at New Berne, by James Davis; cap sheet, 14 by 17. Publication suspended in 1761, but revived in 1768. Finally suspended after the commencement of the Revolutionary war. (*b*)

1764, September.—The *Cape Fear Gazette and Wilmington Advertiser*, at Wilmington, by Andrew Stewart, succeeded by the *Cape Fear Mercury*, published by Andrew Boyd. Publication suspended in 1775.

In 1776 there were papers printed at New Berne, Wilmington, Halifax, Edenton, and Hillsborough.

In 1812 there were three weekly papers in Raleigh, one of them, the *Register*, published by Joseph Gales. There were also weekly papers at New Berne, Wilmington, Edenton, Tarborough, Murfreesborough, Fayetteville, and Warrenton.

The first daily was the *Raleigh Register*, established in 1851.

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*a* Prepared by W. W. Holden, Raleigh.

*b* According to Thomas, printing was introduced and the first paper established at New Berne in 1755. The name of the paper and that of its publisher accord with those here given.

## OHIO.

Area, 40,760 square miles; population, 3,198,062; 88 counties—newspapers published in all. The total number of newspapers and periodicals published in 1810 was 14; in 1840, 123; 1850, 261; 1860, 340; 1870, 395; 1880, 774. The publications during 1880 were divided, according to periods of issue, as follows: Dailies, 56; weeklies, 586; semi-weeklies, 4; tri-weeklies, 8; bi-weeklies, 3; monthlies, 90; semi-monthlies, 18; quarterlies, 11. In each of 128 towns one paper was published; in 56, two; in 27, three; in 17, four; and in 24, five or more.

## OHIO—Continued.

### EARLY HISTORY.

1793.—Printing introduced at Cincinnati.

Papers were established in the different counties as follows:

#### ALLEN COUNTY.

1854.—The *Gazette*, at Lima, by C. Parmeter. Still published.

1856.—The *Democrat*, at Lima, by D. S. Fisher. Still published.

1869.—The *Herald*, at Delphos, by D. N. Tolan. Still published.

#### ASHLAND COUNTY.

1834.—*Mohican Advocate and Hanover Journal*, at Ashland, by Mr. Rogers. Published six numbers.

1834, December 30.—The *Ashland Herald*, at Ashland, by J. C. Gilkinson. In 1837 changed to the *Ohio Globe;* afterward to the *Western Phœnix*, and in 1846 to the *Ashland Democrat.* Finally merged in the *Standard.*

1846.—The *Standard*, at Ashland, by R. V. Kennedy. Consolidated with the *Democrat*, and called the *Ohio Union.* Afterward changed to the *Ashland Union*, and in 1872 to the *Press.* Still published.

1850.—The *Ashlander*, at Ashland, by W. B. McCarty. Published two years.

1853, July 14.—The *Ashland Times*, at Ashland, by L. J. Sprengle. Still published.

——.—The *Gospel Preacher*, at Ashland, by Professor Sharp.

——.—The *Young Disciple*, at Ashland, by Professor Sharp.

#### ATHENS COUNTY.

1825.—The *Athens Mirror and Literary Register*, at Athens, by A. G. Brown. In 1830 changed to the *Western Spectator;* in 1836 to the *Hocking Valley Gazette and Athens Messenger*, and in January, 1844, to the *Athens Messenger.*

#### AUGLAIZE COUNTY.

1848.—The *Democrat*, at Wapakoneta, by H. P. Kelley. Still published.

——.—The *Courant*, at Wapakoneta, by E. B. Walkup.

#### CHAMPAIGN COUNTY.

1812.—The *Farmer's Watch Tower*, at ———, by Corwin & Black.

1824.—The *Farmer's Friend*, at ———, by D. S. Ball. Afterward changed to *Ohio and Mad River Journal.*

1838, April.—The *Western Citizen and Urbana Gazette*, at Urbana, by J. Saxton. Afterward changed to *Urbana Citizen and Gazette.* Still published.

1844.—The *Western Dominion*, at Urbana, by J. Taylor. Consolidated with the *Democratic Expositor*, at Springfield. In 1850 changed to *Ohio State Democrat*, subsequently to *Urbana Free Press;* in 1863 to *Urbana Union;* in 1872 to *Democratic Plaindealer*, and in 1873 to *Urbana Union Democrat.* Still published.

1860, December 29.—The *Experiment*, at Lewisburg, by H. D. Gowey. Published a short time.

1861.—The *Lewisburg Weekly Magazine*, at Lewisburg, by H. D. Gowey. Published six months.

1867, February.—The *Mackacheek Press*, at West Liberty, by Donn Piatt. Removed to Columbus, and afterward to Urbana. Suspended a few months later.

1868, July.—The *Boomerang*, at North Lewisburg, by Mitchell & Gowey. Suspended in November, 1869.

1870.—The *St. Paris Independent*, at Saint Paris, by Vaughn Bros. In 1871 removed from the town.

1872.—The *St. Paris Informant*, at Saint Paris. Afterward changed to *New Era.* Still published.

1873.—The *Central Ohio News*, at Mechanicsburg, by Church & Baxter. Still published.

1876, January.—The *North Lewisburg Star*, at North Lewisburg, by J. H. Fluhart. Published six months.

1876, January.—The *North Lewisburg Gazette*, at North Lewisburg, by Vaugh & Sherrett. Published eleven months.

1878, August 9.—The *St. Paris Enterprise*, at Saint Paris, by C. R. Carlow. Suspended in January, 1879.

——.—The *Spirit of Liberty*, at ———, by A. M. Poff.

——.—The *Country Collustrator*, at ———, by Barr & Everett. Afterward consolidated with *Mad River Courant* and called *Mad River Courant and Country Collustrator.*

——.—*Mad River Courant*, at ———, by D. S. Lewis. Consolidated with *Country Collustrator.*

——.—The *Urbana Record*, at Urbana, by J. H. Bacon. Published until 1831.

——.—The *Rattler*, at Urbana, by Corwin & Talbott. Published a short time.

——.—The *Daily News*, at Urbana, by W. H. Gulic. Still published.

#### COLUMBIANA COUNTY.

1808, December.—*Der Patriot Am Ohio* (German), at New Lisbon, by William D. Lepper. Published a short time.

1809.—The *Ohio Patriot*, at New Lisbon, by William D. Lepper. Still published.

1825, March 25.—The *Salem Gazette and Public Advertiser*, at Salem, by R. G. Lee.

1826.—The *New Lisbon Gazette*, at New Lisbon, by R. Fee. Published six months.

1827, June.—The *Columbiana American and New Lisbon Free Press*, at New Lisbon, by William Campbell. In 1828 changed to the *Western Palladium.* In 1854 merged in the *Buckeye State.*

1832, March 5.—The *Aurora*, at New Lisbon, by J. Frost. Suspended in 1856.

1834.—The *Inciter*, at Salem, by A. Gilbert. Published a short time.

1835.—The *Salem Visitor*, at Salem, by W. F. Stewart. Changed to the *Ohio Mercury*, and published until 1856.

1835.—The *Commercial Advertiser*, at Wellsville, by L. Caton. In 1841 changed to *American Patriot*, and in 1842 to the *Wellsville Patriot.* Suspended in 1866.

1842, April 12.—The *Village Register*, at Salem, by Davis & Hart. In 1847 changed to the *Homes*, and in 1857 to the *Salem Republican.* Still published.

1842.—The *Wellsville Patriot*, at Wellsville, by W. L. Clarke.

1842.—The *Self Examiner*, at Goshen, by A. Hinchman; monthly. Afterward changed to the *Friend of Man.* Published a short time.

1845, June 20.—The *Anti-Slavery Bugle*, at New Lisbon, by the Anti-Slavery Society. Removed to Salem and published until May 4, 1864.

1848.—The *Ocean Wave*, at New Lisbon, by H. C. Trunick. Published six months.

1852.—The *Ohio Educational Monthly and National Teacher*, at Salem, by the Ohio Teachers' Association; monthly. In 1860 changed to the *Ohio Educational Monthly.* Still published.

1852.—The *Buckeye*, at New Lisbon, by R. D. Hartshorn. In 1854 consolidated with the *Western Palladium.* Now published as the *Buckeye State.*

1857.—The *Gospel Visitor* (German and English), at Columbiana, by Rev. Messrs. Kurtz and Quintz; monthly. In 1866 removed to Dayton.

1858, May.—The *Columbiana Telegraph*, at Columbiana, by Black & Watson. Published six weeks.

1858, September.—The *Ledger*, at Columbiana, by C. H. M. Beecher. In 1862 removed to Pittsburgh.

1861, May 23.—The *East Liverpool Mercury*, at East Liverpool, by Luckey & Harris. Published one year.

1865.—The *Merchants' Journal*, at New Lisbon, by J. D. Briggs. Published a short time.

## OHIO—Continued.

1865, February 17.—The *Salem Journal*, at Salem, by J. Hudson & Son. Suspended in 1872.

1866.—The *Wellsville Union*, at Wellsville, by G. W. Foster. Still published.

1867, April.—The *New Lisbon Journal*, at New Lisbon, by J. K. Frew. Still published.

1867.—The *East Liverpool Record*, at East Liverpool, by W. G. Foster. Suspended in 1869.

1868.—The *Local*, at East Liverpool, by ——— Murphy. Published eight weeks.

1869.—The *Democrat*, at East Liverpool, by E. Bradshaw. January 22, 1876, changed to the *East Liverpool Tribune*. Still published.

1870, April 14.—The *Independent Register*, at Columbiana, by J. M. Hutton. Still published.

1870, October.—The *National Teacher*, at Salem, by E. E. White. In January, 1876, united with the *Ohio Educational Monthly*.

1870.—The *Salineville Era*, at Wellsville, by J. E. Porter. Published a short time.

1870.—The *Wellsville Local*, at Wellsville, by D. B. Martin. In 1871 removed to East Liverpool and changed to *East Liverpool Gazette*. In 1876 changed to the *East Liverpool Potters' Gazette*, and in June, 1876, to the *Potters' Gazette*. Still published.

1871, January 1.—The *Leetonia Reporter*, at Leetonia, by Watson & Steen. Still published.

1871.—The *Salineville Miner*, at Wellsville, by J. M. Reese. Published a few months.

1872, May 2.—The *Salineville Index*, at Salineville, by J. W. & J. F. Lacock. In 1878 changed to the *Salineville Herald*.

1873, March 1.—The *Salem Era*, at Salem, by Hale & Park. Still published.

1875.—*Educational Notes and Queries*, at Salem, by W. D. Henkle; monthly. Still published.

1875, July 14.—The *Columbiana True Press*, at Columbiana, by L. & T. S. Arnold. Still published.

1878, April 12.—The *Valley Echo*, at East Palestine, by Roberts & Co. Still published.

1878, July 23.—The *National Greenback*, at Salem, by G. W. Cowgill. Still published.

### CRAWFORD COUNTY.

1844.—The *Forum*, at Bucyrus, by J. R. Clymer. Still published.

1852.—The *Journal*, at Bucyrus, by J. Hopley. Still published.

### CUYAHOGA COUNTY.

1818, July 31.—The *Gazette and Commercial Register*, at Cleveland. Suspended in 1819.

1819, October.—The *Cleveland Herald*, at Cleveland, by Z. Willes & Co. Consolidated with the *Daily Gazette* March 22, 1837.

1832.—The *Advertiser*, at Cleveland, by M. Kelley. In 1836 *Daily* established. In 1841 changed to the *Plain Dealer*. Still published.

1834, August 20.—The *Whig*, at Cleveland, by Rice & Penniman. Published two years.

1836, January.—*Christliche Botschafter* (German), at Cleveland, by the Evangelical Association. Still published.

1836, May.—The *Messenger*, at Cleveland, by Beck & Tuttle. Published about one year.

1836, May 20.—The *Ohio City Argus*, at Cleveland, by Smead & Hall. In 1838 changed to the *Ohio City Transcript*. Suspended in 1839.

1836.—The *Gazette*, at Cleveland, by ——— Whittlesey; daily. March 22, 1837, consolidated with the *Herald* and called the *Daily Herald and Gazette*. Still published as the *Daily Herald*.

1836, September 10.—The *Cleveland Liberalist*, at Cleveland, by Dr. S. Underhill. Suspended in 1837.

1836.—The *Cleveland Journal*, at Cleveland, by Sterling, Aiken & Penfield. Consolidated with the *Ohio Observer* at Hudson and changed to the *Cleveland Observer*. In 1840 removed to Hudson and changed to the *Ohio Observer*.

1838.—The *Daily Commercial Intelligencer*, at Cleveland, by B. Andrews.

1840.—The *Cleveland Agitator*, at Cleveland. Suspended the same year.

1841.—The *Daily Morning News*, at Cleveland, by Geo. M. Shippen. Suspended the same year.

1841.—The *Palladium of Liberty*, at Cleveland, by Rev. Mr. Butts. Suspended the same year.

1841.—The *Eagle Eyed News Catcher*, at Cleveland, by D. L. Wood; daily. Suspended the same year.

1841.—The *Daily Morning Mercury*, at Cleveland, by C. Hall. Suspended during the year.

1841.—The *Mothers' and Young Ladies' Guide*, at Cleveland, by Mrs. M. M. Herrick; monthly. Published a short time.

1842.—The *Cleveland Gatherer*, at Cleveland, by E. B. Fisher. Published a short time.

1842, August.—The *Farmers' and Mechanics' Journal*, at Chagrin Falls, by Blakeslee & Brainard. Suspended in 1844.

1843.—The *Second Adventist*, at Cleveland, by T. H. Smead. Suspended in April, 1844.

1844.—The *Ohio American*, at Ohio City, by R. B. Dennis. In 1848 consolidated with the *True Democrat*.

1844.—The *Declaration of Independence*, at Cleveland, by ——— Smead. Published a short time.

1845.—The *Spirit of Freedom*, at Chagrin Falls, by Doolittle & Calkins. Published a short time.

———.—*Labour*, at Chagrin Falls, by the Laboring Men's Association. Published a short time.

1845.—The *Cleveland Weekly Times*, at Cleveland, by P. Baxter. In 1848 merged in the *Plain Dealer*.

1845.—The *Ohio Universalist and Literary Companion*, at Cleveland, by C. W. Hudson. Suspended in 1847.

1846.—The *True Democrat*, at Olmsted Falls, by E. S. Hamlin. In 1847 removed to Cleveland and issued daily. In 1848 consolidated with the *American* and called the *True Democrat*. In 1853 consolidated with the *Daily Forest City and True Democrat*. In March, 1854, changed to the *Cleveland Leader*. Still published.

1848, January.—The *Evangelical Messenger*, at Cleveland, by the Evangelical Association. Still published.

1848, January.—The *Ohio Farmer*, at Cleveland, by F. Brown. Now published as the *Ohio Practical Farmer*.

1848.—The *Spirit of Freedom*, at Cleveland. Published a short time.

1848.—The *Northern Ohio Medical Examiner*, at Cleveland; monthly, Published a short time.

1850, January 3.—The *Family Visitor*, at Cleveland, by Kirtland, St. John & Knapp. Suspended in 1858.

1850.—The *Temple of Honor*, at Cleveland, by the Order of Sons of Temperance. Published one or two years.

1850.—The *Spirit of the Lakes*, at Cleveland, by the Western Seaman's Friend Society. Changed to the *Spirit of the Lakes and Boatmen's Reporter*. Published six years.

1850.—*True Kindred*, at Chagrin Falls, by Mr. & Mrs. Sanford; monthly. Subsequently changed to *Independent Politician*, weekly. Published a short time.

1852.—The *Cleveland Commercial*, at Cleveland, by Hine & Cullaton. Published four years.

1852.—The *American Advertiser*, at Cleveland, by H. M. Addison. Afterward changed to the *Harpoon*. Published four years.

1852.—The *School Boy*, at Cleveland, by F. O. McGillicudy. Suspended in 1855.

1852.—The *Forest City*, at Cleveland, by J. Medill. In 1853 merged in the *True Democrat*.

1852, August 7.—*Waechter Am Erie*, at Cleveland, by A. Therine. Still published.

1852.—The *Golden Rule*, at Cleveland, by D. M. Ide; monthly. In 1856 removed to Mansfield.

1854.—*Brainard's Musical World*, at Cleveland, by Brainard & Co.; monthly. Still published.

## OHIO—Continued.

185-.—The *Annals of Science*, at Cleveland, by H. S. Smith; monthly. Published a short time.

185-.—The *American Magazine*, at Cleveland; monthly. Suspended in 1856.

185-.—The *New American Magazine*, at Cleveland, by B. K. Maltby; monthly. Suspended in 1856.

1856.—The *Cleveland Commercial Gazette*, at Cleveland, by E. Cowles & Co. Suspended in 1868.

1856, June.—*Der Christliche Kinderfreund*, at Cleveland, by the Evangelical Association. Still published.

1856.—The *Germania*, at Cleveland. Suspended in 1875.

1857.—The *Spiritual Universe*, at Cleveland. Published one or two years.

1857.—The *Daily Review*, at Cleveland, by Spear, Dennison & Morrison. Suspended in 1861 or 1862.

1857.—*Reformirte Kirchezeitung*, at Cleveland, by the German Publishing Company. Still published.

1859.—The *Buckeye Democrat*, at Cleveland. Published about a year.

1859.—The *Agitator*, at Cleveland, by Mrs. H. F. Brown. Suspended in 1860.

1859.—*Wool Growers' Reporter*, at Cleveland, by A. Meader; monthly. Published one year.

1859.—The *Western Law Monthly*, at Cleveland, by Hayden, King & Elwell. Published one year.

1859.—The *Analyst*, at Cleveland, by Spencer & Co. Published two years.

1859.—*Dodge's Literary Museum*, at Cleveland, by O. E. Dodge.

1859.—The *Vanguard*, at Cleveland, by Denton & Cridge.

1860.—The *Ohio Cultivator*, at Cleveland; monthly. Published a short time.

1860.—The *National Democrat*, at Cleveland, by C. B. Flood. Published a short time.

1860.—The *Daily Dispatch*, at Cleveland, by printers. Published four months.

1861.—The *Gleaner*, at Cleveland. Published one year.

1864.—The *Sunday School Messenger*, at Cleveland, by the Evangelical Association. Still published.

1865.—The *German Democrat*, at Cleveland. Published one year.

1866, January.—*Der Sendbote*, at Cleveland, by the German Baptist Publishing Company.

1866, January.—*Der Muntere Saemann*, at Cleveland, by the German Baptist Publishing Company.

1866.—The *Christian Standard*, at Cleveland, by the Christian Publishing Company. Published two years.

1867, January.—*Brotherhood of Locomotive Engineers*, at Rochester, New York; monthly. In 1868 removed to Fort Wayne, and in 1870 to Cleveland. Still published.

1868, January.—The *Ohio Weekly Review*, at Cleveland, by G. H. & E. S. Adams & K. Stone. Changed to the *Commercial Review*; then to the *Manufacturing and Trade Review*, and in 1879 to the *Trade Review*. Still published.

1868, June 20.—The *Advertiser*, at Cleveland, by Berea Job Printing Company. April, 1869, changed to the *Grindstone City Advertiser*; January, 1879, changed to the *Berea Advertiser*. Still published.

1869.—The *Evening News*, at Cleveland, by the Leader Company.

1869.—The *Hardware Reporter*, at Cleveland (formerly published at Pittsburgh); October, 1878, removed to Cleveland, by Protzman & Hillerman. Also prints a monthly edition called *Export Edition*.

1869.—The *Living Epistle*, at Cleveland, by the Evangelical Association; monthly. Still published.

1869, July.—*Das Evangelische Magazin* (German), at Cleveland, by the Evangelical Association; monthly.

1870.—*Temperance Era*, at Cleveland, by J. A. Spencer. Published one year.

1870.—*Ohio Spiritualist*, at Cleveland, by a company. Published three years.

1871.—*Printing Gazette*, at Cleveland. Suspended in 1872.

1871, August 15.—*Anzeiger*, at Cleveland, by H. Gentz. Now published, daily and weekly.

1871, October.—The *Sunday Morning Voice*, at Cleveland, by W. S. Robinson. In June, 1878, consolidated with *Sunday Post*, and called the *Sunday Voice and Post*. Afterward changed to the *Sunday Voice*. Still published.

1872.—*Die Biene*, at Cleveland, by William Miller.

1872.—The *Prohibition Era*, at Cleveland, by A. T. Proctor. Published four years.

1872.—The *New Era*, at Cleveland, by Parker & Co. Published a short time.

1872.—The *Real Estate Recorder*, at Cleveland, by H. S. Herr. Published one year.

1872.—*Pokrok* (Bohemian), at Cleveland, by F. B. Zdrubek. Suspended in 1878.

1872.—The *Mechanics' and Blacksmiths' Journal*, at Cleveland, by J. Fehrenbatch. Suspended in 1878.

1872.—The *Coopers' Journal*, at Cleveland, by M. A. Foran. Published several years.

1872, December.—The *Mission Harvester*, at Cleveland. In July, 1874, changed to the *Christian Harvester*.

1873, January.—*Die Sonntagsfreude*, at Cleveland, by the German Baptist Publishing Company.

1873.—*All Around the Clock*, at Cleveland, by ——— Nelson. Afterward changed to the *South Cleveland Advocate*. Still published.

1873.—The *Home Companion*, at Cleveland, by Thorpe & Bro.

1873.—The *Real Estate Journal*, at Cleveland, by J. N. Bebout. Suspended in 1877.

1873.—The *Illustrated Bazaar*, at Cleveland. Published several months.

1873.—*House and Garden*, at Cleveland, by G. E. Blakelee. Published two years.

1873.—*Hygenia*, at Cleveland, by Dr. Libbey. Published three years.

1873.—Oberlin *New Era*, at Cleveland, by Dr. Libbey. Published less than a year.

1873.—The *Cleveland Pulpit*, at Cleveland, by E. B. Raffensperger. Published two years.

1874, June.—The *Earnest Worker*, at Cleveland, by the Women's Christian Association; monthly.

1874, July.—The *Catholic Universe*, at Cleveland, by Rev. T. P. Thorpe.

1874.—The *Chagrin Exponent*, at Chagrin Falls, by Stranahan & Hohler. Still published.

1874.—*Sontaggsblatt*, at Cleveland, by J. Kurzer.

1874.—*Cross and Crown*, at Cleveland, by L. W. Tatum. Published one year.

1874.—The *Columbia*, at Cleveland, by J. Killan. Suspended in 1878.

1874.—The *Celtic Index*, at Cleveland, by Rev. A. Quinn. Published a short time.

1874.—The *Lumdale Enterprise*, at Cleveland, by W. W. Robinson. Published one year.

1874.—*Our Youth*, at Cleveland. Published one year.

1874.—The *Trio*, at Cleveland. Published one year.

1875.—The *Cuyahoga County Blade*, at Newburgh, by L. A. Woodward. Published one year.

1875.—The *Household Treasure*, at Cleveland, by Waite & Meyel. Suspended in 1876.

1875.—The *Irish National Magazine*, by W. J. Nicholson. Suspended in 1876.

1875.—The *Democratic Sunday Blade*, at Cleveland. Published one year.

1876.—The *Indicator*, at Cleveland, by S. W. Crowell & Co. Suspended in 1877.

1876.—*Die Abend Lust*, at Cleveland, by the German Publishing Company.

## OHIO—Continued.

1876, January.—*Evangelical Sunday-School Teacher*, at Cleveland, by the Evangelical Association.

1876.—*Laemmerweide*, at Cleveland, by the Evangelical Association.

1876.—*My Lesson*, at Cleveland, by the Evangelical Association.

1876.—The *Little Ones at Home*, at Cleveland, by M. A. Beebe. Published two years.

1876.—*Maria Hilf*, at Cleveland, by J. H. Renfert. Suspended in 1877.

1876.—The *Pictorial World*, at Cleveland, by E. J. Farmer. Suspended in 1877.

1876.—*Delnicke Liste*, at Cleveland. Published two years.

1876, May.—The *Sunday Morning Times*, at Cleveland, by J. P. O'Brien.

1877.—The *Sunday Post*, at Cleveland. In 1878 consolidated with the *Sunday Voice*.

1877, October.—*Denuice Novovcke* (Bohemian), at Cleveland, by Vaclay, Snajdr & Korizik.

1878, November.—The *Penny Press*, at Cleveland, by Scripps & Sweeny; daily. Still published.

### DARKE COUNTY.

1832, June 25.—The *Western Statesman and Greenville Courier*, at Greenville, by E. Donnellan. In April, 1850, changed to the *Journal*. Still published.

1847, April.—The *Democratic Herald*, at Greenville, by Mehaffey & Lewis. In 1848 changed to the *Union Democrat*, and afterward to the *Telegraph*. In 1852 changed to the *Mad Anthony*, and in 1854 removed to Union City, Indiana.

1854.—The *Eagle*, at Greenville, by T. Perry. Published six months.

1855.—The *Darke County Democrat*, at Greenville, by A. G. Clarke. Still published.

1875, May 22.—The *Sunday Courier*, at Greenville, by G. W. Calderwood. Still published.

### DEFIANCE COUNTY.

1844.—The *Democrat*, at Defiance, by J. J. Greene. Still published.

1868.—The *Express*, at Defiance, by F. Brooks. Still published.

### FRANKLIN COUNTY.

1811.—The *Western Intelligencer*, at Worthington, by Colonel James Kilbourne. In 1814 removed to Columbus and called the *Western Intelligencer and Columbus Gazette*. The first part of the title afterward dropped. In September, 1825, changed to *Ohio State Journal and Columbus Gazette*. Daily established December 3, 1839. Now published as the *Ohio State Journal*.

1812.—The *Freeman's Chronicle*, at Franklinton, by J. B. Gardner. Published two or three years.

1816.—The *Ohio Monitor*, at Columbus, by Smith & Griswold. In 1835 merged in the *Western Hemisphere*.

1825.—The *Western Statesman*, at Columbus, by Mills & Lewis. In 1828 merged in the *Journal and Gazette*.

1828.—The *National Enquirer*, at Columbus, by Horton Howard. Published two years.

1829, July.—The *Ohio State Bulletin*, at Columbus, by Bryan & Lazell. In 1832 changed to the *Columbus Sentinel*, and in 1835 merged in the *State Journal*.

1830.—The *Ohio Register and Anti-Masonic Review*, removed from Milan, Huron County, to Columbus, by Jenkins & Glover. Suspended in 1833.

1832.—The *Western Hemisphere*, at Columbus, by Gilbert & Melcher. In July, 1837, changed to the *Ohio Statesman; Daily Statesman* established in 1847; June 22, 1872, daily consolidated with *Evening Dispatch*. Weekly now published as weekly edition of *Daily Times*.

1832.—The *Thompsonian Recorder*, at Columbus, by Jarvis, Pike & Co. Removed to Cincinnati in 1842.

1833.—The *Emigrant* (German), at Columbus, by Henry Roeder. Published one year.

1838.—The *Ohio Confederate*, at Columbus, by J. G. Miller. In 1841 changed to the *Old School Republican*, and continued two years.

1838.—The *Cross and Journal* (Baptist), removed from Cincinnati (established there in 1831) to Columbus, by George Cole. In 1849 returned to Cincinnati.

1840.—The *Ohio Staats Zeitung*, at Columbus, by ——— Weistling. Published one year.

1840.—The *Straight-out Harrisonian*, at Columbus, by Allen, Sage & Beverage.

1840.—The *Tornado*, by R. P. Sage, and the *Auger*, by T. W. H. Mosely, at Columbus.

1841.—The *Ohio Adler* (German), at Columbus, by Valentine Kastner. Published two years.

1842.—The *Ohio Freeman*, at Columbus, by John Duffy. The *Columbus Herald* afterward published by J. Duffy.

184-.—The *Forewertz* (German), at Columbus, by Robert Clemen. Published one year.

1845.—The *Ohio Cultivator*, at Columbus, by B. Batcham. Subsequently removed to Cleveland.

1847.—The *Ohio Press*, at Columbus, by Eli T. Tappan. Published a year or two.

1847.—The *Freeman*, at Columbus.

1848.—The *Ohio Standard*, at Columbus, by Hamlin & Garrard. Suspended in February, 1849. In November, 1849, another of same name established by Gale & Cleveland. Suspended in spring of 1851.

1851, January.—The *Western Agriculturist*, at Columbus, by J. H. Riley & Co.; monthly.

1851, October.—The *Daily Capital City Fact*, at Columbus, by a company. In 1863 merged in the *Daily Evening Express*, and continued a short time.

1853.—The *Medical and Surgical Journal*, at Columbus, by Dr. John Dawson. Suspended in 1866.

1853, December 12.—The *Daily Ohio State Democrat*, at Columbus, by Knapp, Osgood & Blake. In 1854 united with the *Statesman*, and called the *Statesman and Democrat.*

1853.—The *Columbian*, at Columbus, by an association. In 1856 merged in the *State Journal*.

1855.—The *Daily Enterprise*, at Columbus, by J. M. Kinney & Co. Published six months.

1856.—The *Volks Tribune*, at Columbus, by a company. Published several years.

### FULTON COUNTY.

1855.—The *North Western Republican*, at Wauseon, by A. B. Smith & Co. Still published.

### GEAUGA COUNTY.

1828.—The *Geauga Gazette*, at Painesville. Soon afterward removed to Chardon, and changed to the *Chardon Spectator*. Published several years and then removed to Toledo.

1840, May.—The *Geauga Freeman*, at Chardon, by J. W. White. In November, 1842, changed to the *Geauga Republican and Whig*, and in 1849 to the *Geauga Republican*. In 1854 removed to Cleveland.

1849, December.—The *Free Democrat*, at Chardon, by Brown & Canfield. In January, 1854, changed to the *Jeffersonian Democrat;* in January, 1866, to the *Geauga Democrat*, and in January, 1872, to the *Geauga Republican*. Still published.

1872, August.—The *Western Reserve Times*, at Chardon, by Canfield, Eggleston & Bostwick. Afterward changed to the *Chardon Times*. Published one year.

1874, December.—The *Geauga Leader*, at Burton, by J. B. Coffin. Still published.

### HANCOCK COUNTY.

1836, November 10.—The *Democratic Courier*, at Findlay, by J. Rosenberg. Still published.

1840.—The *Hancock Farmer*, at Findlay, by J. Rosenberg.

## OHIO—Continued.

1845, January.—The *Western Herald*, at Findlay, by J. T. Ford. In November, 1845, changed to the *Findlay Herald*. Afterward called the *Journal*, the *Home Companion*, the *Jeffersonian*, the *Hancock Jeffersonian*, and the *Findlay Jeffersonian*. Still published.

### HARRISON COUNTY.

1818, November.—The *Ohio Luminary*, at Cadiz, by S. Seigfried.

### HENRY COUNTY.

1853.—The *North West*, at Napoleon, by Orwig & Co. Still published.

1865.—The *Signal*, at Napoleon, by P. B. Auger. Still published.

### KNOX COUNTY.

1813.—The *Ohio Register*, at Clinton, by Smith & McArdel. In April, 1816, removed to Mount Vernon. Suspended April 15, 1818.

1825.—The *Western Aurora*, at Mount Vernon, by E. Harkness. Afterward changed to *Mount Vernon Gazette*. Suspended in 1835.

1827.—The *Gambier Observer*, at Gambier, by G. W. Myers. Afterward changed to the *Western Episcopalian*. Still published.

1827.—The *Democrat and Knox Advertiser*, at Mount Vernon, by ——— Colerick. In October, 1832, changed to *Mount Vernon Democrat and Knox Advertiser*, and in 1833 to the *Looking Glass and Whig Reflector*.

1835, June.—The *Day Book*, at Mount Vernon, by Charles Colerick. In 1838 merged in the *Western Watchman*.

1838, April.—The *Democratic Banner*, at ———, by Bassett & Robb.

1838.—The *Western Watchman*, at Mount Vernon, by S. M. Browning. Suspended in 1839.

1840.—The *Knox County Republican*, at Mount Vernon, by J. E. Wilson. Suspended in fall of 1841.

1842.—The *Times*, at Mount Vernon, by W. H. Cochran. Subsequently called the *Republican Times*, the *Ohio State Times*, and the *Mount Vernon Republican*. Still published as the *Republican*.

1848.—The *Mount Vernon True Whig*, at Mount Vernon. Afterward changed to *Norton's Daily True Whig*. Suspended in 1855.

1858.—The *National*, at Mount Vernon, by Agnew & Ragnet. Published three months.

1860, December.—The *Knox County Express*, at Mount Vernon, by Agnew & Tilton.

### MERCER COUNTY.

1848, August 4.—The *Advocate*, at Celina, by Smith & Millard. Published one year.

1848.—The *Western Standard*, at Celina, by a stock company. Afterward changed to the *Mercer County Standard*. Still published.

1874.—The *Observer*, at Celina, by J. E. Blizzard. Still published.

### MIAMI COUNTY.

1820, July 6.—The *Piqua Gazette*, at Piqua, by W. R. Barrington. In 1837 changed to the *Intelligencer*. Suspended in 1861.

1822.—The *Miami Reporter*, at Troy, by M. Fairchild. Suspended in 1869.

1847.—The *Piqua Enquirer*, at Piqua, by D. M. Fleming. In 1860 changed to the *Piqua Journal*. Still published.

1853.—The *Tippecanoe City Reflector*, at Tippecanoe City, by ——— Hudson. Published two years.

1860.—The *Miami County Democrat*, at Piqua, by Horton & Teverbaugh. Still published.

1865, January.—The *Miami Union*, at Troy, by J. W. Defrees.

1866.—The *City Item*, at Tippecanoe City, by C. Crowell; semimonthly. Published a few months.

1869, June 10.—The *Tippecanoe City Herald*, at Tippecanoe City, by ——— Horton. Still published.

1874.—The *Miami Helmet*, at Piqua, by Horton & Teverbaugh. Still published.

1878, April 17.—*Der Piqua Correspondent*, at Piqua, by J. B. Hemsteger. Still published.

### MUSKINGUM COUNTY.

1810.—The *Ohio Patriot*, at Zanesville, by White & Sawyer.

### RICHLAND COUNTY.

1818, April.—The *Olive*, at Mansfield, by J. C. Gilkinson. Published one year.

1823.—The *Mansfield Gazette*, at Mansfield, by J. Purdy. In 1832 merged in the *Western Herald*.

1832.—The *Western Herald*, at Mansfield, by J. L. Reed. In 1832 consolidated with the *Mansfield Gazette*, and called the *Ohio Spectator*. Suspended in 1833.

1832.—The *Richland* Whig, at Mansfield, by J. & C. Boreland. Published two years.

1836.—The *Ohio Shield*, at Mansfield, by Meredith & Warnock. In 1838 changed to the *Shield and Banner*. Still published.

1838.—The *Richland Jeffersonian*, at Mansfield, by Marain & Devine. Subsequently changed to the *Mansfield Herald*. Still published.

1844.—The *Morning Pennant*, at Mansfield, by Wiley & Tidball.

1844.—The *Richland Bugle and Independent Press*, at Mansfield, by William Johnson. Published one year.

1851.—The *Plymouth Journal*, at Plymouth, by E. H. Sanford. In 1853 changed to the *Plymouth Advertiser*.

1855.—The *Galion Weekly Times*, at Galion, by J. H. Putnam. Subsequently changed to the *Galion Weekly Train*; in 1856 to the *Galion District Democrat*, and in 1864 to the *Galion Democrat*. Continued a short time.

1858.—The *Pioneer*, at Shelby, by C. R. Brown. Published a short time.

1859.—The *Richland Democrat*, at Mansfield, by Kelley & Reisinger. Suspended in 1862.

1862.—The *Enterprise*, at Shelby, by ——— Kenton. Changed in 1863 to the *Express*, and continued one year.

1864.—The *Gazette*, at Shelby, by Glover & Bloom. Published three years.

1865, July 6.—The *Weekly Review*, at Galion, by H. S. Z. Matthias. In 1871 changed to the *Galion Democrat*, and in 1874 to the *Galion Review*. Still published.

1867.—The *Shelby Chronicle*, at Shelby, by Young & Hill. In October, 1868, changed to the *Shelby Independent News*, and in 1876 to the *News*. Still published.

1867, July.—The *Advocate*, at Crestline, by A. Billow. Still published.

1868.—The *Gazette*, at Shelby, by T. H. Barkdull. Published four years.

1872, February 28.—The *Bellville Dollar Weekly*, at Bellville, by Potts & Faus. Still published.

1872, October 5.—The *Mansfield Courier*, at Mansfield, by A. Sebach. Still published.

1872, October 31.—The *Sun*, at Galion, by G. T. Ristine. Still published.

1873, March 20.—The *Advocate*, at Loudonville, by J. A. Ruth. Still published.

1873.—The *Independent Democrat*, at Crestline, by Jenner & Reed. In 1876 removed to Bucyrus.

1873, April.—The *Ohio Liberal*, at Mansfield, by a company. Still published.

1875.—The *Richland Star*, at Bellville, by Garber Bros. Still published.

1876, July.—The *Sunday Morning Call*, at Mansfield, by A. J. Baughman. Still published.

1876, December 2.—The *Times*, at Shelby, by J. G. Hill. Still published.

### SANDUSKY COUNTY.

1829.—The *Journal*, at Fremont, by A. H. Balsley. Still published.

## OHIO—Continued.

1861.—The *Courier*, at Fremont, by Willmer & Knerr. Still published.

1864.—The *Messenger*, at Fremont, by J. S. Van Valkenburg. Still published.

### SENECA COUNTY.

1832, August 4.—The *Seneca Patriot*, at Tiffin, by J. H. Brown.

——.—The *Independent Chronicle*, at Tiffin, by A. Rawson.

——.—The *Tiffin Gazette*, at Tiffin, by J. F. Reed. Suspended in 1842.

1840, July.—The *Van Burenite and Seneca County Advertiser*, at Tiffin, by H. Cronise. Suspended in 1841.

1842, May 6.—The *Seneca Advertiser*, at Tiffin, by J. C. Breslin. Still published.

1845, November 18.—The *Whig Standard*, at Tiffin, by G. L. Whaton.

### SUMMIT COUNTY.

At Akron, since 1836, 22 periodicals have been issued, as follows: (*a*)

1836, March 19.—The *Akron Weekly Post*, by M. H. White.

——.—The *Akron Journal*, by J. F. Fenn.

——.—The *American Balance*, by Smith & Galloway.

——.—The *Buzzard*, by J. Brownbread.

——.—*Glad Tidings*, by Whitney, Davis & Doolittle.

——.—The *Flower of the West*, by Allison & Rumrix.

——.—The *Pestalozzian*, by Sawtell & Co.

——.—The *Cascade Roarer*, by Lane & Co.

——.—*Summit Beacon*, by H. Bowen.

——.—The *Flail*, by L. L. Howard.

——.—The *American Democrat*, by H. Canfield.

——.—The *Casket and Free Soil Platform*.

——.—*Free Democrat*.

——.—*True Kindred*.

——.—*Akron Offering*.

——.—*Free Democratic Standard*.

——.—The *Whip*.

——.—The *Sockdolager*.

——.—The *School Mistress*.

### VAN WERT COUNTY.

1860.—The *Bulletin*, at Van Wert, by J. H. Foster. Still published.

1866.—The *Times*, at Van Wert, by W. H. Clymer. Still published.

### WAYNE COUNTY.

1817.—The *Ohio Spectator*, at Wooster, by L. Cox. Published about two years.

1820, January 13.—The *Wooster Spectator*, at Wooster, by Bentley & Clingan. Published seven years.

1826.—The *Ohio Oracle*, at Wooster, by J. Barr. Published four years.

1826.—The *Correspondent*, at Wooster, by J. Sala. Published a short time.

1826.—The *Republican Advocate*, at Wooster, by J. Clingan. Consolidated with the *Western Telegraph*, and called the *Democratic Republican*. Subsequently changed to the *Democrat*. Still published.

——.—The *Western Telegraph*, at Wooster, by M. Barr. Merged in the *Republican Advocate*.

1832.—The *Wooster Journal and Democratic Times*, at Wooster. In 1840 changed to the *Wooster Democrat*, and in 1853 to the *Wooster Republican*. Still published.

1844.—The *Standard*, at Wooster, by R. V. Kenney. Published a short time.

1855.—The *American Eagle*, at Wooster, by H. Coe. Published six months.

1866, December.—The *West Salem Review*, at West Salem, by Dr. J. Georget; monthly. In 1867 changed to the *Medical Review*. Suspended in 1868.

1867.—The *True Citizen*, at West Salem, by F. G. McCauley. Published three months.

1867.—The *Orrville Crescent*, at Orrville, by J. A. Wolback. Still published.

1868.—The *Home Mirror*, at Shreve, by C. M. Kenton; monthly. Changed to the *Shreve City Mirror*, and afterward to the *Journal*. Still published.

1868.—The *West Salem Journal*, at West Salem, by J. Wicks. Published two years.

1871, January.—The *Agricultural Commonwealth*, at West Salem, by F. G. McCauley. In 1872 changed to the *Buckeye Farmer*, and afterward to the *West Salem Monitor*. Still published.

1875.—*Evening at Home*, at Orrville, by H. A. Mumaw.

1875.—*Words of Cheer*, at Orrville.

### WILLIAMS COUNTY.

1855.—The *Press*, at Bryan, by P. C. Hayes. Still published.

1863.—The *Democrat*, at Bryan, by R. H. Patterson. Still published.

### WOOD COUNTY.

1833, December 11.—The *Miami of the Lake*, at Perrysburg, by Scott & Darling. In August, 1838, changed to the *Ohio Whig*.

1853.—The *Journal*, at Perrysburg, by J. Timmons. Still published.

1867.—The *Sentinel*, at Bowling Green, by M. P. Brewer. Still published.

### WYANDOT COUNTY.

1845.—The *Republican*, at Upper Sandusky. Still published.

1857.—The *Democratic Union*, at Upper Sandusky. Still published.

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*a* The information given is all that was furnished.

## OREGON.

Area, 94,560 square miles; population, 174,768; 23 counties—newspapers published in 21. The total number of newspapers and periodicals published in 1850 was 2; 1860, 16; 1870, 35; 1880, 74. The publications during 1880 were divided, according to periods of issue, as follows: Dailies, 7; weeklies, 59; monthlies, 6; semi-monthlies, 1; quarterlies, 1. In each of 18 towns one paper was published; in 11, two; in 1, three; in 2, four; and in 1, five or more.

### EARLY HISTORY.

1846, February.—Printing introduced and the *Oregon Spectator* established at Oregon City.

1848.—The *Oregon Free Press*, at Oregon City, by George L. Curry.

## PENNSYLVANIA.

Area, 44,985 square miles; population, 4,282,891; 67 counties—newspapers published in all. The total number of newspapers and periodicals published in 1810 was 71; 1840, 187; 1850, 310; 1860, 367; 1870, 540; 1880, 973. The publications during 1880 were divided, according to periods of issue, as follows: Dailies, 98; weeklies, 678; semi-weeklies, 3; tri-weeklies, 4; bi-weeklies, 1; monthlies, 159; semi-monthlies, 16; bi-monthlies, 1; quarterlies, 16; semi-annuals, 1. In each of 143 towns one paper was published; in 58, two; in 31, three; in 16, four; and in 32, five or more.

### EARLY HISTORY.

1686.—Printing first introduced at Philadelphia.

## PENNSYLVANIA—Continued.

1719, December 22.—The *American Weekly Mercury*, established at Philadelphia by Andrew Bradford; half cap sheet, 8½ by 14. Publication suspended soon after 1746.

1728, December 24.—The *Universal Instructor in All Arts and Sciences and Pennsylvania Gazette*, at Philadelphia, by Samuel Keimer. Cap sheet, 14 by 17. Sold to Benjamin Franklin, who was in partnership with Hugh Meredith, about 1729, when the first part of the title was dropped. Publication suspended for a short time in 1815; re-established, and in 1845 was merged in the *Daily North American*, which is still published.

1739.—The *Pennsylvania German Recorder of Events*, at Germantown, by Christopher Sower (or Saur). Published several years.

1741, January.—The *General Magazine and Historical Chronicle for all the British Plantations in America*, at Philadelphia, by B. Franklin. Published six months.

1741, January.—The *American Magazine, or a Monthly View of the British Colonies*, at Philadelphia, by John Webbe; 48 pages. But two numbers were published.

1742, December 2.—The *Pennsylvania Journal and the Weekly Advertiser*, at Philadelphia, by William Bradford; cap sheet, 14 by 17. Publication suspended in 1797.

1743, May.—The *High Dutch Pennsylvania Journal*, at Philadelphia, by Joseph Crellius.

1744.—The *Germantown Gazette* (German), at Germantown, by Christopher Sower, jr. (successor to *German Recorder*). Publication suspended in 1748.

1751.—*Die Zietung*, at Philadelphia, by Godheart Armbruster. Publication suspended after 1764.

1757, October.—The *American Magazine, or Monthly Chronicle for the British Colonies*, at Philadelphia, by William Bradford. Publication suspended in 1758.

1762, January.—*Der Wochentliche Philadelphische Staatsbote*, at Philadelphia, by Henry Miller. Publication suspended in 1812.

1767, January 6.—The *Pennsylvania Chronicle and Universal Advertiser*, at Philadelphia, by William Goddard; medium sheet, 18 by 23. Publication suspended in February, 1773.

1769.—The *Penny Post* (magazine), at Philadelphia, by Benjamin Mecom. Published a short time.

1769.—The *American Magazine*, at Philadelphia, by Lewis Nicola. Publication suspended in 1770.

1771.—The *Royal Spiritual Magazine, or the Christian's Grand Treasury*, at Philadelphia, by John MacGibbons. Published monthly a few months.

1771, November.—The *Pennsylvania Packet, or the General Advertiser*, at Philadelphia, by John Dunlap; demy sheet, 16 by 21. Changed to a daily in 1784, and called the *Pennsylvania Packet and Daily Advertiser.*

1775, January.—The *Pennsylvania Magazine, or American Monthly Museum*, at Philadelphia, by Robert Aitken; 4 pages, octavo. Publication suspended in 1776.

1775, January 24.—The *Pennsylvania Evening Post*, at Philadelphia, by Benjamin Toune; half crown sheet, 9½ by 15. Publication suspended in 1782.

1775, January 28.—The *Pennsylvania Ledger, or the Virginia, Maryland, Pennsylvania, and New Jersey Weekly Advertiser*, at Philadelphia, by James Humphreys, jr.; demy sheet, 16 by 21. Suspended publication in November, 1776. When the British took possession of the city its publication was resumed; but again discontinued when they left.

1775, April.—*Story and Humphreys' Pennsylvania Mercury and Universal Advertiser*, at Philadelphia, by Story & Humphreys; demy sheet, 16 by 21. Publication suspended in December, 1775.

1791, October.—The *National Gazette*, at Philadelphia, by Philip Freneau. Suspended in 1793.

Papers were established in other counties as follows :

### ALLEGHENY COUNTY.

1786, July 29.—The *Pittsburgh Gazette*, at Pittsburgh, by J. Scull & Hall.

1805.—The *Commonwealth*, at Pittsburgh, by E. Pentland. Afterward changed to the *Statesman.*

1810.—The *Mercury*, at Pittsburgh, by J. C. Gilleland.

1821.—The *Pittsburgh Record*, at Pittsburgh, by Rev. Mr. Andrews.

1823.—The *Allegheny Democrat*, at Pittsburgh, by J. McFarland.

### BEDFORD COUNTY.

1805.—The *Bedford Gazette*, at Bedford. Still published.

1828.—The *Bedford Inquirer*, at Bedford. Still published.

### BERKS COUNTY.

1789, February 18.—*Neue-Unpartheyische Zeitung*, at Reading, by Johnson, Barton & Yunginan.

1797, January 17.—The *Adler*, at Reading, by J. Snyder & Co. Still published.

1816, June 17.—The *Berks and Schuylkill*, at Reading, by J. S. Richards. Now published as the weekly edition of the *Daily Times and Dispatch*, established in 1857.

——.—The *Democratic Press*, at Reading, by S. Myers.

——.—The *Jeffersonian Democrat*, at Reading, by J. Ritter.

——.—The *Gazette*, at Reading, by Gitz & Boyer.

——.—The *Liberale Beobachter*, at Reading, by A. Puwelle.

——.—*Alt Berks*, at Reading, by W. Schoener.

### BLAIR COUNTY.

1833, August 9.—The *Aurora*, at Hollidaysburgh, by T. P. Campbell. Published two years.

1836, July 2.—The *Canal and Portage Register*, at Hollidaysburgh, by Scott & Gray. In April, 1838, changed to the *Hollidaysburgh Register and Huntingdon County Inquirer ;* March, 1846, to the *Hollidaysburgh Register and Blair County Inquirer ;* in 1854 or 1855 to the *Hollidaysburgh Register and Blair County Weekly News*, and in November, 1870, to the *Hollidaysburgh Register.* Still published.

1838.—The *Standard*, at Hollidaysburgh, by P. L. Joslin. Suspended for a while, but re-established in October, 1844, as the *Democratic Standard.* Still published.

1843, January.—The *Beacon Light*, at Hollidaysburgh, by Traugh & Boggs. In 1845 merged in the *Democratic Standard.*

1847.—The *Blair County Whig*, at Hollidaysburgh, by J. L. Slentz. In 1866 changed to the *Radical and Blair County Whig*, and in May, 1868, to the *Blair County Radical.* Afterward removed to Altoona, where it is now published.

1849.—The *Shield*, at Hollidaysburgh, by H. Smith. Published a short time.

1855.—The *Register*, at Altoona, by W. H. & J. A. Snyder. Published six months.

1856, January.—The *Tribune*, at Altoona, by Allison & McCrum. Still published as the weekly of the *Daily Tribune*, established January, 1878.

1856.—The *American Era*, at Tyrone, by a stock company.

——.—The *Herald*, at Tyrone, by R. Stoddard. Published about one year and suspended, but revived as the *Tyrone Star.* Afterward suspended, but again re-established as the *Western Hemisphere.* Suspended in August, 1867, but revived as the *Tyrone Herald.* Still published.

1866.—The *Leader*, at Hollidaysburgh, by J. H. Keatly. Published about one year.

1868.—The *Temperance Vindicator*, at Williamsburg, by J. P. Thompson. In 1870 removed to Harrisburg.

1868, May.—The *Vindicator*, at Altoona, by J. F. Campbell. In December, 1869, changed to the *Altoona Sun.* Now published as the weekly edition of the *Daily Sun*, established in December, 1879.

1870, June.—The *Blade*, at Tyrone, by J. L. Holmes. In November, 1872, changed to the *Tyrone Democrat.* Suspended in July, 1880.

1873, November.—The *Baptist*, at Altoona, by Rev. William Codville. Published one year.

## PENNSYLVANIA—Continued.

1874, June.—The *Evening Mirror*, at Altoona, by Slep & Akers; daily. In 1879 changed to the *Democratic Call*, and afterward to the *Evening Call*. Still published.

1874.—The *Cove Echo*, at Martinsburg, by H. & J. Brumbaugh. Published a short time.

——.—The *Sunday Globe*, at Altoona, by G. J. Akers; weekly. In 1877 changed to the *Daily Globe*.

1877, July.—The *Musical Advocate*, at Altoona, by R. B. Mahaffey; monthly.

1878, March.—*Der Deutsche Volksfuehrer* (German), at Altoona, by H. Slep. Still published.

1879, May.—The *Advance*, at Altoona, by T. P. Rynder. Still published.

1879, August.—The *Youth's Mirror*, at Altoona, by E. J. Slep; monthly.

### BUCKS COUNTY.

1800, July 25.—The *Farmer's Weekly Gazette*, at Doylestown, by I. Ralston. Published about two years.

1800.—The *Aurora*, at Philadelphia, by F. Bache. Removed to Bristol temporarily.

1802.—The *Bucks County Bee*, at Newtown, by C. Holt.

1804, July.—The *Pennsylvania Correspondent and Farmer's Advertiser*, by A. Miner. In 1818 changed to the *Pennsylvania Correspondent;* in 1824 to the *Bucks County Patriot and Farmer's Advertiser;* in 1827 to the *Bucks County Intelligencer and General Advertiser*. Still published.

1805.—The *Farmer's Gazette and Bucks County Register*, at Newtown. by W. B. Coale. Suspended in 1817.

1816.—The *Democrat*, at Doylestown, by L. Diffenbach & Co. In 1821 consolidated with the *Messenger* and changed to the *Bucks County Democrat;* afterward to the *Democrat and Farmer's Gazette*, and in 1829 to the *Doylestown Democrat*. Still published.

1817, May.—The *Star of Freedom*, at Newtown, by A. Miner. Suspended in April, 1818.

1820.—The *Bucks County Messenger*, at Doylestown, by S. Seigfried. In 1821 merged in the *Democrat*.

1827.—The *Bucks County Political Examiner*, at Doylestown, by Shaw & Bartleson. In 1829 changed to the *Bucks County Republican*, and in December, 1829, to the *Bucks County Republican and Anti-Masonic Register*. Published four years.

1827, June.—The *Doylestown Express*, at Doylestown, by M. H. Snyder. In 1827 changed to the *Bucks County Express*, consolidated with the *Reform*, and changed to the *Express and Reform*. Still published.

1835, April.—The *Jackson Courier and Democratic Advertiser*, at Doylestown, by F. Ross. Suspended in February, 1836.

1835, August.—*Der Bauer* (German), at Doylestown, by J. Young. In 1841 changed to *Der Morgenstern*. Still published.

1837 or 1838.—The *Public Advocate*, at Doylestown, by F. P. Sellers. Published one year.

1840, August.—The *Literary Chronicle*, at Hatborough. In 1841 removed to Newtown, and in 1842 changed to the *Newtown Journal*. Suspended in 1850.

1842.—The *Olive Branch*, at Doylestown, by F. P. Sellers. In 1850 removed to Norristown and changed to the *Independent*. Afterward to the *Olive Branch*, and finally suspended.

1847.—The *Independent Democrat*, at Doylestown, by W. H. Snyder. In 1852 changed to the *Watchtower*. Suspended about 1854.

1849.—The *Gazette*, at Bristol, by W. Bache. Suspended in 1850.

1850.—*Der Religiose Botschafter* (German), at Milford Square; semi-monthly. In 1860 changed to *Das Christliche Volksblatt*, and in 1872 to *Der Mennonitische Friedenbote*. Still published.

1853, summer.—The *Spy*, at Doylestown, by R. T. Donatt. Suspended in 1854.

1854.—The *Star Spangled Banner*, at Quakertown, by Overholt & Donatt.

1854, July.—The *Bucks County American*, at Bristol. In 1856 consolidated with the *Burlington American*.

1857, October.—The *Gazette*, at Newtown, by W. Bush. Published one year.

1858, March.—*Quakertown Press*, at Quakertown, by Schaupp & Wenig. In November, 1859, changed to the *Educator*. In 1863 removed to Turbotville; in 1865 to Williamsport, and in 1872 to Kutztown, Berks county, and published as the *National Educator;* monthly.

1859, January.—The *Index*, at Bristol, by W. Bache. Published eighteen months.

1859, April.—The *Democratic Standard*, at Doylestown, by Beans & Keister. Suspended in 1861.

1866.—The *Reform* (German), at Doylestown, by Dr. Morwitz. Consolidated with the *Express*.

1868, March.—The *Enterprise*, at Newtown, by E. F. Church. Still published.

1869.—The *Independent*, at Quakertown, by Pryor. Changed to the *Bucks County Mirror*, and in 1872 removed to Doylestown. Still published.

1871, January.—The *Good Templar's Journal*, quarterly, at Hulmeville, by Mr. Tilton and Hannah E. Holcomb. Published a short time.

1871.—The *Squib*, at Hulmeville, by W. Tilton. In April, 1872, changed to the *Beacon*, and in August, 1872, to the *Hulmeville Beacon*. Still published.

1871, April.—The *Observer*, at Bristol, by J. Drury. Still published.

1872.—The *Luminary*, at Yardleyville, Lower Makefield township, by W. H. Shively. Suspended in 1875.

1873, August.—The *Bucks County Gazette*, at Bristol, by J. O. Thomas. Still published.

1873, November.—The *Echo*, at Hulmeville, by W. H. Johnson. In February, 1875, changed to the *Keystone Amateur*. Suspended in October, 1875.

1875, April.—*Die Demokratische Wacht* (German), at Doylestown, by Heist & McGinty. Still published.

1876, January.—*Das Himmels Manna* (German), at Milford Square, by J. G. Stauffer; monthly. Still published.

### CARBON COUNTY.

1830.—The *Carbon County Gazette*, at Mauch Chunk, by A. L. Foster. Still published.

1833.—The *Mauch Chunk Courier*, at Mauch Chunk, by A. L. Foster.

### CENTRE COUNTY.

1827.—The *Democrat*, at Bellefonte, by P. Benner.

### CLINTON COUNTY.

1838, August.—The *Eagle*, at Lock Haven, by W. A. Kinsloe. In 1839 changed to the *Clintonian*. In 1840 suspended for a short time, but revived as the *Clinton County Whig*. October 17, 1847, removed to Jersey Shore.

1839 or 1840.—The *Clinton County Democrat*, at Lock Haven, by Wilbur & Shriner. Published a year or two. In 1843 revived by J. R. Eck.

——.—The *Clinton Democrat*, at Lock Haven, by S. S. Seely.

1849, December 26.—The *Clinton Tribune*, at Lock Haven, by A. J. Greer. About 1855 changed to the *Watchman*.

### COLUMBIA COUNTY.

1836.—The *Democrat*, at Bloomsburg. In 1869 consolidated with the *Columbian*.

1857.—The *Republican*, at Bloomsburg. Still published.

1866.—The *Columbian*, at Bloomsburg. In 1869 consolidated with the *Democrat*. Still published as the *Columbian*.

### CUMBERLAND COUNTY.

1810.—The *Weekly News*, at Shippensburg, by J. L. Baker.

1835 or 1836.—The *Microcosm*, at Mechanicsburg, by D. J. Weaver. Published a short time.

## PENNSYLVANIA—Continued.

1835 or 1836.—The *School Visitor*, at Mechanicsburg, by A. F. Cox. Published a short time.

——.—The *Independent Press*, at Mechanicsburg, by ——— Springman.

### DAUPHIN COUNTY.

1791.—The *Oracle of Dauphin*, at Harrisburg. Changed to the *Harrisburg Weekly Telegraph*.

1828.—The *Pennsylvania Telegraph*, at Harrisburg, by T. Fenn. Still published as the weekly of the *Daily Pennsylvania Telegraph*, by Bergner & Co., established October, 1856.

1836.—The *Church Advocate*, at Harrisburg, by Thomas, Gable & Ross. Still published.

1843, June 7.—The *Democratic Union*, at Harrisburg, by McKinley & Lescue. Merged in the *Pennsylvania Patriot*.

1843, about.—The *Vaterland Wachter* (German), at Harrisburg, by G. Bergner.

——.—The *Keystone*, at Harrisburg, by O. Barrett. Merged in the *Democratic Union*.

——.—The *Reporter*, at Harrisburg. Merged in the *Democratic Union*.

——.—The *Gazette*, at Harrisburg. Merged in the *Democratic Union*.

1850, December 27.—The *American Whig*, at Harrisburg, by Bergner & Co.; daily. Published one year.

1852.—The *Borough Item*, at Harrisburg, by Crap & George; daily. Published until 1857.

1852.—The *Daily Times*, at Harrisburg, by Egle & Co. Changed to the *Morning Herald*. Published two years and then changed to the *Harrisburg Daily Herald*. In September, 1858, changed to the *Daily Patriot and Union*. Still published as the *Patriot*.

1854, March 4.—The *Pennsylvania Patriot*, at Harrisburg. Consolidated with the *Democratic Union* and changed to the *Patriot and Union*, and afterward to the *Patriot*. Still published in connection with the *Daily Patriot*.

——.—The *Harrisburg Democrat* (German), at Harrisburg, by Kuhn, Fuss & Weaver. In April, 1858, consolidated with the *Lancaster Democrat* and changed to the *Lancaster and Harrisburg Democrat*.

——.—The *Pennsylvania Intelligencer*, at Harrisburg, by C. McCurdy.

——.—The *Pennsylvania Reporter and Home Journal*, at Harrisburg, by I. R. Diller.

——.—The *Argus*, at Harrisburg, by J. J. C. Cantine.

——.—The *American Reformer*, at Harrisburg, by J. M. W. Geist.

——.—The *American Sentinel*, at Harrisburg, by P. H. McWilliam.

1866.—The *Pennsylvanische Staats Zeitung*, at Harrisburg, by Baab, herausgeber and eigenthümer. Still published.

——.—The *Hamburger Schnellpost und Allgemeiner Deutscher Anzeiger*, at Harrisburg, by M. A. Sellers.

### DELAWARE COUNTY.

1819, November 8.—The *Post Boy*, at Chester, by Butler & Worthington. In 1825 changed to the *Upland Union*. Suspended in 1852.

1827.—The *Weekly Visitor*, at Chester, by W. Russell, jr. Suspended in 1832.

1833.—The *Delaware County Republican*, at Darby, by Y. S. Walter. In November, 1841, removed to Chester. Still published.

1835.—The *Delaware County Democrat*, at Chester, by C. Pierce. Published a year or two.

1843.—The *Chariot*, at Chester, by Jackson & Flavill. Published a short time.

1850, May.—The *Herald*, at Chester, by S. E. Cohen; monthly. September 13, 1850, changed to a weekly. Soon after discontinued.

1855.—The *Delaware County American*, at Media, by Vernon & Cooper. Still published.

1856, October.—The *Upland Union and Delaware County Democrat*, at Chester. Published a few weeks.

1866, October 27.—The *Chester Advertiser*, at Chester, by Spencer & Taylor. Published about two years. June 6, 1868, resumed as the *Chester Advocate*. Afterward changed to the *Delaware County Advocate*. Still published as the weekly of the *Evening Times*, established 1876.

1867, October 5.—The *Delaware County Democrat*, at Chester, by D. B. Overholt. Afterward consolidated with the *Democratic Pilot*, and changed to the *Democrat and Pilot*. Still published as the *Democrat*.

1871, June 3.—The *Democratic Pilot*, at Chester, by Orr & Bowman. Consolidated with the *Democrat*.

1872.—The *Chester Pilot*, at Chester, by J. Mullen. November 27, 1873, changed to the *Delaware County Mail*, and November 27, 1876, consolidated with the *Delaware County Paper*, and called the *Delaware County Paper and Mail*. Still published.

1872, June 1.—The *Evening News*, at Chester, by F. S. Hill. June 17, 1872, changed to the *Chester Evening News*. Still published.

1876, May.—The *Delaware County Paper*, at Chester, by J. McFeeters. November 27, 1876, consolidated with the *Delaware County Mail*.

### ERIE COUNTY.

1808.—The *Mirror*, at Erie, by G. Wyeth. Published two years.

1813.—The *Northern Sentinel*, at Erie, by R. J. Curtis. In 1816 changed to the *Phœnix and Erie Reflector;* in 1819 changed to the *Genius of the Lakes*, and removed to Mayville, New York. Suspended in 1820.

1818.—The *Erie Patriot*, at Erie, by Z. Willis. In 1819 removed to Cleveland, Ohio.

1820, January.—The *Erie Gazette*, at Erie, by J. M. Sterrett. Still published.

1830.—The *Erie Observer*, at Erie, by F. B. Barnum. Still published.

1840.—The *Erie Chronicle*, at Erie, by S. Perley. In 1855 merged in the *True American*.

1845.—The *Free Press*, at Girard, by S. D. Carpenter.

1845.—The *Girard Express*, at Girard, by L. F. Andrews. In November, 1854, changed to the *Girard Republican*.

1846.—The *Commercial Advertiser*, at Erie, by J. P. Cochran. In 1853 changed to the *Constitution*, and afterward to the *Daily Bulletin*. Suspended in 1858.

1851.—*Unsere Welt* (German), at Erie, by C. Benson. Afterward changed to the *Freie Presse*.

1851.—The *Dispatch*, at Waterford, by J. S. M. Young. In 1856 removed to Erie and changed to the *Erie City Dispatch*. Still published as the weekly of the *Daily Dispatch*, established in 1861.

1852.—*Zuschauer Am Erie* (German), at Erie, by ——— Scheufflem. Still published.

1853.—The *True American*, at Erie, by Compton & Moore. In 1855 consolidated with the *Erie Chronicle*.

1855.—The *Northeast Guard*, at Erie. Published a few months.

1855.—The *Museum*, at Edinboro', by ——— Lewis. In 1856 removed to Waterford. In 1857 changed to the *Enquirer*, and afterward suspended.

1855.—The *Gem*, at Edinboro'. Suspended in 1856.

1855.—The *Native American*, at Edinboro'; monthly.

1859.—The *Edinboro' Express*, at Edinboro', by H. Lick. Published until December 29, 1860.

1859.—The *Express*, at Erie, by E. C. Goodrich. Merged with the *True American*.

### FRANKLIN COUNTY.

1790, July.—The *Western Advertiser and Chambersburg Weekly*, at Chambersburg, by W. Davison. In September, 1793, changed to the *Chambersburg Gazette*, and in April, 1796, to the *Franklin Repository*. In 1840 consolidated with the *Anti-Masonic Whig*, and published as the *Repository and Whig*. In 1855 consolidated with the *Transcript*, and called *Repository and Transcript*. In 1863 consolidated with the *Dispatch*. In 1863 changed to the *Franklin Repository*. Still published.

1806.—The *Franklin Republican*, at Chambersburg, by W. Armour. Published until 1828.

1808.—*Der Redliche Registrator*, at Chambersburg, by G. K. Harper. Published until 1831.

## PENNSYLVANIA—Continued.

1828.—The *Anti-Masonic Press*, at Chambersburg, by J. Culberson. In 1828 changed to the *Anti-Masonic Whig*. In 1840 consolidated with the *Franklin Repository*.

1831.—The *Franklin Telegraph*, at Chambersburg, by Ruby & Maxwell. In 1841 changed to the *Chambersburg Times*, and in 1848 to the *Cumberland Valley Sentinel*. In 1852 merged in the *Valley Spirit*.

1846.—The *Journal*, at Mercersburg, by M. J. Slick. Still published.

1847.—The *Village Record*, at Waynesboro', by W. Blair. Still published.

1847.—The *Valley Spirit*, at Shippensburg, by Cooper & Dechert. In 1852 removed to Chambersburg and consolidated with the *Valley Sentinel*. In 1862 consolidated with the *Times*, changed to the *Spirit and Times*, and in 1863 to the *Valley Spirit*. Still published.

1849, July.—The *Franklin Intelligencer*, at Chambersburg, by Mish & Shoemaker. In 1853 merged in the *Repository*.

1853, July.—The *Transcript*, at Chambersburg, by R. P. Hazelett. In 1855 consolidated with the *Repository*.

1853.—The *Omnibus*, at Chambersburg, by R. P. Hazelett; semi-monthly.

1858, April.—The *Independent*, at Chambersburg, by Hazelett & Wirtz. In 1859 changed to the *Times*. In 1862 consolidated with the *Valley Spirit*.

1861, April.—The *Semi-Weekly Dispatch*, at Chambersburg, by Merkline & Co. In 1863 merged in the *Repository*.

1867.—The *Valley Echo*, at Greencastle, by G. E. Haller. Still published.

1869.—The *Public Opinion*, at Chambersburg, by M. A. Foltz. Still published.

1870.—The *Keystone Gazette*, at Waynesboro', by West & Jacob. Still published.

### HUNTINGDON COUNTY.

1797, July 4.—The *Huntingdon Courier and Weekly Advertiser*, a Huntingdon, by M. Duffey. Published about one year.

1801, February 12.—The *Huntingdon Gazette and Weekly Advertiser* at Huntingdon, by J. McCahan.

1809, November.—The *Literary Museum and Monthly Miscellany*, at Huntingdon, by Smith & Canan; monthly. Published one year.

1829, February 24.—The *Republican Advocate*, at Huntingdon, by R. Wallace. Changed to the *Advocate and Sentinel*, and in April, 1841, to the *Watchman*.

1830, May 29.—The *Huntingdon Courier and Anti-Masonic Republican*, at Huntingdon, by H. L. McConnell. In 1832 changed to the *Huntingdon Courier and National Republican Monitor*. Afterward suspended.

1835, September 23.—The *Journal*, at Huntingdon, by Benedict & Co. In 1859 consolidated with the *American*, and changed to the *Journal and American*. Consolidated with the *Republican*. January 4, 1871, changed to the *Huntingdon Journal*. Still published.

——.—The *American*, at Huntingdon, by J. A. Nash. In 1859 consolidated with the *Journal*.

——.—The *Republican*, at Huntingdon, by T. N. Cremer. Consolidated with the *Journal*.

1843, November 22.—The *Globe*, at Huntingdon, by Mytenger & Gentzell. Still published.

1847.—The *Messenger*, at Huntingdon, by G. Raymond. Published a year or two.

1853, June 14.—The *Standing Stone Banner*, at Huntingdon, by Africa & Whittaker. In 1854 changed to the *Standing Stone*. Suspended in 1855.

1859, August.—The *Union*, at Huntingdon, by R. W. Speer. Suspended in January, 1861.

1861, February.—The *Broad Top Miner*, at Coalmont, by A. Tyhurst.

1861, March.—The *Workingmen's Advocate*, at Huntingdon, by Shaw & Miller. Published a few months.

1862, September 3.—The *Monitor*, at Huntingdon, by A. Owen. Still published.

1870.—The *Pilgrim*, at Marklesburg, by Braumbaugh & Bro.; semi-monthly.

1874, May 10.—The *Local News*, at Huntingdon, by H. Lindsay; semi-weekly. Still published.

1874.—The *Leader*, at Orbisonia, by Coons & Co. Still published.

1875, August 18.—The *Young America*, at Huntingdon, by O. O. Leabhart. Suspended May 5, 1876.

1876, January.—The *Young Disciple* (S. S.), at Marklesburg, by Braumbaugh & Bro.

### LACKAWANNA COUNTY.

1838.—The *Journal*, at Carbondale, by J. B. Mix. Suspended in September, 1841.

1842, May.—The *Gazette*, at Carbondale, by J. S. Joslin. In December, 1844, changed to the *County Mirror*. In 1845 removed to Providence, same county.

1845.—The *Democrat*, at Carbondale, by Joslin & Benedict. In 1849 changed to the *Lackawanna Citizen and Carbondale Democrat*, and in 1850 to the *Lackawanna Citizen*. Suspended April 1, 1854.

1849, January 20.—The *Lackawanna Journal*, at Carbondale, by G. M. Reynolds. February 28, 1851, changed to the *Carbondale Transcript and Lackawanna Journal*. Suspended May 1, 1857.

1852.—The *Lackawanna Herald*, at Scranton, by C. E. Lathrop. In 1856 united with the *Spirit of the Valley* and changed to the *Herald of the Union*.

1854, August.—The *Democrat*, at Carbondale, by Alleger & Adams. Suspended in January, 1855.

1855, June.—The *Democratic Standard and Know-Nothing Expositor*, at Carbondale, by J. J. Allen. Suspended September 17, 1855.

1855.—The *Tri-Weekly Experiment*, at Scranton, by F. Dudley. Published three months.

1856.—The *Republican*, at Scranton, by F. Smith. Still published as the weekly of the *Daily Republican*, established 1867.

### LANCASTER COUNTY.

1751.——— ——— (German and English), at Lancaster, by Miller & Holland.

1794, June.—The *Journal*, at Lancaster, by Wilcox & Hamilton. In 1839 merged in the *Intelligencer*.

1799.—The *Intelligencer*, at Lancaster, by W. & T. Dickson. In September, 1839, consolidated with the *Journal* under the title of the *Intelligencer and Journal*. Still published as the weekly of the *Daily Intelligencer*, established August, 1864.

1808.—*Der Volksfreund* (German), at Lancaster, by William Hamilton. In 1838 consolidated with *Der Beobachter* and changed to *Der Volksfreund und Beobachter*. Still published.

1808, September.—The *Gleaner, or Monthly Magazine*, at Lancaster, by Potts & Greer. Published one year.

1812.—The *Lancaster Gazette*, at Lancaster, by H. Maxwell. Published several years.

1816.—The *Pilot*, at Marietta, by J. Huss. In 1825 changed to the *Pioneer*, and in 1831 to the *Columbia Spy*. Still published at Columbia.

1816 or 1818.—The *Ladies' Visitor*, at Marietta, by William Pierce; monthly. Published two or three years.

1821.—The *Free Press*, at Lancaster, by M. Kelley.

1821.—The *American Standard*, at Lancaster, by S. C. Stambaugh.

1828, June.—The *Anti-Masonic Herald*, at New Holland, by Fenn & Vesey. In April, 1829, removed to Lancaster. In 1834 united with the *Examiner*.

1829 or 1830.—The *Anti-Masonic Opponent*, at Lancaster, by C. Jacobs.

1829 or 1830.—The *Standard of Liberty*, at Lancaster, by H. W. Ville.

1830.—The *Columbia Courant*, at Columbia, by Sheaff & Heinitsh. Still published.

1830.—The *Examiner*, at Lancaster, by S. Wagner. In 1834 consolidated with the *Herald* under the title of *Examiner and Herald*. In 1864 with the *Union*, and issued semi-weekly.

## PENNSYLVANIA—Continued.

——.—The *Herald*, at Lancaster. In June, 1834, consolidated with the *Examiner*.

1831.—The *Bethania Palladium*, at Bethania, by R. Chambers. Published two or three years.

1832.—The *Marietta Advocate*, at Marietta, by W. R. McCary. Published four years and removed to Lewistown.

1833, June.—The *Incitor*, at Lancaster, by A. Gilbert; monthly. Published one year.

1833 or 1834.—The *Lancaster Miscellany*, at Lancaster, by R. Conyngham.

1834, May.—The *Union*, at Lancaster, by J. L. Boswell. In November, 1851, merged in the *Independent Whig*.

1835.—The *Wahre Americaner* (German), at Lancaster, by F. Frank. In 1840 changed to the *Wahre Democrat*.

——.—*Der Beobachter*, at Lancaster, by S. Wagner. In 1838 consolidated with *Der Volksfreund*.

1839.—The *Old Guard*, at Lancaster, by a joint stock company. Soon afterward merged in the *Examiner*.

1839, August.—The *Semi-Weekly Gazette*, at Lancaster, by Bryson, Pearsol & Wimer. Four months later changed to the *Age*. Published until the latter part of 1842.

——.—The *Working Men's Press*, at Lancaster, by J. Myers. In 1846 consolidated with the *American Republican*.

1841 or 1842.—The *Washingtonian*, at Marietta, by Goodman & Taylor. Changed to the *Orb*, and afterward to the *Ant*.

1843, February.—The *Express*, at Lancaster, by J. H. Pearsol.

1844, January.—The *Moral Reformer*, at Lancaster, by Rev. H. Miller. Afterward changed to the *American Reformer*. Suspended in 1845.

1844, April.—The *Argus*, at Marietta, by Goodman & Baker. Published three years.

1844.—The *American Republican*, at Lancaster, by D. S. Keiffer. In 1846 consolidated with the *Working Men's Press*. In 1859 merged in the *Inquirer*.

1844, May.—The *Lancaster Democrat*, at Lancaster, by H. Hays.

1844, about.—The *Little Missionary*, at Marietta, by J. F. Weishampel; semi-monthly. Published one year.

1845.—The *Lancaster County Farmer*, at Lancaster, by E. Bowen. Changed to the *Farmer and Literary Gazette*, and about 1849 merged in the *Examiner*.

1846, June.—The *Tribune and Advertiser*, at Lancaster, by R. W. Middleton. In 1848 united with the *Union* under the title of *Union and Tribune*.

1848, January.—The *Lancasterian*, at Lancaster, by M. D. Holbrook. October 12, 1855, united with the *Intelligencer*.

1849, January.—The *Guardian*, at Lancaster, by Rev. H. Harbaugh; monthly. Formerly published at Lewisburg.

1850, December.—The *Bee*, at Strasburg, by M. M. Rohrer. Suspended the latter part of 1856.

1851, November.—The *Independent Whig*, at Lancaster, by a joint stock company. In 1855 published semi-weekly.

1852, January.—The *Pennsylvania School Journal*, at Lancaster, by T. H. Burrowes; monthly. Still published.

1852.—The *Mechanics' Counsellor*, at Lancaster, by E. H. Rauch; monthly. Published one year.

1853, May.—The *Inland Daily*, at Lancaster, by a stock company. Changed to the *Inland Daily Times*. Suspended in 1858.

1853, December.—The *Public Register*, at Lancaster, by H. A. Rockafield. In June, 1854, changed to the *Public Register and American Citizen*. Afterward consolidated with the *Press*.

1854, March.—The *Mount Joy Herald*, at Mount Joy, by F. H. Stauffer. Still published.

1854, April.—The *Mariettian*, at Marietta, by a joint stock company.

1855.—The *Inland Weekly*, at Lancaster, by a joint stock company. In 1858 changed to the *Lancaster Union*. In January, 1863, consolidated with the *Examiner*.

1855.—The *Conestoga Chief*, at Lancaster, by H. L. Goodall.

1858.—The *Manheim Sentinel*, at Manheim, by S. Ensminger. Still published.

1858.—The *Herald*, at Strasburg, by W. J. Kauffman. Published until the spring of 1861.

1858, October.—The *Temperance Advocate*, at Lancaster, by E. S. Speaker. Published three years.

1859, January.—The *Inquirer*, at Lancaster, by Wylie & Co. In September, 1859, consolidated with the *American Press and Republican*. Now published as the *Inquirer*.

1859.—The *Gospel Publisher*, at Lancaster, by Rev. J. Winebrenner. Formerly published at Harrisburgh. Established in 1836; afterward suspended, and in 1846 revived as the *Church Advocate*. In 1859 removed to Lancaster.

1859 or 1860.—The *Page Monthly*, at Millerstown, by B. H. Hershey.

1859 or 1860.—The *Normal Weekly*, at Millerstown.

1860.—The *Educational Record*, at Lancaster, by S. B. Markley; monthly.

1862, July.—The *Daily Inquirer*, at Lancaster, by S. A. Wylie. Suspended February 3, 1864.

1864.—The *Trumpet*, at Elizabethtown, by B. H. Lehman. Afterward changed to the *Gazette*. In April, 1869, removed to Mount Vernon, Huntingdon county, and published as the *News*.

1866, July.—The *Monthly Circular*, at Lancaster, by the Good Templars. In July, 1868, changed to the *Keystone Good Templar* and published semi-monthly. In December, 1868, changed to a weekly.

1867, January.—The *Sunday School Gem*, at Lancaster; from the office of the *Church Advocate;* monthly.

1868.—The *Voice of Truth*, by Warner & Kafroth; monthly.

1868, June.—The *Daily Spy*, at Columbia, by A. M. Rambo & Son.

1869, January.—The *Lancaster Farmer*, at Lancaster, under the auspices of the Agricultural and Horticultural Society; monthly. Still published.

1869, April.—The *Mechanic's Advocate*, at Lancaster, by Snyder, Wylie & Snyder; monthly.

### LEBANON COUNTY.

1814.—*Der Wahre Demokrat und Volks Advokat*, at Lebanon, by J. Hartman. Still published.

1836.—The *Lebanon Courier*, at Lebanon, by G. Frysinger. Still published.

——.—The *Lebanon Demokrat*, at Lebanon, by J. P. Sanderson.

### LEHIGH COUNTY.

1810.—*Der Unabhaengische Republicaner*, at Allentown. Still published.

1812.—*Der Friedenbote*, at Allentown. Still published.

1828.—*Der Lecha Patriot*, at Allentown, by R. Guth.

——.—The *Lehigh Bulletin*, at Allentown, by J. Royer.

### LUZERNE COUNTY.

1795.—The *Herald of the Times*, at Wilkesbarre. In November, 1797, changed to the *Wilkesbarre Gazette*. Published until 1801.

1801.—The *Luzerne Federalist*, at Wilkesbarre, by Asher Miner. In 1811 changed to the *Gleaner*. Suspended in 1818.

1810.—The *Susquehanna Democrat*, at Wilkesbarre, by S. Maffett. Suspended about 1835.

1813.—The *Literary Visitor*, at Wilkesbarre, by S. Butler. Suspended in July, 1815.

1818.—The *Wyoming Herald*, at Wilkesbarre, by S. Butler. In 1835 merged in the *Wyoming Republican*.

1828.—The *Republican Farmer*, at Wilkesbarre, by Pettibone & Held. In 1839 consolidated with the *Wyoming Republican*. In 1852 merged in the *Luzerne Union*.

1832.—The *Wyoming Republican*, at Kingston, by S. D. Lewis. In 1835 consolidated with the *Herald*. In 1837 removed to Wilkesbarre, and in 1839 united with the *Republican Farmer*.

## PENNSYLVANIA—Continued.

1832.—The *Anti-Masonic Advocate*, at Wilkesbarre, by S. Worthington. In 1838 changed to the *Wilkesbarre Advocate*, and in 1853 to the *Record of the Times*.

1834.—The *Mountaineer*, at Conyngham, by J. A. Gordon. Published eighteen months.

1840.—The *Northern Pennsylvania*, at Wilkesbarre, by W. Bolton. Published one year, and then removed to Tunkhannock, Wyoming county.

1840.—The *Truth*, at Wilkesbarre, by B. C. Denison. Afterward changed to the *Democratic Truth*.

1840.—The *Wasp*, at Wilkesbarre, by Burdock & Boneset.

1841.—The *Democratic Watchman* (German), at Wilkesbarre, by J. Waelder. Still published.

1845.—The *Luzerne Democrat*, at Wilkesbarre, by L. L. Tate. In 1852 changed to the *Luzerne Union*.

1850.—The *Gazette*, at Pittston, by Richards & Phillips. Still published.

1852.—The *True Democrat*, at Wilkesbarre, by Barnum & Beaumont. In 1853 changed to the *Democratic Expositor*. In 1855 removed to Scranton and published as the *Spirit of the Valley*.

1855.—The *Herald*, at Pittston, by E. S. Neibell. Published a few months.

1857, May.—The *Advance*, at Wilkesbarre, by R. H. Willoughby. In September, 1858, changed to the *Weekly Advance*.

1858.—The *Guardian*, at Kingston, by Kitchen & Denn. Subsequently removed to Plymouth and changed to the *Plymouth Register*.

### LYCOMING COUNTY.

1802.—The *Lycoming Gazette*, at Williamsport, by W. F. Buyers. June 21, 1837, consolidated with the *Chronicle* and changed to the *Gazette and Chronicle*. June 20, 1838, changed to the *Lycoming Gazette*. Still published.

1815.—The *Lycoming Advertiser*, at Williamsport, by Simpson & Gale. Published six months.

1827, January 8.—The *West Branch Courier*, at Jersey Shore, by D. Gotshall. Suspended about 1830.

1828.—The *Nose*, at Jersey Shore, by W. Piatt, jr. Published a short time.

1829, September 26.—The *Lycoming Chronicle*, at Williamsport, by A. B. Cummings. June 21, 1837, consolidated with the *Gazette*.

1830.—The *Anti-Masonic Advocate*, at Jersey Shore, by Alexander Hamilton. Suspended in 1835.

1831, October 9.—The *Telegraph*, at Muncy, by J. P. Patterson. Published until 1841.

1836, July.—The *Free Press*, at Williamsport, by R. F. Middleton. Suspended about 1838.

1839.—The *Freeman*, at Williamsport, by J. R. Eck. Suspended in 1840.

1840.—The *West Branch Republican*, at Williamsport, by W. P. & J. R. Coulter. Published until 1842.

1841, April 10.—The *Luminary*, at Muncy, by W. P. I. & G. L. I. Painter. Still published.

1842.—The *Lycoming Sentinel*, at Williamsport, by J. Sloan. Published one year.

1843.—The *North Pennsylvanian*, at Williamsport, by J. F. Carter. Published six months.

1844.—The *Olive Branch*, at Muncy, by J. M. Newson. Published a short time.

1845.—The *Jackson Democrat*, at Williamsport, by Newson & Armstrong. Published one year.

1846, January.—The *Jersey Shore Republican*, at Jersey Shore, by S. S. Seely. Suspended in October, 1850, but revived in 1851.

1851.—The *Lycoming Democrat*, at Williamsport, by J. F. Carter. Suspended in the fall of 1852.

1852.—The *Independent Press*, at Williamsport, by J. W. Barret. Suspended in 1855, but revived in 1856.

1854, June 29.—The *News-Letter*, at Jersey Shore, by Seely & Meginness.

1855, May 15.—The *National Vidette*, at Jersey Shore, by H. J. B. & L. J. Cummings. Published a short time.

### MERCER COUNTY.

1811.—The *Western Press*, at Mercer, by J. Harrington. Still published.

1841.—The *Dispatch*, at Mercer. Still published.

1864.—The *Herald*, at Sharon. Still published.

1868.—The *Times*, at Sharon. Still published.

1870.—The *Advertiser*, at Sharpsville. Still published.

1871.—The *Advance Argus*, at Greenville. Still published.

1874.—The *News*, at Sandy Lake. Still published.

1875.—The *Eagle*, at Sharon. Still published as the weekly of the *Daily Eagle*, established in 1876.

### MIFFLIN COUNTY.

1810.—The *Gazette*, at Lewistown. Still published.

1846.—The *True Democrat*, at Lewistown.

——.—The *Democratic Standard*, at Lewistown.

### MONROE COUNTY.

1830.—The *Monroe Democrat*, at Stroudsburg, by R. Hannum. Still published.

1843.—The *Jeffersonian Republican*, at Stroudsburg, by Schoch & Spearing. Still published.

### MONTGOMERY COUNTY.

1799, June 14.—The *Norristown Gazette*, at Norristown, by D. Sower. In 1800 changed to the *Norristown Herald*. Now published in connection with the *Daily Herald*, established December 20, 1869.

1801.—The *Norristown Register*, at Norristown. Still published.

### NORTHAMPTON COUNTY.

1797 or 1798.—The *Northumberland Gazette*, at Northumberland, by A. Kennedy. Suspended in 1819.

1800.—*Der Freyheitsvogel*, at Sunbury, by ——— Breyvogel. Published one year.

1803.—The *Republican Argus*, at Northumberland, by J. Binns. Published until 1816 or 1817.

1810.—The *Easton Sentinel*, at Easton, by J. A. Dunlap.

——.—*Unabhaengiger Democrat*, at Easton, by J. A. Dunlap.

1812.—The *Northumberland Republican* (German), at Sunbury, by J. C. Youngman. Four years later changed to the *North Western Post*; afterward to the *Canal Boat*, and in 1832 to the *Workingmen's Advocate*, and published in English. In 1838 changed to the *Gazette*.

1812.—The *Times*, at Sunbury, by W. F. Byers. Changed to the *Gazetteer*. Suspended in 1833.

1816, September 21.—The *Miltonian*, at Milton, by H. Frick. Still published.

1826, February 26.—The *States Advocate*, at Milton, by Tweed & Kincaid. Suspended in November, 1838.

1826.—The *Democrat and Argus*, at Easton, by W. A. Hutter.

——.—The *Easton Standard*, at Easton, by ——— Sanders.

——.—The *Whig and Journal*, at Easton, by Mr. Hetrick.

1834, September 3.—The *West Branch Farmer and True Democrat*, at Milton, by M. Sweeny. Published two or three years.

1837, November 20.—The *Northumbrian*, at Milton, by H. A. Kerr. Published a short time.

1838.—The *Milton Ledger*, at Milton, by H. A. Kerr. Suspended in 1844.

——.—The *Beacon*, at Sunbury, by G. Lathey.

——.—The *Emporium*, at Sunbury, by E. Grassman.

1840.—The *American*, at Sunbury, by Masser & Eisely.

1844, December.—The *Advocate and Day Spring*, at Milton, by Rev. W. H. T. Barnes. Published two years.

## PENNSYLVANIA—Continued.

1845.—The *German American*, at Sunbury, by Masser & Eisely.

1849 or 1850.—The *West Branch Intelligencer*, at McEwensville, by —— Case. Published eight months.

1852, April.—The *Democrat*, at Milton, by J. R. Eck.

1856, January.—The *German Democrat*, at Sunbury, by Bachman & Co.

### SCHUYLKILL COUNTY.

1825.—The *Miner's Journal*, at Pottsville, by B. Bannon. Now published as the weekly of the *Daily Journal*, established 1869.

—— —*Die Stimmedes Volks* (German), at Orwigsburgh.

——.—The *Pottsville Emporium*, at Pottsville, by E. O. Jackson.

——.—The *Anthracite Gazette*, at Pottsville, by Wynkoop & Kershner.

### SUSQUEHANNA COUNTY.

1816, February.—The *Centinel*, at Montrose, by J. Clarke. In 1818 changed to the *Montrose Gazette;* in 1823 consolidated with the *Susquehanna County Herald*, and in December, 1825, merged in the *Register*.

1820, June.—The *Messenger*, at Montrose, by A. C. Wildie. In 1821 changed to the *Susquehanna County Herald;* in 1823 consolidated with the *Montrose Gazette*.

1824.—The *Repository*, at Montrose, by J. Catlin; semi-monthly.

1824.—The *Susquehanna County Republican*, at Montrose, by J. Fuller. In December, 1825, merged with the *Register*.

1824.—The *Register*, at Montrose, by Dimmock & Fuller. In 1825 consolidated with the *Gazette*, and in 1825 with the *Republican*, and changed to the *Susquehanna Register*. In 1832 changed to the *Susquehanna Register and Northern Pennsylvanian;* in 1835 again to the *Susquehanna Register;* in 1836 to the *Susquehanna Register and Northern Farmer*, and in 1855 to the *Independent Republican*. Still published.

1825.—The *Christian Magazine*, at Montrose, by Elder Dimmock; monthly. In 1826 changed to the *Baptist Mirror and Christian Magazine*. Suspended in September, 1827.

1827.—The *Candid Examiner*, at Montrose, by Peck & Marsh.

1828.—The *Republican*, at Dundaff, by A. Wilson. In 1832 removed to Carbondale and changed to the *Northern Pennsylvanian*. In 1840 removed to Wilkesbarre.

1831, November.—The *Independent Volunteer*, at Montrose, by I. Miller. In 1832 changed to the *Democratic Volunteer;* afterward to the *Independent Volunteer;* in 1838 to the *Montrose Volunteer*. In 1840 consolidated with the *North Star*, and published as the *Montrose Volunteer and North Star*. In 1842 changed to the *Montrose Volunteer*. Suspended in January, 1844.

1832.—The *Herald of Gospel Truth and Watchman of Liberty*, at Montrose, by Peck & Rogers. Published one year.

1836, June.—The *Spectator and Freeman's Journal*, at Montrose. Published eighteen months.

1840.—The *North Star*, at Montrose, by Carr & Meylert. Published six months and then merged in the *Montrose Volunteer*.

1844, January.—The *Northern Democrat*, at Montrose, by Fuller & Turrell. In January, 1849, changed to the *Montrose Democrat*. Still published.

1847.—The *People's Advocate*, at Montrose, by F. Lusk. Suspended 1848.

1847.—The *Gospel Missionary*, at Montrose, by Rev. J. S. Palmer.

1856.—The *Northern Pennsylvanian*, at Susquehanna Depot, by Bennett & Rowley. In 1865 removed to Great Bend, and in 1870 to New Milford.

1869, May.—The *Susquehanna Journal*, at Susquehanna Depot. Still published.

### TIOGA COUNTY.

1824.—The *Pioneer*, at Wellsboro'.

### UNION COUNTY.

1824.—The *News-Letter*, at Lewisburg, by W. Carothers. Published eighteen months.

1829, May 5.—The *Union Hickory*, at Lewisburg, by W. Carothers. Suspended April 13, 1830.

1830, May 1.—The *Journal*, at Lewisburg, by D. Gotshall. Suspended February 22, 1834.

1835, June 20.—The *Democrat*, at Lewisburg, by G. R. Barrett. Suspended May, 1836.

1836.—The *Standard*, at Lewisburg, by D. G. Fitch. Suspended 1840.

——.—The *People's Advocate*, at Lewisburg, by J. Kelchner. Suspended April 12, 1841.

1841.—The *Independent Press*, at Lewisburg, by —— Sweetman. Suspended December 16, 1842.

1843, September 23.—The *Chronicle*, at Lewisburg, by Shriner & Burkenbine. Still published.

1845.—The *Humorist*, at Lewisburg, by Nesbit & Co. Published a short time.

1850, January.—The *Guardian*, at Lewisburg, by Rev. H. Harbaugh; monthly. Published one year and removed to Lancaster.

1850, September.—The *Democrat*, at Lewisburg, by S. Shriner. Suspended 1854.

1851.—The *Union Weekly Whig*, at Lewisburg, by Nesbit & Bower. Published one year.

1855, July 31.—The *Union Argus*, at Lewisburg, by Ziebach & Stout.

1856, April.—The *American Flag*, at New Berlin. Published ten months.

### WAYNE COUNTY.

1818.—The *Wayne County Mirror*, at Bethany.

## RHODE ISLAND.

Area, 1,085 square miles; population, 276,531; 5 counties—newspapers published in all. The total number of newspapers and periodicals published in 1810 was 7; in 1840, 16; 1850, 19; 1860, 26; 1870, 32; 1880, 44. The publications during 1880 were divided, according to periods of issue, as follows: Dailies, 8; weeklies, 31; semi-weeklies, 1; bi-weeklies, 1; monthlies, 3. In each of 10 towns one paper was published; in 1 town, three; in 2 towns, four; and in 1 town, five or more.

### EARLY HISTORY.

1732, September 27.—Printing introduced, and the *Rhode Island Gazette* established at Newport, by James Franklin; post sheet, 14 by 17. Publication suspended in May, 1733.

1758, September.—The *Newport Mercury*, at Newport, by James Franklin; crown sheet, 15 by 19. Still published.

1762, October 20.—The *Providence Gazette and County Journal*, at Providence, by William Goddard; crown sheet, 15 by 19.

## SOUTH CAROLINA.

Area, 30,170 square miles; population, 995,577; 33 counties—newspapers published in 32. The total number of newspapers and periodicals published in 1810 was 10; in 1840, 17; 1850, 46; 1860, 45; 1870, 55; 1880, 82. The publications during 1880 were divided, according to periods of issue, as follows: Dailies, 4; weeklies, 70; semi-weeklies, 1; tri-weeklies, 3; monthlies, 3; quarterlies, 1. In each of 25 towns one paper was published; in 14, two; and in 3, five or more.

## SOUTH CAROLINA—Continued.

### EARLY HISTORY.

1730.—Printing introduced at Charleston.

1732, January 8.—The *South Carolina Gazette*, established at Charleston, by Thomas Whitmarsh. Publication suspended within a year.

1734, February.—The *South Carolina Gazette*, at Charleston, by Lewis Timothy; half-cap sheet, 8½ by 14. After several temporary suspensions, the publication finally ceased to exist in 1800.

1758.—The *South Carolina and American General Gazette*, at Charleston, by Robert Wells; medium sheet, 18 by 23. Publication suspended in 1780.

1765, November.—The *South Carolina Gazette and Country Journal*, at Charleston, by Charles Crouch; demy sheet, 16 by 21. Publication suspended at the Revolution.

## TENNESSEE.

Area, 41,750 square miles; population, 1,542,359; 94 counties—newspapers published in 70. The total number of newspapers and periodicals published in 1810 was 6; in 1840, 46; 1850, 50; 1860, 83; 1870, 91; 1880, 193. The publications during 1880 were divided, according to periods of issue, as follows: Dailies, 12; weeklies, 154; semi-weeklies, 2; monthlies, 16; semi-monthlies, 6; bi-monthlies, 1; quarterlies, 2. In each of 50 towns one paper was published; in 21, two; in 8 three; in 4, four; and in 4, five or more.

### EARLY HISTORY.

1793.—Printing introduced, and the *Knoxville Gazette* established at Knoxville, by R. Roulstone.

## TEXAS.

Area, 262,290 square miles; population, 1,591,749; 226 counties—newspapers published in 119. The total number of newspapers and periodicals published in 1850 was 34; in 1860, 89; 1870, 112; 1880, 280. The publications during 1880 were divided, according to periods of issue, as follows: Dailies, 30; weeklies, 231; semi-weeklies, 2; tri-weeklies, 1; monthlies, 14; semi-monthlies, 2. In each of 89 towns one paper was published; in 32, two; in 11, three; in 5, four; and in 8, five or more.

### EARLY HISTORY.

Printing introduced into the state in 1830. Early newspapers established as follows: (*a*)

1830.—The *Texas Gazette and Brazoria Advertiser*, at Brazoria. September 4, 1832, merged in the *Constitutional Advocate and Texas Public Advertiser*, which suspended in 1833.

1834, December 17.—The *Texas Republican*, at Brazoria, by F. C. Gray. Published two years.

1835, December 1.—The *Telegraph and Texas Register*, at Brazoria, by G. & F. H. Barden. Afterward removed to Houston and called the *Houston Telegraph*. Published many years.

1838.—The *Galvestonian*, at Galveston, by ——— Bangs. Suspended in 1840.

1840.—The *Sentinel*, at Austin.

1840.—The *Galveston Civilian*, at Galveston, by Hamilton Stuart. Still published, daily.

1840.—The *San Luis Advocate*, at San Luis, by ——— Pinchard. Afterward suspended.

1841.—The *Brazoria Planter*, at Brazoria, by S. J. Durnett. Suspended in 1842.

1842.—The *Galveston News*, at Galveston, by Cherry & Dunn. Still published, daily and weekly.

1852.—The *American Flag*, at Brownsville, by John M. Cannad. Suspended in 1853.

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*a* Prepared by D. G. Herbert, secretary of the Historical Society of Galveston.

## VERMONT.

Area, 9,135 square miles; population, 332,286; 14 counties—newspapers published in all. The total number of newspapers and periodicals published in 1810 was 14; in 1840, 30; 1850, 35; 1860, 31; 1870, 47; 1880, 82. The publications during 1880 were divided, according to periods of issue, as follows: Dailies, 5; weeklies, 72; monthlies, 3; semi-monthlies, 1; quarterlies, 1. In each of 24 towns one paper was published; in 7, two; in 5, three; in 1, four; and in 4, five or more.

### EARLY HISTORY. (*a*)

1778.—Printing introduced at Dresden (now part of Hanover, New Hampshire), "then in union with the state of Vermont."

1780.—Printing introduced at Westminster.

1781, February 12.—The *Vermont Gazette, or Green Mountain Post Boy*, established at Westminster, by Spooner & Green. Suspended in 1782 or early in 1783.

1783, June 5.—The *Vermont Gazette, or Freemen's Depository*, at Bennington, by Haswell & Russell. In 1784 latter part of title dropped; in January, 1797, changed to *Tablet of the Times;* in September, 1797, to the *Vermont Gazette;* in March, 1801, to *Haswell's Vermont Gazette Revived;* in 1802 to *Vermont Gazette;* in February, 1807, to the *Epitome of the World;* in October, 1807, to the *World;* in 1809 to the *Green Mountain Farmer*, and in 1816 to the *Vermont Gazette.* Suspended in 1880.

1783, August 7.—The *Vermont Journal, and the Universal Advertiser*, at Windsor, by Hough & Spooner. In 1792 changed to *Spooner's Vermont Journal.* In 1818 again changed to the *Vermont Journal.* Suspended; revived in 1844, and still published.

1791, November 1, about.—The *Morning Ray*, at Windsor, by James Read Hutchins. Suspended April, 1792.

1792, June 25.—The *Herald of Vermont, or Rutland Courier*, at Rutland, by Anthony Haswell. Suspended September 10, 1792.

1793, April 1.—The *Farmer's Library, or Vermont Political and Historical Register*, at Rutland, by James Lyon. Suspended November 29, 1794.

1794, March.—The *Monthly Miscellany, or Vermont Magazine*, at Bennington, by A. Haswell; monthly. Published a short time.

1794, December 8.—The *Rutland Herald, or Vermont Mercury*, at Rutland, by S. Williams & Co. Latter part of title afterward dropped. In 1861 daily edition established. Now published as the *Herald and Globe*, daily and weekly.

1795, January.—The *Rural Magazine, or Vermont Repository*, at Rutland, by S. Williams & Co.; monthly. Published two years.

1795, July 28.—The *Farmer's Library, or Fair Haven Telegraph*, at Fair Haven, by Spooner & Hennessy. Suspended in 1798.

1797, January 3.—The *Federal Galaxy*, at Brattleboro', by Dickinson & Smead. Suspended in 1802.

1797, January.—The *Argus*, at Putney, by C. Sturtevant & Co. Running as late as September, 1798.

1797.—The *Burlington Mercury*, at Burlington, by Donnelly & Hill. Suspended in 1799.

1798, February 1.—The *Green Mountain Patriot*, at Peacham, by Farley & Goss. Suspended in 1807.

1798, August.—The *Vergennes Gazette*, at Vergennes, by Samuel Chipman. Published probably until the printing office of Chipman & Fessenden was burned, on the night of October 27, 1801.

1798, October 1.—The *Scourge of Aristocracy, and Repository of Important Political Truths*, at Fair Haven, by James Lyon; twice a month. Suspended in 1799.

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*a* Compiled by Hiram A. Huse, librarian Vermont Historical Society, Montpelier.

## VERMONT—Continued.

1800.—The *Ploughman*, at Bennington, by Collier & Stockwell. Suspended 1802.

1800, December 27.—The *Weekly Wanderer*, at Randolph, by Sereno Wright. Suspended about 1810.

1801, March 3.—The *Windsor Federal Gazette*, at Windsor, by Nahum Mower. Suspended about 1804.

1801, March 19.—The *Vermont Centinel*, at Burlington, by J. H. Baker. Suspended in 1880. (Title at date of suspension, the *Democrat and Sentinel.*)

1801, December 16.—The *Middlebury Mercury*, at Middlebury, by Huntington & Fitch. Suspended June 27, 1810.

1802, February 28.—The *Vermont Mercury*, at Rutland, by Stephen Hodgman. Published a short time.

1803, February.—The *Reporter*, at Brattleboro', by William Fessenden. Merged in the *Brattleboro Messenger* about 1826.

1804, December.—The *Post Boy and Vermont and New Hampshire Courier*, at Windsor, by Nahum Mower. Suspended in 1807.

1805, May.—The *Northern Memento*, at Woodstock, by Isaiah Carpenter. Suspended in February, 1806.

1806, November.—The *Precursor*, at Montpelier, by Clark Brown. In September, 1807, changed to the *Watchman*. Now published as the *Vermont Watchman and State Journal.*

1807, January 13.—The *North Star*, at Danville, by Ebenezer Eaton. Still published.

1807.—The *Saint Albans Adviser*, at Saint Albans, by Rufus Allen. Suspended in 1808.

1808, January.—*Haswell's Mental Repast*, at Bennington, by Anthony Haswell; monthly. Published a short time.

1808, July 25.—The *Vermont Courier*, at Rutland, by Thomas M. Pomeroy. Suspended May 30, 1810.

1808.—The *Independent Freeholder and Republican Journal*, at Brattleboro', by Peter Houghton. Published a short time.

1809, January 1.—The *Vermont Republican*, at Windsor, by Oliver Farnsworth. Suspended in 1834.

1809, January.—The *Adviser; or Vermont Evangelical Magazine*, under the auspices of the general convention of Congregational and Presbyterian ministers; monthly. Suspended about 1815.

1809.—The *Champlain Reporter*, at Saint Albans, by Morton & Willare. Suspended in 1811.

1809, August 25.—The *Freeman's Press*, at Montpelier, by Derrick Sibley. Suspended in 1816.

1810, July 23.—The *Washingtonian*, at Windsor, by Josiah Dunham. Suspended after 1813.

## VIRGINIA.

Area, 40,125 square miles; population, 1,512,565; 99 counties—newspapers published in 61. The total number of newspapers and periodicals published in 1810 was 23; in 1840, 51; 1850, 87; (*a*) 1860, 139; (*a*) 1870, 114; 1880, 194. The publications during 1880 were divided, according to periods of issue, as follows: Dailies, 20; weeklies, 124; semi-weeklies, 6; tri-weeklies, 5; monthlies, 33; semi-monthlies, 2; bi-monthlies, 1; quarterlies, 3. In each of 44 towns one paper was published; in 13, two; in 7, three; in 5, four; and in 5, five or more.

### EARLY HISTORY.

1729.—Printing introduced at Williamsburgh.

1736, August.—The *Virginia Gazette*, established at Williamsburgh, by William Parks; half-cap sheet, 8½ by 14. Publication suspended in 1750.

1751, February.—The *Virginia Gazette*, at Williamsburgh, by William Hunter; crown sheet, 15 by 19. Publication suspended after the Revolution.

1766, May.—The *Virginia Gazette*, at Williamsburgh, by William Rind; demy sheet, 16 by 21. Publication suspended about 1774.

1775, April.—The *Virginia Gazette*, at Williamsburgh, by Davis & Clarkson. Published several years.

1775.—(Title unknown), at Norfolk, by John Hunter Holt.

Other papers were established as follows:

### ALEXANDRIA COUNTY.

1800.—The *Alexandria Gazette and Virginia Advertiser*, at Alexandria; daily.

——.—The *Virginia Sentinel*, at Alexandria, by Smith & Finks.

### DINWIDDIE COUNTY.

1866.—The *Petersburg Index*, at Petersburg, by A. M. Keiley.

1871.—The *Rural Messenger*, at Petersburg.

### HENRICO COUNTY.

1804.—The *Enquirer*, at Richmond, by T. Ritchie.

——.—The *Virginia Gazette*, at Richmond, by A. Davis; semi-weekly.

1824.—The *Richmond Whig*, at Richmond, by E. H. Pleasants. Now published in connection with the *Daily Whig*.

1828.—The *Religious Herald*, at Richmond. Still published.

1831.—The *Christian Advocate*, at Richmond. Still published.

1834.—The *Southern Literary Messenger*, at Richmond, by T. W. White.

1835.—The *Southern Churchman*, at Richmond. Still published.

1837.—The *Central Presbyterian*, at Richmond. Still published.

——.—The *Virginia Federalist*, at Richmond, by Stewart & Rind. Removed to Washington, D. C., and changed to the *Washington Federalist.*

1850.—The *Dispatch*, at Richmond; daily, weekly, and semi-weekly. Still published.

1866.—The *Children's Friend*, at Richmond; semi-monthly. Still published.

1867.—The *Guide and News*, at Richmond. Still published.

1869.—The *Educational Journal*, at Richmond; monthly. Still published.

1870.—The *Earnest Worker*, at Richmond; monthly. Still published.

1870.—The *Virginia Staats Gazette*, (German), at Richmond, by J. H. Pein; daily. Still published.

1875.—The *Catholic Visitor*, at Richmond. Still published.

1876.—The *Virginia Star*, at Richmond, by Stewart, Woolfolk & Co. Still published.

1876.—The *State*, at Richmond; daily and weekly. Still published.

1878.—The *Standard*, at Richmond, by G. W. James.

1878.—The *Southern Clinic*, at Richmond, by C. A. Bryce; monthly. Still published.

1879.—The *Southern Intelligencer*, at Richmond, by J. R. Popham. Still published.

### NORFOLK COUNTY.

1857.—The *Day Book*, at Norfolk; daily and tri-weekly. Still published.

1865, November 21.—The *Daily Norfolk Virginia*, at Norfolk, by G. A. Sykes & Co.

1870.—The *Landmark*, at Norfolk. Daily issued in 1873.

1873.—The *Enterprise*, daily, at Portsmouth, by J. W. H. Porter. Still published.

1876.—The *Public Ledger*, at Norfolk. Still published.

1878—The *Sunday Gazette*, at Norfolk, by W. Dedge & Co.

1878.—The *Tidewater Times*, at Portsmouth.

——.—The *Virginia Granger*, at Portsmouth, by the State Grange Association.

### SPOTSYLVANIA COUNTY.

——.—The *Virginia Herald*, at Fredericksburg; semi-weekly.

——.—The *Political Arena*, at Fredericksburg.

### TAZEWELL COUNTY.

1847, August.—The *Jeffersonville Democrat*, at Jeffersonville, by Dr. H. F. Peery. Suspended in August, 1850.

1851, August.—The *South Western Advocate*, at Jeffersonville, by G. F. Holmes.

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*a* Includes West Virginia.

## WISCONSIN.

Area, 54,450 square miles; population, 1,315,497; 63 counties—newspapers published in 62. The total number of newspapers and periodicals published in 1840 was 6; in 1850, 46; 1860, 155; 1870, 190; 1880, 340. The publications during 1880 were divided, according to periods of issue, as follows: Dailies, 21; weeklies, 283; semi-weeklies, 2; tri-weeklies, 3; bi-weeklies, 3; monthlies, 20; semi-monthlies, 8. In each of 84 towns one paper was published; in 34, two; in 10, three; in 8, four; and in 13, five or more.

### EARLY HISTORY. (*a*)

1833.—Printing introduced at Green Bay, and papers established as follows:

1833, December 11.—The *Green Bay Intelligencer*, at Green Bay, by Suydam & Ellis. In August, 1836, united with the *Spectator* and called the *Wisconsin Democrat.* In 1840 removed to Southport (Kenosha).

1836.—The *Spectator*, at Green Bay, by Joseph Dickinson. In August, 1836, united with the *Intelligencer.*

1836.—The *Wisconsin Free Press*, at Green Bay, by William Stephenson. Published three months.

1836, July 14.—The *Milwaukee Advertiser*, at Milwaukee, by Daniel H. Richards. In 1841 changed to the *Milwaukee Courier*, and in 1847 to the *Wisconsin.* Now published as the *Evening Wisconsin;* daily, semi-weekly, and weekly.

1836.—The *Belmont Gazette*, by Clark & Holbrook. Published a short time.

1837, June.—The *Milwaukee Sentinel*, at Milwaukee, by John O'Rourke. In 1845 united with the *Milwaukee Gazette*, and called the *Sentinel and Gazette.*

1837.—The *Wisconsin Culturist*, at Milwaukee, by Dr. W. P. Proudfit; monthly. Suspended in 1839.

1838.—The *Racine Argus*, at Racine, by Gilbert Knapp and others. Published six months.

1838.—The *Miner's Free Press*, at Mineral Point, by Welch & Plowman. Suspended in 1841.

1839.—The *Northern Badger*, at Platteville, by Thomas Eastman. In 1841 changed to the *Wisconsin Whig.* Suspended in 1843.

1840, June.—The *Southport Telegraph*, at Southport (Kenosha), by C. L. Sholes. Still published.

1841.—The *Green Bay Republican*, by Henry O. Sholes. In 1844 changed to the *Wisconsin Republican*, and in 1848 removed to Fond du Lac.

1841.—The *Green Bay Phœnix*, by J. V. Suydam. Published a short time.

1841.—The *Southport American*, at Southport (Kenosha), by Moses Dowst. In 1856 merged with the *Telegraph.*

1841.—The *Milwaukee Journal*, at Milwaukee, by Elisha Starr. Published a short time.

1842.—The *Racine Advocate*, at Racine, by T. J. Wisner. Still published.

1842.—The *Independent American*, at Platteville, by J. L. Marsh. Subsequently removed to Monroe, Green county.

1842.—The *Mineral Point Free Press*, at Mineral Point, by Henry Plowman. Afterward removed to Madison and merged in the *Democrat.*

1843.—The *Grant County Herald*, at Lancaster, by Schrader, Keeling & Mallet. Suspended, but subsequently revived. Still published.

1844.—The *Wisconsin Banner* (German), at Milwaukee, by M. Schoeffler.

1846.—The *Prairie du Chien Patriot*, at Prairie du Chien, by H. A. & O. J. Wright. Suspended in 1852.

1847, June 23.—The *Watertown Chronicle*, at Watertown, by J. A. Hadley. Suspended in the fall of 1857.

1850, July.—The *River Times*, at Portage City, by John Delaney. Merged in the *Badger State* in 1853.

1850, November 30.—The *Manitowoc Herald*, at Manitowoc, by C. W. Fitch. Published a number of years.

1851.—The *Green Bay Spectator*, at Green Bay, by Sam. Ryan, jr. Suspended in December, 1852.

1851.—The *Northern Republic*, at Portage City, by W. W. Noyes.

1852, May 19.—The *Crawford County Courier*, at Prairie du Chien, by Hutchinson & Hurd. Still published.

1853, February 24.—The *Appleton Crescent*, at Appleton, by S. Ryan, jr. Still published.

1853.—The *Pick and Gad*, at Shullsburg, by Bugh & Nimocks. Succeeded in 1855 by the *La Fayette County Herald*, by Rose & Gray. March 26, 1858, changed to the *Southwestern Local*, and continued a number of years.

1854, October 18.—The *Watertown Democrat*, at Watertown, by D. W. Ballou, jr. Still published.

1855, March 22.—The *Watertown City Times*, at Watertown, by George Hyer. Suspended September 28, 1855.

1855, October 23.—The *Jefferson County Republican*, at Jefferson, by Hoyt and Sanborn. Published a short time.

1855.—The *Republican Journal*, at Columbus, by Mallo & Thayer. Published a number of years.

1856.—The *Democratic Free Press*, at Appleton, by S. H. Brady. Suspended in 1857.

1857.—*Weltburger*, at Watertown, by D. Blumenfeld. Still published.

1857.—*Volks Zeitung and People's Gazette*, at Watertown, by Carl Schurz.

1857, July.—The *Prairie du Chien Leader*, at Prairie du Chien, by Hill & Greene. Published a number of years.

1858, January 30.—The *Representative*, at Watertown, by L. H. Rann. Published three months.

1859, January 5.—The *Watertown Transcript*, at Watertown, by M. Cullaton. Published eleven weeks.

1859.—The *Pilot*, at Manitowoc, by J. Crowley. Still published.

#### BUFFALO COUNTY.

1856, July 18.—The *Fountain City Beacon*, at Fountain City, by Rose & Beeson. Suspended in October, 1858.

1857, September.—The *Fountain City Advocate*, at Fountain City, by J. K. Averill. Published six months.

1860, March 10.—The *Buffalo County Advertiser*, at Fountain City, by Pierce & Bohri. Suspended in the fall of 1861.

1861, April.—The *Buffalo County Journal*, at Alma, by James M. Brackett. In 1862 changed to the *Alma Journal.* Now published as the *Buffalo County Journal.*

1861.—The *Buffalo County Republikaner*, at Alma, by Charles Lohmann. In May, 1864, removed to Fountain City. Still published.

#### DANE COUNTY.

1838, November 8.—The *Wisconsin Enquirer*, at Madison, by Josiah A. Noonan. In August, 1843, removed to Milwaukee and called the *Milwaukee Democrat.* In March, 1844, changed to the *American Freeman.* Published at Prairieville (Waukesha) a short time. Removed again to Milwaukee in 1845 and called the *Milwaukee Free Democrat.*

1840.—The *Madison Express*, at Madison, by W. W. Wyman. Suspended in 1852.

1842.—The *Wisconsin Democrat*, at Madison, by Knapp & Delaney. Suspended in 1844.

1844, August.—The *Wisconsin Argus*, at Madison, by Mills, Smith & Holt. In June, 1852, united with the *Democrat*, and called the *Argus and Democrat.* Suspended in 1859. Revived April 2, 1860; daily and weekly. Daily suspended January, 1862; weekly, June, 1862.

1846, January 11.—The *Wisconsin Democrat*, at Madison, by Beriah Brown. Consolidated with the *Argus* in June, 1852.

1850, March.—The *Northwestern Journal of Education*, at Madison, by O. M. Conover; monthly. Published three months.

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[a] Compiled from the annual Reports of Proceedings of the State Editorial Association for 1860-'62, 1865, 1866.

## WISCONSIN—Continued.

1850, July.—The *Free School Journal and Teacher's Advocate*, at Madison, by J. L. Enos; monthly. Published six months.

1850, July.—*De Norkes Ven* (Norwegian), at Madison, by Ole Torgerson. Published several months.

1850, August.—The *Wisconsin Statesman*, at Madison, by W. W. Wyman & Sons. June 1, 1852, consolidated with the *Wisconsin Express* and called the *Wisconsin State Palladium;* daily and weekly. Published eleven weeks.

1852, September.—The *Wisconsin State Journal*, at Madison, by David Atwood; daily and weekly. Still published.

1854, June 17.—The *Wisconsin Patriot*, at Madison, by Marston & Tenney. Daily established November 1, 1854; suspended November 14, 1864.

1854, December.—*Der Norske Amerikaner* (Norwegian), at Madison, by Elias Staugeland. Suspended in May, 1857.

1855.—The *Wisconsin and Iowa Farmer, and Northwestern Cultivator*, removed from Janesville to Madison, by Miller & Lathrop. In 1856 the words "and Iowa" were dropped from the title. Published a number of years.

1855.—The *True American*, at Madison, by J. A. Somerby & Co. Suspended in the fall of 1855.

1855.—The *Madison Capitol*, at Madison, by L. Poland & Co. Published a short time, and merged in the *True American.*

1857, January 31.—The *Western Fireside*, at Madison, by S. H. Carpenter. Suspended January 8, 1858.

1857.—The *Students' Miscellany*, at Madison. Published one year.

1857, June.—*Nordstjernen*, at Madison. In December, 1857, suspended, but in August, 1858, revived and published a year or two.

1857.—The *Emigranten*, removed from Inmansville (established 1852) to Madison, by the Scandinavian Press Association.

1857, September 22.—The *Stoughton Independent*, at Stoughton, by Henry J. Walker. Suspended December 15, 1857.

1858, January 14.—The *Wisconsin Signal*, at Stoughton, by W. A. Giles. Suspended June 10, 1858.

1858.—The *Madison Demokrat*, at Madison, by Simon Sickles. Suspended in 1860.

1861, January 1.—The *Higher Law*, at Madison, by Herbert Reed. Suspended April 4, 1861.

1863, October.—The *Stoughton Reporter*, at Stoughton, by L. W. Powell. Published several years.

1865, April 17.—The *Wisconsin Capitol*, at Madison, by W. J. Parks & Co; daily and weekly.

### DODGE COUNTY.

1848.—The *Badger*, established at Beaver Dam. Three numbers issued.

1852, June 16.—The *Dodge County Gazette*, at Juneau, by Robert B. Wentworth. Suspended September 23, 1853.

1853, March 18.—The *Beaver Dam Republican*, at Beaver Dam, by Edgar C. Hull. In February, 1855, united with *Sentinel*, and called *Republican and Sentinel.* Daily established March 17, 1856, and tri-weekly July 1, 1856—the latter published five or six months. Soon afterward changed to *Democratic Post.* Suspended May 26, 1857.

1853, October 7.—The *Burr Oak*, at Juneau, by Charles Billinghurst. Suspended in November, 1854.

1854, September.—The *Horicon Argus*, at Horicon, by William E. Croft. Suspended in November, 1860.

1854, October.—The *Beaver Dam Sentinel*, at Beaver Dam, by N. V. Chandler. In February, 1855, united with the *Republican.*

1854, December.—The *Fox Lake Times*, at Fox Lake, by H. C. George & Co. In 1855 changed to *Fox Lake Journal*, and in 1857 to the *Fox Lake Gazette.* Succeeded May 14, 1865, by the *Fox Lake Record*, by Stevens & George. Suspended August 1, 1866.

1855, July 1.—The *Western World*, at Fox Lake, by Hull & Swallow; monthly. Published one year.

1856, April 18.—The *Dodge County Citizen*, at Beaver Dam, by M. Cullaton. Still published.

1858, November 1.—The *Beaver Dam Democrat*, at Beaver Dam, by Carr Huntington. In 1861 changed to the *Whig of '76.* Suspended January 17, 1863.

1859.—The *Prison City Item*, at Waupun. Suspended in 1861.

1860, September 5.—The *Dodge County Excelsior*, at Beaver Dam, by John A. Farrell. Published three months.

1860, December 7.—The *Beaver Dam Argus*, at Beaver Dam, by B. W. Curtis. Still published.

1861.—The *Horicon Gazette*, at Horicon, by H. W. & A. C. Phelps. Published three months.

1866, August 28.—The *Prison City Leader*, at Waupun, by Oliver & Short. Now published as the *Leader.*

### FOND DU LAC COUNTY.

1846, October 1.—The *Fond du Lac Journal*, at Fond du Lac, by Henning & Hooker. June 16, 1853, united with the *National Democrat*, and called the *Fond du Lac Union.* In 1858 united with the *Journal*, and called the *Democratic Press.* Now published as the *Journal.*

1846, December 17.—The *Fond du Lac Whig*, at Fond du Lac, by James M. Gillett. Suspended December 17, 1847.

1848, January 6.—The *Fond du Lac Republican*, at Fond du Lac, by Samuel Ryan, jr. July, 1850, changed to the *Fountain City*, and in April, 1851, suspended.

1851, April 30.—The *Fond du Lac Patriot*, at Fond du Lac, by John D. Hyman. In January, 1852, changed to *National Democrat.* June 16, 1853, united with the *Journal*, and called the *Union.*

1852, November 9.—The *Fountain City Herald*, by Royal Buck. In 1856 united with the *Western Freeman*, and called the *Fond du Lac Commonwealth.* Still published, daily and weekly.

1853, December 14.—The *Ripon Herald*, at Ripon, by A. P. Mapes. In October, 1855, changed to the *Ripon Spur*, and in November, 1856, to the *Ripon Home.* Suspended in June, 1857, but revived in the following November as the *Western Times.* In March, 1863, changed to *Ripon Record.* Again suspended in December, 1863, but revived in January, 1864, as the *Ripon Commonwealth.* Still published.

1857, January.—The *Waupun Times*, at Waupun, by J. H. Brinkerhoff. Still published.

1857, February 15.—The *Journal*, at Fond du Lac, by Beeson & Smead. In May, 1858, united with the *Union*, and called the *Democratic Press.*

1857, March 31.—The *Ripon Star*, at Ripon, by T. J. Mapes. Suspended May 12, 1857. Re-established January 11, 1859, and again suspended in December, 1862.

1857.—The *Prison City Item*, at Waupun, by William Euen; monthly. Suspended in 1859.

1859.—*De Waare Burger* (Holland), by Van Attana & Salverda. Published a short time.

1860, August 22.—The *Saturday Reporter*, at Fond du Lac, by J. J. Beeson. Still published.

1860, December.—*Fond du Lac Zeitung*, by Theo. Friedlander.

### ROCK COUNTY.

1845, August 14.—The *Janesville Gazette*, at Janesville, by Alden & Stoddard. In March, 1857, united with the *Free Press*, and called *Gazette and Free Press. Daily Gazette* established at same time. Now published as the *Gazette*, daily, semi-weekly, and weekly.

1846, August.—The *Rock County Democrat*, at Janesville, by George W. Crabb. In 1848 changed to the *Free Soil Democrat.* Suspended shortly afterward.

1849, April 1.—The *Rock County Badger*, at Janesville, by John A. Brown. In 1851 changed to the *Badger State*, and soon after consolidated with the *Democratic Standard.*

1851, October 11.—The *Democratic Standard*, at Janesville, by Dr. John Mitchell. Daily established May 1, 1856. Publication suspended October 21, 1857.

1852.—The *Spirit of the Times*, at La Crosse, by A. D. La Due. Published less than a year.

## WISCONSIN—Continued.

1853, January 1.—The *Free Press*, at Janesville, by an association. March 1, 1857, merged into the *Gazette*.

1853.—The *La Crosse Democrat*, at La Crosse, by C. A. Stevens. Published about one year.

1854, July 6.—The *La Crosse National Democrat*, by Lord, Rodolf & La Due. Suspended November 11, 1859.

1854, August.—The *La Crosse Independent Republican*, at La Crosse, by W. C. Rogers. Daily issued from October 25, 1859, to June 8, 1860, and resumed August 1, 1864. Now published as the *Republican and Leader*, daily and weekly.

1856, November.—The *Nord Stern* (German), at La Crosse, by T. Rodolf. Still published.

1858.—The *Democrat*, at Janesville, by G. H. Bishop. Suspended in October, 1858. Succeeded by the *Janesville Times*, daily and weekly, by Bishop & Wright; and that in June, 1861, by the *Janesville Republican*. Published six months.

1859, October 15.—The *La Crosse Daily Union*, at La Crosse, by Swineford, Olin & Sykes. November 10, 1859, united with the *National Democrat*, and called the *Union and Democrat*. Changed to the *La Crosse Democrat* November 28, 1860.

1860.—The *La Crosse Mirror*, at La Crosse, by Harry Hayden. Published nine or ten months.

1862.—The *La Crosse Democratic Journal*, at La Crosse, by Blakeslee & Walrath. Published one year.

1862, June.—The *Monitor*, at Janesville, by A. & G. D. Palmer. Suspended in January, 1864.

1864, January 1.—The *Faederlandet* (Norwegian), by Fleischer & Schroeder. Now published as the *Faederlandet og Emigranten*.

Five Norwegian political and two religious papers were published in Wisconsin to 1860, as follows:

1848.—*Nordlyset* (North Light), at Muskego, Racine county, by J. D. Reymert. Published two or three years.

1850.—*De Norkes Ven* (The Northman's Friend), at Madison, by Ole Torgerson. Published six months.

1852.—*Emigranten*, at Inmanville, Rock county, by an association. Removed to Madison in 1857. (*Faederlandet og Emigranten*, now published at La Crosse, established 1851 [Rowell], claims to be the oldest in the country.

1854, December.—*Den Norske Amerikaner* (The Norwegian American), at Madison, by Elias Staugeland. Suspended in May, 1857.

1857, June.—*Nordstjernen* (North Star), at Madison.

## ALASKA.

I am indebted to Mr. Ivan Petroff, special agent of the Census Office for Alaska, for the following account of several unsuccessful attempts to establish newspapers in or for Alaska:

DEPARTMENT OF THE INTERIOR, CENSUS OFFICE,
*Washington, D. C., February* 9, 1881.

Mr. S. N. D. NORTH, *Special Agent Press, etc.*

DEAR SIR: Alaska cannot at present boast of a newspaper published in or out of the territory. Several abortive attempts have been made in Sitka and other places on the Pacific coast to represent the country and its interests in the way of journalistic enterprise, but thus far all have failed. I will give you the "death-list" in chronological order:

The *Alaska Herald*, semi-monthly, 8-page, was established in San Francisco, California, March 1, 1868, by Agapius Houcharenka, a fugitive Russian monk. It also bore the Russian name of *Svoboda* (Liberty). A few columns of it were in the Russian language, advocating nihilistic and atheistic doctrines. The editor never saw Alaska. The publication lingered along until May 9, 1872, chiefly as a blackmailer of corporations, and then fell into the hands of A. A. Stickney, who, though also a stranger to Alaska, carried it on creditably until March 20, 1876.

Almost contemporaneous with the *Herald* was the *Alaska Times*, established in Sitka May 1, 1868, by W. S. Dodge, with T. G. Murphy as editor. The *Times*, a weekly, subsequently passed altogether into Murphy's hands, and by combining a tailor shop with the printing office, the pioneer editor managed to "hold on" until 1870, when he removed to Seattle, Washington territory, published two numbers of the *Times* there, and then gave up the struggle.

Some soldiers of the Sitka garrison published from time to time small sheets, the *Alaska Bulletin*, the *Sitka Post*, running only four or five numbers each.

The sailors of the United States steamer "Alaska" while in Sitka harbor published a diminutive sheet, lasting about six weeks—name unknown to fame—in the spring of 1879.

The latest and last Alaska newspaper enterprise was the *Alaska Appeal*, published semi-monthly at San Francisco, from March 6, 1879, to April 15, 1880. This was an 8-page, 4° paper, published by your correspondent, a former resident of Alaska under Russian and American rule.

Under the Russian government no book or paper was published in Sitka, but a number of valuable charts were engraved and printed there from copper-plates. I refer to Tebenkoff's "Atlas of Northwest Coast of America," Sitka, 1852, fol.

Very truly, yours,

IVAN PETROFF.

# APPENDIX D.

# BOUND FILES OF AMERICAN NEWSPAPERS

IN THE POSSESSION OF THE

AMERICAN ANTIQUARIAN SOCIETY, WORCESTER, MASSACHUSETTS.

# APPENDIX D.

## BOUND FILES OF AMERICAN NEWSPAPERS IN THE POSSESSION OF THE AMERICAN ANTIQUARIAN SOCIETY, WORCESTER, MASSACHUSETTS.

The following catalogue of the newspaper files preserved in the library of the American Antiquarian Society at Worcester, Massachusetts, is furnished by Mr. E. M. Barton, the librarian, and is here published as containing the record of the most complete collection in existence of American newspapers and periodicals:

### ALABAMA.

THE STATE:
  Miscellaneous newspapers, 1806–'68. 1 vol.
MOBILE:
  Miscellaneous newspapers, 1832–'68. 1 vol.

### CALIFORNIA.

SAN FRANCISCO:
  *Weekly Alta*, 1849–'62, 1865–'77, 1878–'81. 13 vols.
  *California Farmer*, 1854–'58, 1860–'68. 3 vols.
  *Mining and Scientific Press*, 1875–'78. 2 vols.
  *Pacific*, 1865–'68. 1 vol.
  *Steamer Bulletin*, 1856–'74. 1 vol.

### CONNECTICUT.

THE STATE:
  Miscellaneous, 1786–1870. 1 vol.
DANBURY, LITCHFIELD, MIDDLETOWN:
  Miscellaneous, 1793–1873. 1 vol.
DANBURY:
  *Farmer's Journal*, 1790–'93. 1 vol.
  *Republican Journal*, 1793–'99. 1 vol.
HARTFORD:
  Miscellaneous, 1783–1874. 1 vol.
  *American Mercury*, 1784–1825. 1 vol.
  *Churchman*, 1867–'81. 13 vols.
  *Connecticut Courant*, 1764–1881. 49 vols.
  *Supplement to Connecticut Courant*, 1825–'81. 43 vols.
  *Daily Courant*, 1869–'81. 24 vols.
  *Connecticut Mirror*, 1810–'29. 1 vol.
  *Connecticut Observer*, 1826–'27, 1829–'34. 2 vols.
  *Episcopal Watchman*, 1828–'30. 3 vols.
LITCHFIELD:
  *Weekly Monitor*, 1785–'98. 2 vols.
MIDDLETOWN:
  *Middlesex Gazette*, 1785–'98. 4 vols.
NEW HAVEN:
  Miscellaneous, 1801–'73. 1 vol.
  *Connecticut Journal*, 1775–'98. 5 vols.
  *Gazette*, 1784–'91. 3 vols.
NEW LONDON:
  *Connecticut Gazette*, 1775–1803. 5 vols.
NORWICH:
  *Courier*, 1822–'25. 3 vols.
  *Packet*, 1774–1803. 4 vols.
NORWICH, NEW LONDON:
  Miscellaneous, 1791–1804. 1 vol.
WINDHAM:
  *Phœnix*, 1791–1803. 2 vols.

### DELAWARE.

THE STATE:
  Miscellaneous, 1806–'68. 1 vol.
WILMINGTON:
  *American Watchman and Delaware Republican*, 1809–'25. 3 vols.
  *Mirror of the Times and General Advertiser*, 1800–'06. 2 vols.

### DISTRICT OF COLUMBIA.

GEORGETOWN:
  Miscellaneous, 1789–1826. 1 vol.
  *Washington Federalist*, 1800–'09. 2 vols.
WASHINGTON:
  *Daily American Organ*, 1854–'56. 2 vols.
  *American Telegraph*, 1851–'52. 2 vols.
  *Army and Navy Official Gazette*, 1863–'65. 2 vols.
  *Weekly Chronicle*, 1870–'74. 1 vol.
  *Federal Republican*, 1812–'16. 3 vols.
  *Gazette*, 1796–'97. 1 vol.
  *Daily Globe*, 1835–'38, 1840–'59, 1864–'73. 16 vols.
  *Semi-Weekly Globe*, 1831–'32, 1835–'44. 3 vols.
  *Extra Globe* (weekly), 1834–'35. 1 vol.
  *Madisonian* (tri-weekly), 1837–'42. 1 vol.
  *Daily Madisonian*, 1844. 1 vol.
  *Weekly Metropolitan*, 1851–'54. 1 vol.
  *Monitor*, 1806–'09; *City Gazette*, 1814–'24; *Cotton Plant*, 1852–'57. 1 vol.
  *National Era*, 1847–'60. 7 vols.
  *Daily National Intelligencer*, 1813–'28, 1838–'68. 22 vols.
  *Weekly National Intelligencer*, 1846–'71. 7 vols.
  *Tri-Weekly National Intelligencer*, 1800–'69. 59 vols.
  *Weekly National Journal*, 1825. 1 vol.
  *Semi-Weekly National Journal*, 1823–'24. 1 vol.
  *Tri-Weekly National Journal*, 1825–'26. 2 vols.
  *Daily National Journal*, 1827–'32. 4 vols.
  *Republic*, 1849–'52. 6 vols.
  *Daily Evening Star*, 1853–'77. 4 vols.
  *Semi-Weekly Union*, 1835–'44. 1 vol.
  *Daily Union*, 1845–'58. 22 vols.
  *United States Telegraph*, 1828–'37. 7 vols.
  *Universal Gazette*, 1811–'14. 1 vol.

## BOUND FILES OF AMERICAN NEWSPAPERS, ETC., WORCESTER, MASSACHUSETTS—Continued.

### GEORGIA.

THE STATE:
  Miscellaneous, 1792–1868. 1 vol.
MILLEDGEVILLE:
  Miscellaneous, 1808–'65. 1 vol.
NEW ECHOTA:
  *Cherokee Phœnix and Indian Advocate*, 1828–'31. 2 vols.
SAVANNAH:
  Miscellaneous, 1766–1872. 1 vol.
  *Advertiser*, 1796–1802. 1 vol.
  *Daily Republican*, 1866–'67. 3 vols.

### ILLINOIS.

CHICAGO:
  Miscellaneous, 1837–'76. 1 vol.
  *Advance*, 1867–'72. 2 vols.
  *Inter-Ocean*, 1874–'75. 4 vols.
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# REPORT

ON THE

# POPULATION, INDUSTRIES, AND RESOURCES OF ALASKA.

BY

IVAN PETROFF,
SPECIAL AGENT.

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# LETTER OF TRANSMITTAL.

WASHINGTON, D. C., *August* 7, 1882.

Hon. CHARLES W. SEATON,
*Superintendent of Census.*

SIR: In obedience to my instructions of April 20, 1880, under which I was directed to ascertain and report as far as possible the number of inhabitants of each geographical division of the Alaskan district, with an account of the occupations, modes of subsistence of the people, their dietary, dress, etc., indicating a proportional consumption of domestic and imported articles; their religious and educational institutions, with all statistical information relative thereto which might be available, together with such matters of economical and social importance as should seem to me to fall within the scope of my labors, I have the honor to report that during the seasons of 1880 and 1881 I made an extended exploration of the greater part of Alaska and a careful enumeration of its people, collecting at the same time facts and statistics bearing upon their past and present condition and the volume of trade in that region.

The immense extent of country contained in the district made it impossible for me to visit every section in person, even in two summers, but the population statistics of regions beyond my reach I have obtained from the most reliable sources. The people of the Arctic coast down to King's island, in Bering sea, were enumerated by Captain E. E. Smith, a whaling master of long experience, speaking the Innuit tongue, who accompanied the United States steamer Thomas Corwin on her Arctic cruise in 1880 in the capacity of ice pilot. Most of his figures are from actual count.

For the enumeration of the coast people from King's island to the mouth of the Kuskokvim river, and of the inhabitants of the Yukon delta, I am indebted to Mr. E. W. Nelson, United States signal service, who obtained his figures by actual count during a series of sledge journeys through all that region. The same gentleman has also furnished me with much statistical information of great value.

The enumeration of the people of the Yukon river and its tributaries beyond the points reached by me during my journey of 1880 was obtained, with the assistance of the traders, Messrs. Harper, Mayo, and McQuestion, from chiefs and other prominent natives of the various settlements during their annual visit to the coast.

At all places visited by me in person I succeeded in making an actual count. Having obtained the official returns of the church authorities within the area claimed by the various parishes and missions of the Russian church, I compared these with my own enumeration. I also compared the parish returns with the local registers kept by the "reader", or church representative, in each Christian village. The official returns of the Russian church were furnished me by the Rev. Zakhar Belkof, missionary of the Kvikhpak mission (Yukon river); Rev. Peter Shishkin, missionary of the Nushegak mission (Bristol bay); Rev. Father Nikita, missionary of the Kenai mission (Cook's inlet); Rev. Nikolai Rissef, of Kodiak parish; Rev. Moses Salamatof, of Belkovsky parish; and Rev. Innokenty Shaiashnikof, of Oonalashka parish. The returns of the Russian parish of Sitka, in southeastern Alaska, were obtained from the Russian consistory of San Francisco, California, through the courtesy of Bishop Nestor, of the diocese of Alaska.

The enumeration of the people of southeastern Alaska, which region I failed to visit in person, was made by Mr. Alexander Militich, who was appointed a special agent of the Tenth Census by the Superintendent upon the recommendation of the collector of customs in Sitka. As far as I have been able to check Mr. Militich's figures of population by comparison with later counts made by the naval authorities at Sitka I have found them correct, and therefore feel justified in accepting his enumeration as a whole.

Of the commercial, industrial, and mining statistics of southeastern Alaska I was unable to obtain much satisfactory information, owing to an apparent disinclination on the part of the majority of the business men to furnish the same. My inquiries by letter were answered with glowing statements of what the country would be in the near future, but as to the state of affairs at the time of writing my informants were silent.

For information concerning the educational and religious establishments in southeastern Alaska under control of the Presbyterian board of missions I am indebted to Rev. Sheldon Jackson, D. D.

Throughout the west and north of Alaska I was assisted and aided in my researches, and in my progress through the country on land and water, by the agents and traders of the Alaska Commercial Company and of the Western Fur and Trading Company, both of San Francisco, California. This assistance was of the greatest importance to me; in fact, without it I could not have accomplished my exploration.

Through the kindness of Mr. E. W. Nelson (by permission of General William B. Hazen, Chief Signal Officer, United States army) and of Captain Calvin L. Hooper, United States revenue marine, I have obtained important geographical data, which, together with the notes of my own observations, enabled me to compile a new map of Alaska. During the progress of this work I have also profited by the favors of the United States coast and geodetic survey and the United States hydrographic office in the shape of the latest geographical corrections. All the ancient and modern maps and charts (Russian, English, French, and American) accessible to me have been consulted, and the various authorities duly examined and compared, and I trust that the result will be a map of Alaska more accurate both in contour and detail than any heretofore published. Mr. Henry Gannett, geographer of the Tenth Census, has kindly superintended the technical execution of the work.

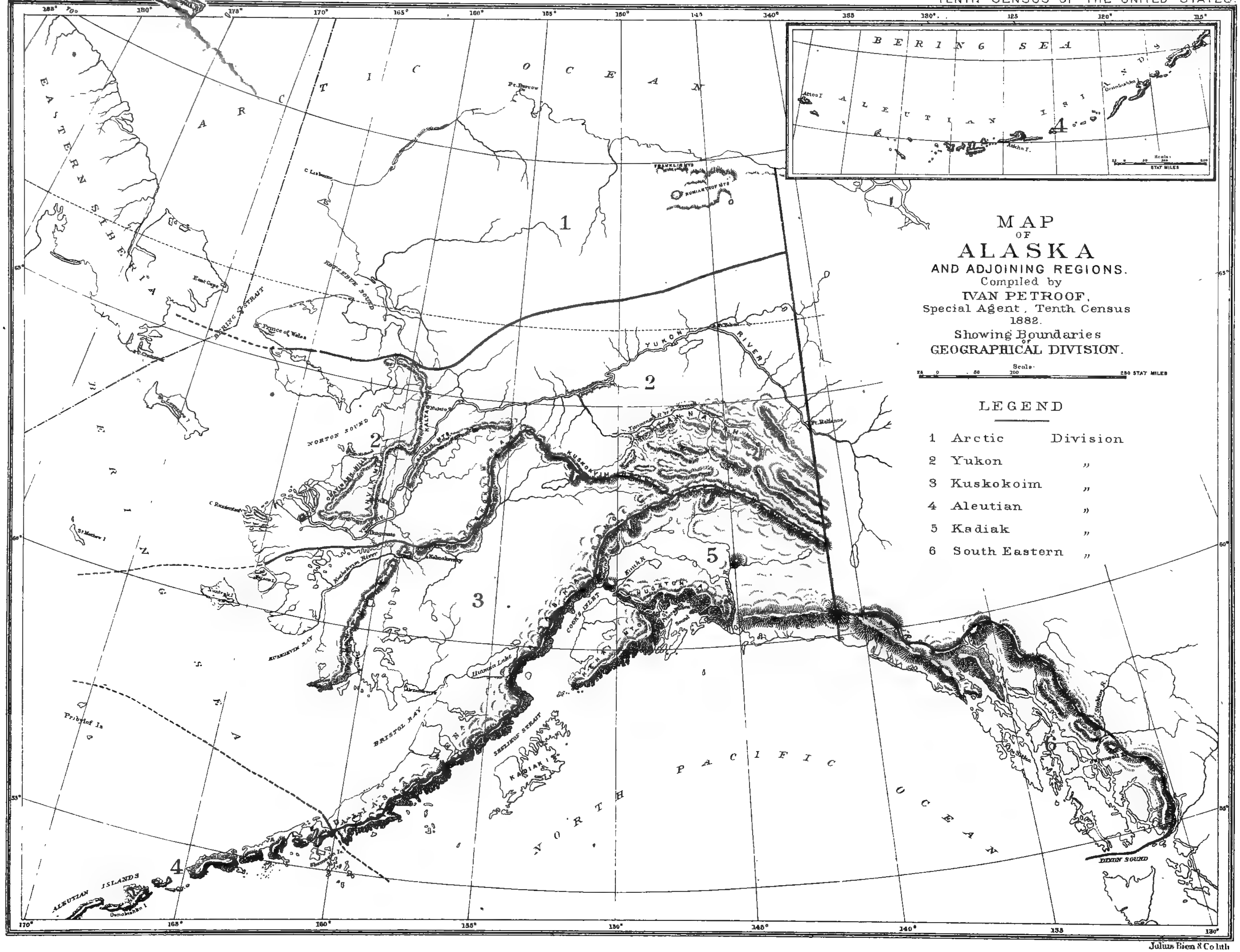
In addition to this general map, I have prepared special maps, showing the distribution of native tribes, of timber, and of the various fur-bearing animals of Alaska. On the latter point I have received the most valuable assistance from traders and others acquainted with the resources of the country.

In arranging my work, the result of my own observations as well as of researches in public and department libraries, archives, etc., I have found it most convenient to divide my report into the following heads:

1. A brief statistical review of Alaska in geographical divisions, with tables of population, statistics, etc.
2. A review of the fur trade, fisheries, mineral, and agricultural resources in the past and present.
3. The geography and topography of Alaska.
4. An historical sketch of Alaska from its discovery to the year 1880.
5. Notes on Alaskan ethnology.

I have the honor to be, very respectfully, your obedient servant,

IVAN PETROFF,
*Special Agent.*



MAP
OF
ALASKA
AND ADJOINING REGIONS.
Compiled by
IVAN PETROOF,
Special Agent, Tenth Census
1882.
Showing Boundaries
of
GEOGRAPHICAL DIVISION.

Julius Bien & Co lith

# CHAPTER I.—STATISTICAL REVIEW BY GEOGRAPHICAL DIVISIONS.

For the purposes of this report it has been found most convenient to divide Alaska into six geographical divisions, as follows:

1. The Arctic division, containing 125,245 square miles, and comprising all that portion of the North American continent between the one hundred and forty-first meridian in the east and cape Prince of Wales, or Bering strait, in the west, the Arctic ocean in the north, and having for its southern boundary a line indicating the water-shed between the Yukon River system and the streams emptying into the Arctic and impinging upon the coast of Bering sea just north of Port Clarence.

2. The Yukon division, containing 176,715 square miles, and comprising the valley of the Yukon river as far as it lies within our boundaries and its tributaries from the north and south. This division is bounded by the Arctic division in the north, the one hundred and forty-first meridian in the east, and Bering sea in the west. The southern boundary lies along a line indicating the water-shed between the Yukon and the Kuskokvim, Sushetno, and Copper rivers, and runs from the above-mentioned meridian in the east to the coast of Bering sea, in the vicinity of Hazen bay, in the west. The island of Saint Lawrence, in Bering sea, is included in this division.

3. The Kuskokvim division, containing 114,975 square miles, bounded on the north by the Yukon division, and comprising the valleys of the Kuskokvim, the Togiak, and the Nushegak rivers, and the intervening system of lakes. The eastern boundary of this division is a line running along the main Alaskan range of mountains from the divide between the Kuskokvim and Tennanah rivers down to the low, narrow isthmus dividing Moller bay from Zakharof bay, on the Aliaska peninsula. Bering sea washes the whole west and south coasts of this division, which also includes Nunivak island.

4. The Aleutian division, containing 14,610 square miles, and comprising the Aliaska peninsula westward of the isthmus between Moller and Zakharof bays and the whole chain of islands from the Shumagin group in the east to Attoo in the west, including also the Pribylof or Fur-Seal islands.

5. The Kadiak division, containing 70,884 square miles, and comprising the south coast of the Aliaska peninsula down to Zakharof bay, with the adjacent islands, the Kadiak group of islands, the islands and coasts of Cook's inlet, the Kenai peninsula, and Prince William sound, with the rivers running into them. The main Alaskan range bounds this division in the north and west. Its eastern limit is the one hundred and forty-first meridian, which intersects the coast-line in the vicinity of Mount Saint Elias, while the south shores of the division are washed by that section of the North Pacific named the Gulf of Alaska.

6. The southeastern division, containing 28,980 square miles, and comprising the coast from Mount Saint Elias in the north to Portland canal, in latitude 54° 40′, in the south, together with the islands of the Alexander archipelago between Cross sound and cape Fox. The eastern boundary of this division is the rather indefinite line established by the Anglo-Russian and Russian-American treaties of 1824 and 1825 respectively, following the summits of a chain of mountains supposed to run parallel with the coast at a distance not greater than three marine leagues from the sea between the head of Portland canal and Mount Saint Elias.

## THE ARCTIC DIVISION.

Situated, as it is, almost entirely above the Arctic circle, this division is known to us only from observations made on the sea-coast. The vast interior, consisting probably of frozen moors and low ranges of hills, intersected here and there by shallow, sluggish streams, remains entirely unknown. We may presume that the reindeer find a refuge here from the constant persecution of the coast people or Arctic Eskimo on one side and of the Yukon River people on the other. Statements have been made by natives of the latter region to the effect that routes of travel are in existence connecting the river settlements with those on the Arctic, but nothing definite can be ascertained concerning them with the exception of the general and well-established route of traffic between the Koyukuk, a northern tributary of the Yukon, and the settlements on Kotzebue sound; and even this has never been traversed by a white man. Lieutenant Zagoskin, of the Russian navy, made the attempt nearly forty years ago, but failed, reaching merely the headwaters of the Selawik river, and since his time the only reliable information concerning this route rests upon the statements of a few intelligent half-breed traders.

The only rivers known to emerge from this inland waste are the Colville river, emptying its waters into the Arctic ocean about half-way between point Barrow and our eastern boundary; the Kok river, the mouth of which is located perhaps 50 miles to the eastward of Icy cape, near Wainwright inlet; the Inland river, or Noatak, falling into the northern part of Kotzebue sound, and the Kooak, the Selawik, and the Buckland rivers, debouching into the same estuary.

The natives on the coast and whalers report the existence of settlements farther up on all these rivers, with the exception of the Colville river, whose headwaters no white man has ever visited. The coast settlements between cape Prince of Wales and point Barrow are visited annually by many schooners and ships engaged in whaling, hunting, and trading, and the inhabitants are better accustomed to white men than the natives of any other regions in Alaska. Being possessed of great commercial genius and energy, they do not confine themselves to this intercourse with the Caucasian race, but carry on an extensive traffic with the natives of the Arctic coasts of Alaska and of Asia, meeting the latter on the common trading-grounds of Bering strait and the Diomede islands. In the intervals between this traffic the natives living in the villages of cape Prince of Wales and the Diomedes are active hunters and whalers, and when the icy barriers of winter close up their deep-sea hunting-grounds they confine themselves to the inlets and streams, hunting seal, reindeer, and polar bears, and trapping the Arctic fox, whose snowy coat is rising in value from year to year.

From point Hope to the eastward we find a series of villages, inhabited principally by reindeer hunters, who kill the seal during the summer season only for the sake of its luscious blubber and meat. The skins of the reindeer are made up into garments, and in that shape find ready sale among the whalers and the neighboring Eskimo tribes to the westward and southward. Along that dreary, low, ice-bound strip of coast between point Hope and point Barrow the scattered Innuit settlements also depend upon reindeer, seal, and walrus for their subsistence, each of these animals being hunted in its proper season.

From point Barrow eastward to the boundary the settlements are few and widely scattered, and the navigators who have made their way through the dangerous channel between the ice and the shore have found these people quite expert whalers, harpooning the huge cetaceans on their way to and from their breeding-ground at the mouth of the Mackenzie river.

The only mineral of any value known to exist on the coast of this immense Arctic division is coal, located in several easily-accessible veins in the vicinity of cape Lisburne, reported long ago by Kellett and other English explorers, but more definitely located and utilized by Captain Hooper, of the United States revenue marine, in July, 1880. This discovery is of importance to the cruisers of the revenue marine and to the steam whalers visiting the Arctic from San Francisco, but will not probably open up a field for private enterprise in that direction. The only attraction for the daring navigators who pay annual visits to this coast consists in the natural resources of furs, oil, and walrus-ivory; but under existing circumstances, and as long as our portion of the Arctic is comparatively unprotected against encroachments of unscrupulous contraband traders, there is danger of an utter exhaustion of furs and of walrus-ivory at no very distant period.

The whaling industry may be expected to decline gradually here, as it has done in other sections of the globe. The danger indicated lies in the fact that the trading-vessels coming to this region, chiefly from the Sandwich islands, have carried such quantities of alcoholic liquor that the natives have acquired a craving for the same that can no longer be subdued, and this causes them to look for no other equivalent for their furs, oil, and ivory than the means of intoxication. At the same time they have become utterly reckless in their pursuit of fur-bearing and other animals, thinking only of satisfying their desire for the present, without the slightest thought of the future; and if this state of affairs be continued, the extermination of the people, consequent upon the exhaustion of their means of subsistence, can only be a question of time. The immoderate consumption of alcohol brings with it disease and war. Against the former all remedies are out of reach, and, far from using his influence in suppressing strife arising through his fault alone, the freebooter supplies the unfortunate Eskimo liberally with breech-loading arms and ammunition, thus making their wars more bloody and destructive.

No trace or shadow of Christianity and its teachings has found its way to these desolate regions, the dark night of shamanism, or sorcery, still hanging over the human mind. These people share with their eastern kin a general belief in evil spirits and powers, against whom the shaman alone can afford protection by sacrifices and incantations. All sickness is ascribed to the direct action of evil spirits, and is treated accordingly. There can be no doubt of the sincere belief of many of these sorcerers in their own performances, but in every instance they make the exercise of their power, be it real or imaginary, a source of revenue and of influence among their people.

No philanthropic missionary has ever found his way to this icy coast, and unless some modern Hans Egede makes his appearance among them in the near future there will be no soil left in which to plant Christian seed.

It must be evident to any careful observer that there is no foundation in this division of Alaska upon which to build hopes for future development. As it is now it may remain for a few years at the most, but improvement seems now beyond the range of possibility.

As a foothold for Arctic explorers and for the scientific phalanx now steadily advancing toward the pole this region may yet be utilized, especially since a beginning has been made in this direction by the establishment of a meteorological station at point Barrow, under the auspices of the United States government.

A brief account of the animal life of this region, based upon our latest authority—a naturalist accompanying the steamer Thomas Corwin on her Arctic cruise—is partially embodied in the report of Captain C. L. Hooper.

Whales are found in all sections of the Arctic, and enter as soon as the ice breaks up and remain until compelled to leave by the closing up again of the sea. They are always found in the immediate vicinity of ice. The Eskimos assert that these marine mammals are most numerous after the departure of the whaling-fleet in the autumn. The variety called the "bow-head" by hunters is the most common; the "California gray" and the fin-back whale are much more rare; in fact, they are seen only occasionally here and there. The white whale, or grampus (beluga), although confined to no particular section of the Arctic, is more numerous in the vicinity of the rivers, and especially those emptying into Kotzebue sound, the female grampus with its young often ascending the rivers as far as tide-water reaches, feeding upon small fish, and they may be observed on almost any clear day or night, the mother coming first, puffing and snorting, with an occasional display of her milk-white back as she guides her calf to the feeding-ground.

The walrus, like the whale, is found all over these waters in the vicinity of ice. These animals enter the Arctic in the spring as soon as the ice disappears from Bering strait, and remain until driven away again by the ice, when they retire into Bering sea. They collect in large numbers on the ice in groups or herds, called "pods" by the hunters, and hundreds of them may be seen drifting through the strait on ice-floes during the month of June. The walrus seem to prefer detached bodies of ice to the main pack, because they can better watch thus for the approach of their natural enemy, the polar bear.

Seals in three or four varieties seem to be ubiquitous in these waters, the leopard seal being the rarest among them.

Polar bears are met with everywhere, and are generally found on the ice or in its immediate vicinity, but instances have been recorded of their being seen at sea, 50 or 60 miles away from any land or fixed ice. They grow to an enormous size, often weighing from 1,000 to 2,000 pounds. The skin of this animal is only valuable late in autumn and during the winter; but only a few are secured during that season of the year. They fight the walrus constantly, and generally successfully, and are ever ready to turn upon the man who happens to inflict a wound not immediately mortal.

Reindeer are said to be most numerous in that section of the coast lying between point Barrow and point Belcher, but they often change their habitation, at times migrating in immense numbers to regions hundreds of miles away, where their human pursuers do not dare to follow. This habit of migration alone has thus far preserved the reindeer from extirpation by the ardent hunter.

Moose do not appear anywhere on the Arctic shore, but natives report them as numerous in the far interior. Mountain sheep are also said to be plentiful on the lines of hills remote from the sea-shore, but only a few horns of the animal, shaped into spoons and other utensils, can be found on the sea-coast; and if these animals are killed in this region at all, it is done by natives located in the interior and not yet visited by white men.

Musk-rats and squirrels are numerous all over the coast. Their skins are offered for sale in large quantities, as the Eskimo does not make use of them for his wearing-apparel, but prefers the heavier coats of the reindeer and seal for that purpose.

Foxes are plentiful, especially the white or Arctic variety, and their skins are easily secured and meet with ready sale. In the depth of winter, when these foxes experience great difficulty in obtaining necessary food, they fearlessly approach the dwellings of men and help themselves to whatever comes within their reach, no matter what the material so long as it fills the stomach.

Aquatic birds are very numerous along the coasts and cliffs, and myriads of geese and ducks breed and rear their young on the vast swampy tundras as soon as the snow disappears and the plains are covered with the enlivening colors of an Arctic summer vegetation.

The only fish of any value found on the Arctic coast of Alaska are the salmon. They are quite plentiful and of fine flavor, though generally smaller than those caught farther south, and the Eskimo located in the vicinity of rivers cure large quantities of them by smoking and drying for winter use. The presence of vast numbers of seals living on fish alone indicates most certainly the presence of other smaller varieties of fish, but the natives appear to catch no other kind, and even the whalers can give us no information upon this point. In the chapter on fisheries further details will be found.

It is impossible to obtain statistics of the provisions, manufactured goods, arms, and ammunition shipped to the Arctic coast of Alaska and disposed of among the natives there, chiefly because the bulk of this trade has fallen into the hands of illegitimate traders, who clear from American ports for the coast of Siberia, then touch at the Sandwich islands to lay in a supply of spirituous liquors, and finally cruise along the Alaskan coast, purchasing all the furs, fossils, and walrus-ivory in the hands of the Arctic Innuits with rum, breech-loading arms, and ammunition. This traffic, though quite extensive in volume, lies at present altogether without the pale of official investigation, and only the continuous presence of one or two vessels of the revenue marine in these waters could reduce the trade of the Arctic division to a legitimate basis.

During the summer of 1880 an enumeration of the Eskimo inhabiting this division was made by Captain E. E. Smith, then ice-pilot of the revenue-cutter Thomas Corwin. In nearly every instance this enumeration was made by actual count, and based upon this authority we present the following list of settlements and their population:

ARCTIC DIVISION.

| Settlements. | Location. | Eskimo. |
|---|---|---|
| Total | | 3, 094 |
| Kingigamute | Cape Prince of Wales, Bering strait | 400 |
| Inalit | East Diomede island, Bering strait | 40 |
| Village opposite on mainland | Arctic ocean | 18 |
| Ta-apkuk | Cape Espenburg, Kotzebue sound | 42 |
| Kugalukmute | Kotzebue sound | 12 |
| Kongigamute | Buckland river, Kotzebue sound | 90 |
| Selawigamute | Selawik lake, Kotzebue sound | 100 |
| Kikiktagamute | Kotzebue sound | 200 |
| Sheshalegamute | Kotzebue sound | 100 |
| Tikizat | Arctic ocean | 75 |
| An-iyakh | Arctic ocean | 25 |
| Cape Sepping | Arctic ocean | 50 |
| Ip-Not | Arctic ocean | 40 |
| Tikirak | Arctic ocean | 276 |
| Cape Dyer | Arctic ocean | 15 |
| Cape Lisburne | Arctic ocean | 13 |
| Point Lay | Arctic ocean | 30 |
| Otok-kok | Icy cape, Arctic ocean | 50 |
| Kolumatourok | Arctic ocean | 45 |
| Neona-agamute | Arctic ocean | 74 |
| Ootkaiowik | Arctic ocean | 55 |
| Pinoshuragin | Arctic ocean | 29 |
| Ootiwakh | Arctic ocean | 225 |
| Refuge inlet | Arctic ocean | 40 |
| Kokmullit | Point Barrow, Arctic ocean | 200 |
| Colville river | Arctic ocean | 50 |
| *In the interior.* | | |
| Koo-agamute villages | Kooak river | 250 |
| Noatagamute village | Inland river | 400 |
| Killaïmute villages | Kok river | 150 |

The superficial area of the Arctic division of Alaska embraces 125,245 square miles, which, with a total population of 3,094, would give us the proportion of one native inhabitant to 40½ square miles, without a single white man or woman. Fully nine-tenths of this vast area lies north of the Arctic circle.

## THE YUKON DIVISION.

The second geographical division in the order of discussion is the largest in Alaska, comprising as it does the valley of the largest river on the North American continent, so far as this mighty stream flows within our boundaries. Along the eastern portion of this division its northern and southern boundaries are clearly defined by nearly parallel chains of mountains, the southernmost of which greatly exceeds in height the northern. Farther to the westward, where the Kuskokvim river takes its rise in the region unknown to white men, the branch of the main Alaskan chain of mountains, forming the water-shed between the latter river and the Yukon, gradually decreases in height, until nothing remains but isolated groups of hills only a few hundred feet above the level tundras, stretching away to the westward, until they finally merge with the shallow waters of Bering sea. In the vicinity of the portage route between these two large rivers, where they approach to within thirty or forty miles of each other, the country is so low that a canal of less than half a mile in length would allow the waters of two vast river systems to mingle with each other.

The life artery of all this vast division is, of course, the river from which it takes its name, which has served as the highway of nations and tribes for many centuries, long before the white man, with his improved means of transportation, accomplished the feat, marvelous in their eyes, of traversing in one brief season the distance from its deltoid mouth to the Hudson Bay fort at the junction of the Yukon and the Porcupine rivers.

The North American Indians of Athabaskan stock inhabiting the banks of the Yukon and its tributaries east of the Anvik and Chageluk rivers had but a faint conception of the sea to the westward, and perhaps a majority of the tribes were ignorant of its existence. On the other hand, the hardy Eskimo, living along the coast of Norton sound, the lower Yukon river, and the Kuskokvim delta, had advanced at an early day across the divide between the great river and the sea, following up the course of the Oonalakleet river, striking the Yukon forty or fifty miles south of Nulato. They settled the right bank of this river from there to its mouth and both banks west of the Chageluk, but were not allowed to hold peaceable possession, the Indians rallying from all directions and driving the intruders back far down the river, where the last traces of rolling hills are lost in the swampy tundras. From time to time the Eskimo advanced again, and traditional tales of bloody battles and years of war between the tribes have come down to us, but through all the varying fortunes of the contest the Eskimo succeeded in keeping the Indians from reaching the sea.

At the present time the Indian or "Ingalit" tribes hold full sway over the river down to Paimute village, situated below the junction of the Anvik river with the Yukon, and no Innuit (or Eskimo) ascends the river beyond this point unaccompanied by white men, while no Ingalit descends without the same protection.

During the brief summer of this region the whole population flock to the river banks, attracted by myriads of salmon crowding the waters in their annual pilgrimage of reproduction up this mighty stream. At that time both banks are lined with summer villages and camps of fishermen, who build their basket traps far out into the eddies and bends of the stream and lay up their store of dried fish or "yukala" for the long Arctic winter. This annual congregation along the river banks completely drains of human life the valleys and plains stretching away to the northward and southward, and many of the lake regions in the western plains.

The traveler passing up or down the river during this busy season would form an entirely erroneous estimate of the density of the population if he should draw the conclusion that the vast forests covering the mountains and slopes on either side are inhabited by other tribes. Were he to make a brief excursion into the almost impenetrable forests and over the hills and mountains he would quickly perceive that along the river alone exist the conditions necessary to sustain life throughout the year. The small rivulets of the interior, and the vast swampy plains covered with snow for seven or eight months of the year, are only visited by the trapper and hunter when the skins of the marten, mink, and musk-rat are in their prime. Where the mountains are higher along the upper courses of the Yukon and the Tennanah game is more abundant and the inhabitants are less dependent upon the river and its fish.

In the past the staple food during the winter was the meat of the reindeer, which animal was then abundant throughout the whole Yukon section, but the first introduction of breech-loading arms among these native tribes caused an indiscriminate slaughter and the almost total disappearance of this animal from the immediate vicinity of the river. At that time the moose was found only high up the river, and the mountain sheep was rarely even heard of. At present the reindeer is again gradually making its appearance here and there, but the moose, though hunted constantly and energetically, seems to be increasing in numbers, and has advanced down the river and spread all over the delta between the Yukon and the Kuskokvim.

American enterprise has already taken hold of the fur-trade of this region to its full extent, and rival firms have lined the banks of the Yukon with trading-stores from Bering sea to the eastern boundary.

The shrill whistle of the steamboat is welcomed annually by thousands along the river banks at the breaking up of the ice, and it is echoed by the hills and mountains of the far interior, where the Hudson Bay Company once reigned supreme.

Foxes of all shades, from the highly-prized silver-gray and black to the fiery red and the snow-white fox of the Arctic, furnish the staple fur of the Yukon region. The martens and the land-otters come next in numbers, and the black and the brown bear constitute but an insignificant item of trade, while the mink of the tundras and the river delta, though exceedingly numerous, are next to valueless. The moose- and deer-skins are nearly all consumed by the natives themselves for clothing and bedding.

The total value of furs shipped from this vast region to the American and European markets does not probably exceed $75,000 per annum, and the profits of this traffic are divided by two incorporated California companies, with fifteen or twenty trading-stations along the river. The fiercest competition has caused high prices of furs, and it frequently occurs that one or the other of the firms carries on its operations for a season at a loss.

No mineral deposits in paying quantities have yet been discovered as far as the Yukon flows within our boundaries. Prospectors have been at work for many years along its upper course, but only on the Tennanah have traces of gold been found in quantity sufficient to pay a laborer's wages during the brief summer season.

Rich as the river is in fish and the forest in game, the supply does not seem to be equal to the demands of the native population. There is an annually-recurring period of famine during the later months of winter and spring, and nearly all the money received from the traders is expended for flour, tea, and sugar, the shipment of these articles to the Yukon region increasing in quantity every year. Happily, nature affords better protection to fur-bearing animals than to game, and there does not appear to exist any danger of exterminating the former.

Much has been said and written by travelers who passed during a brief Arctic summer through the Yukon valley with its high temperature, rank vegetation, and brilliant flora (and by others who never saw the river) of the great agricultural region here awaiting development in the near future. The real facts do not warrant any such expectation. The whole valley of the Yukon lies within a few degrees of the Arctic circle, the soil, where it is level, is always swampy, and even the slopes of hills and mountains are never drained of their superabundant moisture. The heat of summer has no effect beyond an astonishingly rapid growth of native grasses and weeds and the bringing into life of dense clouds of mosquitoes all over the country.

There is no doubt that a few vegetables will come to maturity here during the summer, and traders, tired of an uninterrupted diet of animal food, have made many experiments in this line. In no single instance has there been a continued success in these ventures, heavy frosts at the end of July having, as it were, frequently nipped in the bud the growing hopes of the traders of reaping a scanty harvest of potatoes, turnips, and radishes. Even if the interior valleys of the Yukon were as well adapted to the production of cereals as are the Saskatchewan and the Red River valleys, which they are not, there would still be the difficulty of finding a market for produce from such an inaccessible region. Their only artery of trade would be, of course, the Yukon, and that is not open to navigation until the month of July, closing again at the end of September. No sea-going craft can enter the river at all, and transshipments of cargoes would be necessitated at some point on the coast away from its mouth.

For hundreds of miles from the sea the Yukon river flows through low, level tundras, or mossy morasses, resting upon a foundation of clay. The shifting current of the river eats away the shores on either side with astonishing rapidity; the dull thud of caving banks is constantly heard by the traveler, and whole reaches change their aspect entirely within a single season. Stepping upon the shore, the explorer must jump from hummock to hummock or wade around from knee to waist deep. In many places the ice never disappears within a few inches of the surface, being protected from the rays of the sun by a non-conductive carpet of sphagnum. Wherever there is a slight elevation of ground in all this watery waste the wretched natives have located their villages, the dwellings consisting of excavations in the ground roofed over with mounds of sods. Here they fish during the summer and hunt the mink and the moose in the winter. Millions of geese and ducks visit this region in the breeding season, but comparatively few of them fall victims to the Innuit hunter, who is but an indifferent shot, and powder is dear. The capture of a large species of seal called "maklak" is considered a great windfall by the hunter, and if three or four of them succeed in slaying a snow-white beluga, or grampus, the village at once becomes the scene of festivity and rejoicing. Milk and honey cannot be said to flow at any time in this region, but oil does occasionally, lending a decided "luster" to the life of the Innuit and all his surroundings.

The observations of the temperature in the Yukon division have not been extensive, and of only two points in the interior have we a series of temperature readings. Nulato is a trading-station and Indian village, situated at about the central point of the Yukon River valley. Here the mean annual temperature, according to the observations of the Western Union Telegraph exploring parties, appears to be but 6° 8′ above zero. It must be remarked, however, that the warmest months of the year are not included in this series of thermometrical readings. From fort Yukon, at the junction of the Yukon and the Porcupine rivers, we have a complete set of readings for a whole year, from which we deduce an average for the summer temperature of 56°, and for the winter of −23°, with an annual mean of +16° 84′.

We insert the following table, as published by the United States coast survey in the *Pacific Coast Pilot* of 1879:

TEMPERATURE OBSERVATIONS AT NULATO, ALASKA.

| Months. | 1866–1867. | | | | | | |
|---|---|---|---|---|---|---|---|
| | 9 a. m. | 1 p. m. | 8 p. m. | Mean. | Max. | Min. | Range. |
| | *Deg.* | *Deg.* | *Deg.* | *Deg.* | *Deg.* | *Deg.* | *Deg.* |
| January | −18. 5 | −16. 3 | −18. 3 | −17. 7 | +15 | −49 | 64 |
| February | −15. 5 | −10. 4 | −12. 9 | −12. 9 | 25 | −51 | 76 |
| March | +11. 5 | +19. 6 | +13. 5 | +14. 9 | 38 | −40 | 78 |
| April | 19. 2 | +34. 4 | 25. 9 | 26. 5 | 49 | ........ | 49 |
| May | 40. 9 | 56. 1 | 42. 3 | 46. 4 | 74 | +22 | 52 |
| June | ........ | ........ | ........ | ........ | ........ | ........ | ........ |
| December | −11. 2 | −8. 0 | −10. 2 | −9. 8 | 22 | −56 | 78 |
| Whole period | +3. 4 | +10. 9 | +5. 8 | +6. 8 | +74 | −56 | 130 |

TEMPERATURE OBSERVATIONS AT FORT YUKON, YUKON RIVER, ALASKA.

| Month. | Mean. | Max. | Min. | Range. |
|---|---|---|---|---|
| 1869. | *Deg.* | *Deg.* | *Deg.* | *Deg.* |
| August | 66. 3 | 77 | 58 | 19 |

TEMPERATURE OBSERVATIONS AT FORT YUKON, YUKON RIVER, ALASKA—Continued.

| Months. | Daily mean. | Mean at 1 p. m. | Monthly max. |
|---|---|---|---|
| 1870. | *Deg.* | *Deg.* | *Deg.* |
| January | −26. 85 | 27. 58 | 17 |
| February | −26. 44 | −23. 55 | 10 |
| March | −11. 16 | − 0. 94 | 28 |
| April | 12. 66 | 19. 43 | 52 |
| May | 41. 24 | 48. 81 | 70 |
| June | 53. 49 | 62. 00 | ........... |
| July | 65. 75 | 74. 84 | 76 |
| August | 59. 90 | 70. 94 | 86 |
| September | 38. 66 | 52. 73 | 69 |
| October | 21. 60 | 9. 49 | 50 |
| November | − 8. 28 | − 5. 40 | 28 |
| December | −18. 43 | − 5. 39 | 22 |
| Spring | 14. 60 | 22. 71 | 70 |
| Summer | 56. 73 | 69. 28 | 86 |
| Autumn | 17. 37 | 26. 03 | 69 |
| Winter | −23. 80 | −22. 70 | 22 |
| Year | 14. 58 | 23. 89 | 86 |

From Mr. E. W. Nelson's report to the Chief Signal Officer on the meteorology of Saint Michael and vicinity I extract the following:

During the past four years the first mush-ice has begun to form in the bays from the 15th to the 18th of October, and the bays have been frozen over so as to bear a man from the 25th to the 28th of October, with the exception of the year 1878, when a strong wind took the ice out, and it did not freeze again until the 10th of November. Up to the 15th of October vessels could enter here without danger of meeting ice. In the spring much more uncertainty exists, as to a great extent the date of open water depends upon what the prevailing winds may be. Long-continued north winds, following a severe winter, as in 1880, may keep the ice-barrier in until the 20th of June, and it has even remained until nearly the 1st of July; but these late dates are exceptional. As a rule, the ice will be thoroughly broken up and a strong vessel may enter Norton sound through the ice by the 10th of June (in 1875 a vessel reached this port May 25, but it was in the hands of an experienced ice-pilot). Vessels have reached here for the past four years between the 20th of June and the 1st of July; these may be called safe dates for any vessel except in an unusual season, as during a large part of June fine weather prevails. There is usually but little risk in entering the ice at that season.

### TEMPERATURE.

The range of the thermometer during the past seven years has been from 76° to —55° or 131°; though for the past four years the average yearly variation has been but 71.2°. The maximum variation of the past four years was in 1877 and 1878, when the highest extremes were respectively 75° and —50°, and 73° and —52°, amounting to a range of 125°. The smallest range in 1879 was 100°, from 68° to —32°; the average of the mean monthly temperature, made up from the daily average of three observations for the years 1877, 1878, 1879, and 1880, is as follows:

| | Degrees. |
|---|---|
| January | — 5.0 |
| February | — 6.5 |
| March | 9.5 |
| April | 22.1 |
| May | 32.8 |
| June | 45.2 |
| July | 53.1 |
| August | 52.1 |
| September | 43.3 |
| October | 28.0 |
| November | 8.3 |
| December | 8.9 |

The minimum averages for any single month are —23.7° for February, 1877, and —19.8° for January, 1880. The highest monthly means are 54.5° and 53.4° in July and August, 1877, respectively. The mean annual temperature for the four years is 25.5°. The highest mean for one year is 26.8°, in 1879, and the lowest 23.9°, in 1880. January and February rank as the two coldest months, and July and August are the warmest.

### TIDES.

The ordinary tides are small and give a rise and fall of only about 2 or 3 feet, but the winds from either north or south produce a striking variation. A long-continued and heavy gale from the south raises the water of Norton sound at least 10 feet above ordinary tide-mark and overflows large stretches of the low coast to the southward. Some of the heaviest of these gales occur during the winter, and frequently the sea, covered with heavy ice, sweeps over the low coast-lands between the Yukon and the Kuskokvim rivers for miles, and whole native villages have been thus destroyed with many of their inhabitants within the last few years. As the tide falls the ice, 3 or 4 feet thick, is left stranded on the low land. A light south wind is sufficient to raise the tide from a few inches to several feet above the ordinary extent. North winds affect the tides in proportion to their strength exactly in the inverse ratio of the south winds. When long-continued and strong gales from this direction occur (most frequently in autumn) the shallow bays are laid bare, long reefs are exposed, and a general fall of the water of about 8 feet occurs. It is to the high tides and south winds of spring or early summer that this region is indebted for the drift-wood which, emerging from the Yukon, is cast upon the beach, and furnishes the only fuel and building material here.

### VEGETATION.

The whole coast in this part of the country is bare of any kind of timber, and a few patches of scraggy alder on sheltered southern hill-slopes, with the Arctic willows creeping over mossy ground, are almost the only bushes to be found. The ground is covered with a soft layer of decaying vegetable matter and mosses, which hold water like a sponge. In addition, a varied and hardy sub-Arctic flora manages to thrive everywhere except on the northern slopes of the hill-tops, where only lichens grow or total sterility prevails. As soon as the warm days begin the hardier plants start up and by the first of June shade the country with green in sunny spots, making a pleasant contrast to the gray and russet elsewhere; a few days later, and the southern hill-slopes are thickly dotted with flowers.

### GARDENING.

Repeated attempts to raise garden vegetables have been made, but with poor success, as turnips, radishes, and lettuce appear to be the only vegetables from which any adequate return may be expected, and even in these cases the trouble far exceeds the reward.

### ATMOSPHERIC PHENOMENA.

For the four years preceding April 30, 1880, the average proportion of cloudiness during the year has been as follows:

| | |
|---|---|
| The average number of totally cloudy days | 182.2 |
| The average number of partially cloudy and fair days | 131.5 |
| The average number of clear days | 50.5 |

The average number of days during which rain or snow fell at Saint Michael during the last four years was:

| | |
|---|---|
| January | 9.0 |
| February | 5.7 |
| March | 8.2 |
| April | 16.2 |
| May | 11.2 |
| June | 9.8 |
| July | 14.2 |
| August | 19.5 |
| September | 17.7 |
| October | 16.0 |
| November | 10.0 |
| December | 9.7 |

Or an annual average of 147.5 days on which rain or snow fell. The average annual precipitation equals 18.36 inches.

The number of days on which rain or snow fell appears very disproportionate, but this is readily explained by the character of the precipitation. In but a single instance during four years have I seen a hard down-pour of rain, such as is common in lower latitudes, but either fine showers of short duration or long misty rains, which at times fall for a day or two, leaving scarcely a measurable quantity of moisture in the rain-gauge, though every exposed object becomes saturated like a water-soaked sponge. The snow usually bears the same character and falls in fine amorphous flakes, rarely showing perfect crystalline forms and as rarely falling in large flakes.

### ELECTRICAL PHENOMENA.

Thunder showers are said to be quite common in some parts of the Yukon River valley during the summer, but in the vicinity of Saint Michael flashes of lightning, accompanied by thunder, have been observed on two occasions during the four years. Probably the low temperature and the high relative humidity combine to lessen such displays here. During the coldest weather in winter, nearly always after a snow-fall, the air is in a highly-charged condition, and at such times a passing stroke upon any loose fur causes the hairs to stand up, so fully charged that by presenting the finger to a single hair-tip the snap of a spark may be heard 3 feet away; and in the dark a train of sparks follows the hand in stroking any fur.

### MIRAGES.

During the fine weather, from the last of February until the latter part of July, most of the clear days are accompanied by more or less mirage, which is generally strongest on cold, clear days in March and in fine, warm days in May and June. The coast hills and capes, 30 to 75 miles away, are lifted up and contorted into the most fantastic shapes, which constantly assume new forms with protean rapidity, until the whole landscape appears but a form of air, the least change in one's altitude producing a disproportionate change in the scene. I have seen a tall, pinnacled hill, apparently hundreds of feet high, melt away and totally disappear under the horizon by descending about 15 feet from my first point of view, and the changes in outline are equally abrupt and surprising. During the entire year upon pleasant days the air is constantly vibrating more or less appreciably to the eye, but during the clear, intensely cold days in the latter part of winter these vibrations are so energetic that everything on or near the surface of the ground becomes at a distance of about two miles blended into an indistinct, tremulous blur.

### CHANGE OF SEASON.

As in most other places under high latitudes, there is no long gradation from season to season, but instead we have two well-marked periods—a long winter of about seven months, extending from October until well into May, and five months of summer. The winter is by far the best, as there are long periods of beautifully clear days, which are welcomed in spite of the usually accompanying intense cold. The summer is rendered very disagreeable by a large number of cold, misty rains, and the low overhanging stratum, which appears to shut down all about like a leaden covering. As noted in the first part, no slush-ice forms in the bays with the water at a temperature of 30.5°; and, in addition, the whole surface of the sea, if calm, appears covered with large oily-looking patches, which slowly increase in size, and as the temperature reaches 30° the slush begins to unite. In the oily-appearing spots the water, on close examination, has a milky shade, and is seen to be full of extremely fragile laminæ of ice floating with their edges vertical. These plates, when ground and broken, form the slush-ice along the shore. Many of these plates are an inch or more in diameter, but are so fragile that a breath dissolves them. Ice forming in this way is always rough, but a rapid and extended fall of temperature directly after the oily spots appear sometimes throws a thin sheet of glassy ice over the sea for many miles in a single day.

### MIGRATION OF BIRDS.

> The earliest arrival in spring is generally a solitary goose or two. In the last days of April, and from then on until the first of June, birds continue to arrive, the main migration falling between the 15th and the 25th of May. The common barn-swallow comes May 20; the water-fowl, geese, and ducks begin nesting on the last of May. The autumn migration of birds passing southward begins on the last of July, and only a few of the hardier water-fowl remain at the end of September.

### FISH

> The arrival of fish depends largely upon the date of open water along the shore. Herring generally arrive from the 5th to the 20th of June. The delicious king-salmon come from the 15th to the 25th of the month, and the inferior species of salmon in July and the month of August.

In 1868 Mr. William H. Dall made a report upon the agricultural resources of Alaska, which was published by the commissioner of agriculture. From this official document I make the following extract:

> The character of the country in the vicinity of the Yukon river varies from rolling and somewhat rocky hills to broad and marshy plains, extending for miles on either side of the river. The underlying rocks in great part are Azoic, being conglomerate, syenite, and quartzite. The south shore of Norton sound and portions of the Kadiak peninsula are basalt and lava. There is on the northeast shore of Norton sound an abundance of sandstones and clay-beds containing lignite. Sandstone is also abundant on the Yukon, alternating with the azoic rocks. The superincumbent soil differs in different places. In some localities it is clayey, and in such situations is quite frequently covered with sphagnum, which always impoverishes the soil immediately beneath it. In others it is light and sandy, and over a large extent of country it is the richest alluvial, composed of very fine sand, mud, and vegetable matter, brought down by the river and forming deposits of indefinite depth. * * * The soil is usually frozen at a depth of three or four feet in ordinary situations. In colder ones it remains icy to within eighteen inches of the surface. This layer of frozen soil is six or eight feet thick; below that depth the soil is destitute of ice, except in very unusual situations.

The mean temperature of the Yukon region, as given by Mr. Dall with reference to the point of Saint Michael, in latitude 63° 28′; the mission of the Greek church on the Yukon river, in latitude 61° 47′; Nulato, on the Yukon river, in latitude 64° 40′, and fort Yukon, on the same river, in latitude 67° 10′, is exhibited in the following table:

| | Saint Michael. | Greek church mission. | Nulato. | Fort Yukon. |
|---|---|---|---|---|
| | *Deg.* | *Deg.* | *Deg.* | *Deg.* |
| Mean for spring | +29.3 | +19.62 | +29.3 | +14.22 |
| Mean for summer | +53.0 | +59.32 | +60.0 | +59.67 |
| Mean for autumn | +26.3 | +36.05 | +36.0 | +17.37 |
| Mean for winter | + 8.6 | + 0.95 | —14.0 | —23.80 |
| Mean for year | +29.3 | +26.48 | +27.8 | +16.92 |

The temperature as exhibited in the above table would not seem to afford much encouragement to the agricultural immigrant, even without reference to the existence of frozen soil throughout the year within a short distance of the surface as mentioned above.

Incomplete and unsatisfactory as our information is on this subject, the data given would appear to be conclusive as to the adaptability of the Yukon River valley for agricultural pursuits. From various points on the river traders report a temperature of from 50° to 67° below zero, a common occurrence during the winter; and, though travelers in and residents of this region complain of oppressive heat during the summer, severe frosts frequently occur in the months of June and August, and one instance is recorded of a heavy frost at Nuklukaiet on the 27th of July, which destroyed a promising vegetable garden planted there in the summer of 1879.

Two Roman Catholic missionaries, Bishop Charles Seghers, S. J., and Father Mondard, his assistant, passed the winter of 1877–'78 in the central Yukon region. They suffered much from severe cold during the winter, and when at last the ice disappeared, and the snow melted away from forest and from tundra, the contrast between winter and summer was so great that the pious missionaries were filled with delight, and warming their bodies, chilled through the eight months of constant cold, in the genial rays of the sun of July, they grew enthusiastic over the warm climate of the Yukon and its "fertile valley" that might support millions of agriculturists. These good missionaries evidently had no experience in farming or husbandry, and had never attempted to sink a spade into the matted, elastic covering of the Yukon tundra. The plague of the Arctic, the mosquito, alone would drive any but the most energetic and desperate settlers from the country.

In the apparent absence of precious minerals in paying quantities we must base our hopes for the future of the Yukon region upon its furs and fish alone.

The dreary coast-line of this division, washed by the shallow waters of Bering sea, is inhabited by a hardy race of seal and walrus hunters, who have planted their villages at every point where it is possible for a few families to eke out a living. A few points on this coast-line from cape Prince of Wales to cape Rumiantzof require special mention. Port Clarence, just south of cape Prince of Wales, offers fine harbor accommodations, and three or four Innuit villages are located here. King's island, called "Oukivok" by the natives, is a small, high island about 30 miles southeast from the Diomede islands. This island is about 700 feet in height, with almost perpendicular cliffs and deep water on all sides, is composed of basalt, is exceedingly rugged in outline, and is barren of tree or shrub. The most remarkable feature of the island is the village, composed of winter houses, about forty in number, excavated into the side of the cliffs, and built on a steep declivity, which rises from the sea at an an angle of about 45°. On small projections from the face of the cliff the inhabitants erect their summer houses, consisting of rude tents of walrus and seal hide. The natives of this Arctic Gibraltar live almost entirely by walrus and seal hunting, the skins of these animals being manufactured into roofs of houses, coverings for their kaiaks, clothing, straps, lines, and other articles. The flesh of both the walrus and the seal is their chief article of food, and the ivory of the former is sold to passing traders for rum, breech-loading arms, ammunition, tobacco, and a few trifles. The skins of the seal ("lavtak") form an article of trade with the natives of the mainland, America, and Asia. This isolated community seems to be very prosperous.

Proceeding down the coast, and entering the vast estuary of Norton sound, we find on its northern coast a deep indentation, Golovin sound. Here indications of lead and silver have been found, and the ubiquitous prospector has already visited the spot with his pick and shovel. The results of the enterprise, however, have not thus far been made definitely known.

The most important locality, however, on this coast is the trading-post of Saint Michael, where rival firms have established their depots for the Yukon River and Arctic trade. At this place each firm has its managing agent for the district, who is supplied once a year with a cargo of goods from San Francisco. The station-keepers from the interior come down to the coast at the end of June or the 1st of July, and each receives his allotment of goods to take back with him in sail-boats and bidars during the few months when navigation on the river is not impeded by ice. The vessels supplying this depot can seldom approach the anchorage of Saint Michael before the end of June on account of large bodies of drifting ice that beset the waters of Norton sound and the straits between Saint Lawrence island and the Yukon delta.

In the description of this division we must include the island of Saint Lawrence. This island originally had a population of about 1,000, but during the winter of 1878, on account of the failure to lay in supplies during the hunting season, a period of general starvation occurred, which caused the death of at least 400 men, women, and children, principally the latter two classes. There are several villages on the island inhabited by a tribe of Asiatic or western Eskimo. They are tall, straight, and muscular, are generally good looking, and subsist principally upon the walrus and the seal, generally taking only as much as is actually needed for their immediate wants, without providing for the future. They make houses, boats, clothing, etc., of the skins of the walrus, and sell whalebone and ivory to traders for rum and breech-loading arms. Living directly in the track of vessels bound to the Arctic for the purpose of whaling and trading, this situation has been a curse to them; for as long as the rum lasts they do nothing but drink and fight among themselves, and whenever they collect a few furs, instead of exchanging them for provisions or clothing, they refuse to sell them for anything but whisky, breech-loading arms, and ammunition.

There is a chapel at Saint Michael, but the headquarters of the Greek Catholic church, which has the only established mission in this division, is at Ikogmute, on the Yukon river, just opposite the point where the Kuskokvim portage comes over. Here there is a church with several church buildings under control of an ordained priest, whose influence over these people is very small. On paper he lays claim to having 3,000 parishioners, but I was unable at any settlement to recognize his title, even approximately. The worthy priest abounds in faith, however, and, in addition to his first-cited claim, also reports that he holds 600 more "nearly persuaded", as if it were a mere question of time to gather them in finally.

The people of the United States will not be quick to take to the idea that the volume of water in an Alaskan river is greater than that discharged by the mighty Mississippi; but it is entirely within the bounds of honest statement to say that the Yukon river, the vast deltoid mouth of which opens into Norton sound of Bering sea, discharges every hour one-third more water than the "Father of Waters". There is room for some very important measurements to be made in this connection, which I hope will soon be made. We know the number of cubic feet of water which the Mississippi rolls by New Orleans every day, but we do not possess authority concerning the volumes of the flood discharged by the Yukon. Entering the mouth, or rather any one of the mouths, of this large river, we are impressed first by the exceeding shallowness of the sea 50 miles out from it, varying in depth from 2 to 3 fathoms; and, second, by the mournful, desolate appearance of the country itself, which is scarcely above the level of the tide, and which is covered with a monotonous cloak of scrubby willows and rank grasses. The banks, wherever they are lifted above the reddish current, are continually undermined and washed away by the flood, and so sudden and precipitate are these land-slides at times that traders and natives have barely escaped with their lives. For 100 miles up through an intricate labyrinth of tides, blind and misleading channels, sloughs, and swamps we pass through the same dreary, desolate region, until the higher ground is first reached at Kusilvak, and until the bluffs at Andreievsky and at Chatinakh give evidence of the fact that all the land in Alaska is not under water. It is watered, however, here, there, and everywhere, and impresses one with the idea of a vast inland sea; which impression holds good even as far up the river as 700 or 800 miles, where there are many points, even far in the interior, at which this river spans a breadth of 20 miles from shore to shore. As we advance toward its source we are not surprised, when we view the character of the country through which it rolls, at the vast quantity of water in its channel. It would seem as though the land itself drained by the river on either side within Alaska were a sponge, into which

PLATE VIII

A Hoen & Co. Lith. Baltimore

YUKON TUNDRA IN SUMMER

all rain and moisture from the heavens and melting snow are absorbed, never finding their release by evaporation, but conserved to drain, by myriads and myriads of rivulets, the great watery highway of the Yukon. I noticed a striking evidence of the peculiar non-conductive properties of the tundra mosses, or swale, last summer in passing through many of the thousand-and-one lakes and lakelets peculiar to that region, where the ice had bound up the moss and overhanging water-growth at the edges of the lakes. In the breaking up and thawing out of summer that ice failed to melt, and the renewed growth of the season of vegetation, reaching out in turn from this icy border, will again prevent thawing, and so on until shallow pools and flats are changed into fixed masses of ice hidden from view.

The borders of the bed of this river alternate from side to side, with flats here and low hills there, the river shifting from one to the other. The hills above the mission as well as the rolling uplands are all timbered, while the flats are covered with rank grasses and willow thickets. This river is bound by ice in October and is not released until the sun of June exerts its power. A very remarkable occurrence in connection with this annual event took place in the summer of 1880, by which a famine ensued at the mouth of the Yukon, and the people thereof were obliged to repair for food to neighboring settlements far to the northward or on the Kuskokvim. The ice came down the Yukon in such masses and in such profusion that it grounded in the deltoid mouth in the month of July, so as to form a barrier against the running of the salmon.

A list of settlements and stations in the Yukon division with their respective population is here appended, as follows:

YUKON DIVISION.

| Settlements. | Location. | Total. | White. | Creole. | Athabaskan. | Eskimo. |
|---|---|---|---|---|---|---|
| Total | | 6,870 | 18 | 19 | 2,557 | 4,276 |
| Cape York | Bering sea | 24 | | | | 24 |
| Siniogamute | Port Clarence | 36 | | | | 36 |
| Kaviazagamute | Lake Imorook | 200 | | | | 200 |
| Nook | Cape Douglas, Bering sea | 36 | | | | 36 |
| Ookivagamute | King's island, Bering sea | 100 | | | | 100 |
| Aziak | Sledge island, Bering sea | 50 | | | | 50 |
| Small village opposite on mainland | Bering sea | 10 | | | | 10 |
| Oo-innakhtagowik | North coast of Norton sound | 10 | | | | 10 |
| Ayacheruk | North coast of Norton sound | 60 | | | | 60 |
| Chitnashuak | North coast of Norton sound | 20 | | | | 20 |
| Imokhtagokshuk | North coast of Norton sound | 30 | | | | 30 |
| Okpiktolik | North coast of Norton sound | 12 | | | | 12 |
| Tup-ka-ak | North coast of Norton sound | 15 | | | | 15 |
| Chiookak | North coast of Norton sound | 15 | | | | 15 |
| Ignituk | North coast of Norton sound | 100 | | | | 100 |
| Atnuk | North coast of Norton sound | 20 | | | | 20 |
| Nubviakhchugaluk | North coast of Norton sound | 30 | | | | 30 |
| Kvikh | North coast of Norton sound | 30 | | | | 30 |
| Ogowinagak | North coast of Norton sound | 20 | | | | 20 |
| Scattered villages | Head of Norton bay | 20 | | | | 20 |
| Oonakhtolik | East coast of Norton sound | 15 | | | | 15 |
| Shaktolik | East coast of Norton sound | 60 | | | | 60 |
| Tup-hamikva | East coast of Norton sound | 10 | | | | 10 |
| Oonalakleet | East coast of Norton sound | 100 | | | | 100 |
| Igawik | East coast of Norton sound | 8 | | | | 8 |
| Kegokhtowik | East coast of Norton sound | 20 | | | | 20 |
| Ketchumville | East coast of Norton sound | 5 | 3 | 2 | | |
| Saint Michael and Tachik village | East coast of Norton sound | 109 | 4 | 5 | | 100 |
| Pikmiktalik | East coast of Norton sound | 10 | | | | 10 |
| Pastoliakh | East coast of Norton sound | 80 | | | | 80 |
| Kotlik | Yukon delta | 8 | | | | 8 |
| Fetkina | Yukon delta | 30 | | | | 30 |
| Village (name unknown) | Yukon delta | 6 | | | | 6 |
| Ingechuk | Yukon delta | 8 | | | | 8 |
| Kashutuk | Yukon delta | 18 | | | | 18 |
| Chefokhlagamute, 1st | Yukon delta | 15 | | | | 15 |
| Chefokhlagamute, 2d | Yukon delta | 5 | | | | 5 |
| Chefokhlagamute, 3d | Yukon delta | 6 | | | | 6 |
| Igiagagamute | Yukon delta | 10 | | | | 10 |
| Askinuk | Yukon delta | 175 | | | | 175 |
| Kashunok | Yukon delta | 125 | | | | 125 |
| Kaialigamute | Yukon delta | 100 | | | | 100 |
| Ookagamute | Yukon delta | 25 | | | | 25 |
| Oonakagamute | Yukon delta | 20 | | | | 20 |
| Village (name unknown) | Yukon delta | 15 | | | | 15 |
| Kwigathlogamute | Yukon delta | 30 | | | | 30 |
| Nunochogamute | Yukon delta | 40 | | | | 40 |

YUKON DIVISION—Continued.

| Settlements. | Location. | Total. | White. | Creole. | Athabaskan. | Eskimo. |
|---|---|---|---|---|---|---|
| Nauvogalokhlagamute | Yukon delta | 100 | | | | 100 |
| Villages on Big Lake region | Yukon delta | 166 | | | | 166 |
| Coast between Pastoliakh and cape Rumiantzof | Yukon delta | 300 | | | | 300 |
| Komarof's Odinotchka | Yukon river | 13 | | 1 | | 12 |
| Alexeief's Odinotchka | Yukon river | 16 | | 1 | | 15 |
| Eliseief's Barabara | Yukon river | 20 | | | | 20 |
| Chatinakh | Yukon river | 40 | | | | 40 |
| Andreievsky Rédoute | Yukon river | 14 | 1 | 1 | | 12 |
| Starikvikhpak | Yukon river | 90 | | | | 90 |
| Razboinik | Yukon river | 151 | | | | 151 |
| Ooglovia | Yukon river | 102 | | | | 102 |
| Ingahamé | Yukon river | 63 | | | | 63 |
| Single house | Yukon river | 10 | | | | 10 |
| Staraie Selenie | Yukon river | 55 | | | | 55 |
| Ikogmute, mission | Yukon river | 148 | | 5 | | 143 |
| John's station | Yukon river | 37 | 1 | 1 | | 35 |
| Rybnia | Yukon river | 40 | | | | 40 |
| Pogoreshapka | Yukon river | 121 | | | | 121 |
| Single house | Yukon river | 9 | | | | 9 |
| Paimute | Yukon river | 89 | | | | 89 |
| Askhomute | Yukon river | 30 | | | | 30 |
| Ignokhatskamute | Yukon river | 175 | | | | 175 |
| Makeymute | Yukon river | 121 | | | | 121 |
| Anvik station and village | Yukon river | 95 | 1 | | 94 | |
| Single house | Yukon river | 20 | | | 20 | |
| Single house | Yukon river | 12 | | | 12 | |
| Single house | Yukon river | 15 | | | 15 | |
| Tanakhotkhaiak | Yukon river | 52 | | | 52 | |
| Single house | Yukon river | 15 | | | 15 | |
| Chageluk settlements | Chageluk slough and Innok river | 150 | | | 150 | |
| Khatnotoutze | Yukon river | 115 | | | 115 | |
| Kaiakak | Yukon river | 124 | | | 124 | |
| Kaltag | Yukon river | 45 | | | 45 | |
| Nulato, station and village | Yukon river | 168 | 2 | 3 | 163 | |
| Koyukuk settlements | Koyukuk river | 150 | | | 150 | |
| Terentief's station | Yukon river | 15 | | | 15 | |
| Big Mountain | Yukon river | 100 | | | 100 | |
| Single house | Yukon river | 10 | | | 10 | |
| Sakatalan | Yukon river | 25 | | | 25 | |
| Yukokakat | Yukon river | 6 | | | 6 | |
| Melozikakat | Yukon river | 30 | | | 30 | |
| Mentokakat | Yukon river | 20 | | | 20 | |
| Soonkakat | Yukon river | 12 | | | 12 | |
| Medvednaia | Yukon river | 15 | | | 15 | |
| Noyokakat | Yukon river | 107 | 1 | | 106 | |
| Kozma's | Yukon river | 11 | | | 11 | |
| Nuklukaiet | Yukon river | 29 | 2 | | 27 | |
| Rampart village | Yukon river | 110 | | | 110 | |
| Fort Yukon | Yukon river | 109 | 2 | | 107 | |
| Fort Reliance | Yukon river | 83 | 1 | | 82 | |
| Gens de Large | Yukon river | 120 | | | 120 | |
| Fetoutlin (David's people) | Yukon river | 106 | | | 106 | |
| Tennanah villages | Tennanah river | 700 | | | 700 | |
| Saint Lawrence island | Bering sea | 500 | | | | 500 |

The Russian mission on the Yukon river claimed in the year 1880 that 2,252 of the natives were professors of Christianity, but personal observations lead me to believe that this estimate is exaggerated, comprising as it does quite a number of individuals in distant settlements to which this zealous missionary can show no title beyond a wholesale sprinkling of the village during a hurried visit. In 1880 there was no school in existence within the jurisdiction of this mission, but steps were being taken by the bishop for the location of an educational establishment at Ikogmute.

The trade of the Yukon division has been thus far confined altogether to the barter with the natives for furs, seal-oil, and some walrus-ivory along the coast. The importations of goods and provisions in payment of these native productions are quite large, amounting in the year 1880 to 150,000 pounds of flour, 100 chests of tea of 52 pounds each, 150 half-barrels of brown sugar, and 50 half-barrels of white sugar. The consumption of flour alone foots up 25 pounds for each man, woman, and child in the district, and the demand for this article is increasing annually. The dry goods, hardware, etc., imported, together with this large quantity of provisions, represented in 1880 a value of nearly $20,000.

The furs obtained in exchange for these provisions numbered 27,356, of all kinds, divided as follows:

| | |
|---|---|
| Wolf | 32 |
| Lynx | 310 |
| Beaver | 3,781 |
| Silver fox | 206 |
| Cross fox | 800 |
| Red fox | 5,000 |
| White fox | 1,791 |
| Beaver | 3,200 |
| Marten | 2,000 |
| Mink | 7,774 |
| Bear | 152 |
| Musk-rat | 2,000 |
| Land otter | 310 |
| Total | 27,356 |

The market value of these skins was between $75,000 and $80,000.

The superficial area of the Yukon division is 176,715 square miles, which, with a total population of 6,870, would indicate a density of population at the rate of 1 inhabitant to 25⅔ square miles, the number of whites and creoles (19 and 18 respectively) being too small to be taken into consideration in this connection.

## THE KUSKOKVIM DIVISION.

The third geographical division is named after the river next in size to the Yukon among Alaskan streams, and comprises the whole of the Kuskokvim valley, with all its tributaries, and two other rivers, the Togiak and the Nushegak, also emptying into Bering sea.

The length of the main artery of this division is not known, the headwaters of the Kuskokvim having thus far been untouched by the explorer or trader. We have the statements of natives to the effect that the upper Kuskokvim river flows sluggishly through a vast plateau or valley, the current acquiring its impetus only a short distance above the village of Napaimute. From this point down to the trading-station of Kalmakovsky and to the southern end of the portage route between this river and the Yukon the banks are high and gravelly, and chains of mountains seem to run parallel with its course on either side. This section of the Kuskokvim valley is but thinly populated, though apparently the natural advantages are far greater than on the corresponding section of the Yukon. The soil is of better quality, and is sufficiently drained to permit of a more luxuriant growth of forest trees, shrubs, and herbs.

Such indications of minerals as have been found here are the most promising of those in any portion of western Alaska, consisting of well-defined veins of cinnabar, antimony, and silver-bearing quartz.

Game and fur-bearing animals do not abound in this section of the river valley, as it is an old hunting-ground, and has been drained by constant traffic for more than half a century. The principal business of the traders at Kalmakovsky is derived from the almost unknown headwaters of the river, where the beaver, marten, and fox are still plentiful.

From the headwaters down to Kalmakovsky the people belong to the interior Indians, or Athabaskans, and for some distance below this point there seems to be a mixed race of Innuits and Indians; but from the village of Okhogamute down to the coast of Bering sea the Eskimo alone appear on both banks of the Kuskokvim, peopling also the section of the delta between cape Vancouver (Nelson island) and the mouth of the river and the island of Nunivàk, lying off the coast. This triangular section, having for its apex the above-mentioned village, teems with population. Villages dot the banks of the river at intervals, the distance between them gradually decreasing toward the sea-coast, while on the delta the lakes and sluggish streams are lined with numerous settlements.

According to our standard the people of the lower Kuskokvim river and of the tundras are very poor indeed, their country offering nothing but seals in the sea and the river, myriads of minks, some foxes, the brown bear, and a few moose. Among these animals the hair-seal is of the greatest importance, furnishing oil and lavtaks (dried seal hides), the chief articles of trade with the white and native traders on the upper river. The skin of the mink is of so little value that traders often refuse to buy unless in very large quantities. Altogether these people would be in a sorry plight indeed were it not for the abundant supply of salmon during the summer. They all flock together on the banks of the Kuskokvim, and fairly line the river with fish-traps and drying frames, or poles, and from the beginning of June to the month of August the traps are constantly emptied and filled again. The quantity of fish secured during the season is very great, even in proportion to the number of inhabitants; but when we consider the wasteful practice of drying the fish until only a small fraction of the original substance remains, it cannot astonish us to hear the natives complain of an insufficient supply. Over 4,000 people lay in the winter supply for themselves and for their dogs during a few months of summer, but it is safe to state that with a more economical mode of preserving the fish four times the number could live in comfort within the same space.

A glance at the map will show a very conspicuous broad opening through which the strong current and turbid waters of the Kuskokvim are discharged into Bering sea. The tides in this capacious estuary run with a surprising velocity and an enormous vertical rise and fall.

At the village of Agaligamute I saw a mound, the apex of which was over 50 feet above the level of the sea at low water, totally submerged by the flood-tide, assisted by a southwesterly gale. This extraordinary change in tide-level extends up into the mouth of the river beyond the point where the trading-schooners discharge their cargoes at Shineyagamute.

At each succeeding flood-tide a traveler in his bidarka can pass over willow thickets of large size and groves of poplar, while at low water he finds himself sunk between high banks of bottomless mud, shutting him out from all view of the interior. The aspect of the country here, as far as it lies under the direct influence of the changing tide, is strikingly desolate and forlorn. The settlements along the banks and the tributary swamps of this river are located on little patches or narrow dikes only just above high water, and from here across to the hills to the eastward extends a great swale or watery moor of from 40 to 60 miles in width. Hummocks and ridges afford a path to the hunter here and there, and when the river is at its ebb the great flats of mud and slimy ooze are bare. A rank and luxuriant growth of coarse water-grass, reeds, and rushes covers the whole expanse, with little clumps of dwarf-willows and poplar along the elevated tide-rim.

The native villages are ranged close together, each occupying all the dry land in its immediate vicinity. It is difficult even to find sufficient dry ground outside of the houses upon which to pitch a tent, and at low tide it is almost impossible to pass between the village and the water's edge, a mile or more away, separated as they are by an almost impassable mud.

On the western bank of the lower Kuskokvim the land is also low and swampy, and the settlements are more widely separated from each other. In the lower part of this stream, in the vicinity of Good News bay, where one bank can no longer be sighted from the other, there exists a group of low bars or islets, upon which both the common seal and the maklak are said to "haul up" to breed. This statement has not, however, been definitely established, and it is probable that here, as elsewhere, these marine mammals bring forth their young on the ice; certain it is that large numbers of seals are killed on and in the immediate vicinity of these banks. The whole domestic economy of the natives here seems to be founded upon the maklak and the beluga, and the oil procured from them is the currency with which they purchase some necessaries and a few luxuries of life. Their clothing, manufactured of the skin of the ground-squirrel, or yeveashka, is purchased with oil, and the few garments of cotton drill and gaudy prints to be found among them have been obtained in the same manner.

The density of population, as portrayed in the list of settlements on the river mouth and the country immediately adjoining, is such that in their active and energetic fishing for their own consumption they seem to absorb the greater part of the salmon run—at least the natives on the upper river complain quite frequently of the scarcity of this fish. This state of affairs may, however, be ascribed partly to the fact that not only do the Kuskokvim people proper fish here, but large numbers come annually from the lower delta of the great Yukon, where the run of salmon occasionally proves a total failure on account of ice grounding in the shallow channels and keeping the fish from ascending.

For many years one trading-station belonging to one of the wealthy San Francisco companies seemed to absorb the whole trade of the Kuskokvim river. Two years ago, however, a rival agency was established, and at present there seems to be traffic enough to afford to each firm a moderate profit. The most valuable skins shipped from this region are those of martens and of foxes, procured from the roving tribe of Koltchanes inhabiting the *terra incognita* about the headwaters of the Kuskokvim.

There is another feature in this country which, though insignificant on paper, is to the traveler the most terrible and poignant infliction he can be called upon to bear in a new land. I refer to the clouds of bloodthirsty mosquitoes, accompanied by a vindictive ally in the shape of a small poisonous black fly, under the stress of whose persecution the strongest man with the firmest will must either feel depressed or succumb to low fever. They hold their carnival of human torment from the first growing of spring vegetation in May until it is withered by frosts late in September. Breeding here as they do, in the vast network of slough and swamp, they are able to rally around and to infest the wake and the progress of the explorer beyond all adequate description, and language is simply unable to portray the misery and annoyance accompanying their presence. It will naturally be asked how do the natives bear this? They, too, are annoyed and suffer, but it should be borne in mind that their bodies are anointed with rancid oil; and certain ammoniacal vapors, peculiar to their garments from constant wear, have a repellant power which even the mosquitoes, bloodthirsty and cruel as they are, are hardly equal to meet. When traveling, the natives are, however, glad enough to seize upon any piece of mosquito-net, no matter how small, and usually they have to wrap cloths or skins about their heads and wear mittens in midsummer. The traveler who exposes his bare eyes or face here loses his natural appearance; his eyelids swell up and close, and his face becomes one mass of lumps and fiery pimples. Mosquitoes torture the Indian dogs to death, especially if one of these animals, by mange or otherwise, loses an inconsiderable portion of its thick hairy covering, and even drive the bear and the deer into the water.

The second river system belonging to this division is that of the Togiak, a stream emptying into the western portion of the coast indentation between capes Newenham and Constantine. The course of this river is brief, the distance between the high plateau from which it springs and the sea-coast being not much over 100 miles, but it is broad and has many lake-fed tributaries, and its banks are lined with populous villages.

This whole region is poor in such natural products as white men desire, and one of the results of this poverty is that no white trader has ever thought it worth his while to visit these people. The Togiak Eskimo seem to live by hundreds and even thousands in an almost primitive state, without craving for any of the white man's possessions, with the sole exception of tobacco, an article they have received from surrounding tribes, and which they have learned to appreciate. They seem to live without any tribal authority or organization, and have no chiefs, each family managing its own affairs, coming and going with perfect freedom, without any regard for the wishes of other members of the community. Whole families and communities leave their winter houses or subterranean dwellings as fancy takes them, select some point on the tundra or on the river bank, and pass two or three months with no other shelter than that afforded by their upturned kaiaks and a water-proof shirt made of deer-entrails and bladders stretched over paddles and spears. As the wind changes they shift this unsatisfactory shelter about, seemingly caring for nothing beyond a small space to lay their heads where they are not exposed to the pelting rain or snow.

Brown bears (*Ursus Richardsonii*) are plenty in the swampy river bottom during the fishing season, and are boldly attacked by the men with spears and lances; but when the salmon disappears the populace migrate inland to the hills and devote a month or two to the ardent pursuit of the ground-squirrel to replenish their stock of clothing. The skins of minks and foxes alone are from time to time taken down to a small trading-post on the sea-coast and exchanged for tobacco by one or two courageous individuals who act as middlemen.

In the winter herds of moose are said to visit the Togiak River valley, and, being easily hunted and overtaken in the deep snow, afford a welcome change of diet to the natives. Along the mountain range extending between the Kuskokvim and the Togiak rivers, and impinging upon the sea at cape Newenham, reindeer are plenty, and are hunted constantly by the natives on both sides of the divide. Of the country between the headwaters of the Togiak and the Kuskokvim nothing is known, but it is safe to conclude that it is not permanently inhabited.

Turning away from these populous villages with their mound-like, grass-grown dwellings, upon the apex of which the natives are wont to perch, gazing out to sea or into vacancy, recalling the aspect of a village of prairie-dogs on an enlarged scale, we leave behind us the most primitive among the native Eskimo south of Bering strait.

In the Nushegak district, named after the third river comprised in the Kuskokvim division, we find everywhere traces of long and intimate intercourse with the Russians, who made this valley and a series of lakes their highway of trade, connecting Bristol bay with Kalmakovsky Rédoute and Saint Michael.

The houses in all of this district outside of the missionary settlement of Nushegak are much the same as in the other northern divisions, and may be described as follows: A circular mound of earth, grass-grown and littered with all sorts of household utensils, a small spiral coil of smoke rising from the apex, dogs crouching upon it, children climbing up or rolling down, stray morsels of food left from one meal to the other, and a soft mixture of mud and offal surrounding it all. The entrance to this house is a low, irregular, square aperture, through which the inmate stoops and passes down a foot or two through a short, low passage onto the earthen floor within. The interior generally consists of an irregularly-shaped square or circle twelve or fifteen or twenty feet in diameter, receiving its only light from without through the small smoke-opening at the apex of the roof, which rises, tent-like, from the floor. The fire-place is directly under this opening. Rude beds or couches of skins and grass mats are laid, slightly raised above the floor, upon clumsy frames made of sticks and saplings or rough-hewn planks, and sometimes on little elevations built up of peat or sod. Sometimes a small hallway with bulging sides is erected over the entrance, where by this expansion room is afforded for the keeping of utensils and water vessels and as a shelter for dogs. Immediately adjoining most of these houses will be found a small summer kitchen, a rude wooden frame, walled in and covered over with sods, with an opening at the top to give vent to the smoke. These are entirely above ground, rarely over five or six feet in diameter, and are littered with filth and offal of all kinds, serving also as a refuge for the dogs from the inclement weather.

In the interior regions, where both fuel and building material are more abundant, the houses change somewhat in appearance and construction; the excavation of the coast houses, made for the purpose of saving both articles just mentioned, disappears and gives way to log structures above the ground, but still covered with sod. Living within convenient distance of timber, the people here do not depend so much upon the natural warmth of mother earth.

The coast between the Togiak and the Nushegak is very sparsely peopled, but a few small villages are located in the large bays of Ooallikh and Kulluk. The inhabitants of these settlements derive their sustenance from both sea and land, making long journeys in their kaiaks to islands and banks on the sea, the resort of the seal and the walrus, while on the land they hunt the brown bear, the wolf, the fox, and the reindeer. For their clothing they depend upon the ground-squirrel, and occasionally the traveler sees a parka or shirt-like garment made of the breasts of sea-fowls, cormorants, gulls, and other birds living in millions on the steep, rocky coast.

On the upper Nushegak river and around the numerous lakes from which its waters flow a greater variety of fur-bearing animals and game exists, the marten, mink, wolverine, beaver, land-otter, wolf, and bear, and three varieties of the fox being still found here in ample numbers. It is owing chiefly to the indolent habits of the people, who are much given to festive assemblies, where singing and dancing are freely indulged in, that the quantity of furs secured from this district is quite small. A single trading-post at Alexandrovsk's Rédoute has drained all this extensive interior region for years past, and the trader stationed there asserts that he did as much business in walrus tusks from the coast as in furs from the interior.

The salmon family, the great feeder of all the Alaskan people, frequent in astonishing numbers the Nushegak and other streams emptying into Bristol bay. The facilities for building traps and weirs are also extraordinary, and American fishermen have for some years been engaged here every season in reaping a rich harvest and shipping the fish, salted in barrels, to market. Hundreds of barrels have been filled with a single clean-up of the trap. The only drawback to this business is the short period over which the run extends, necessitating the employment of a very large number of hands while it lasts. On the Igushek river, entering Bristol bay from the westward, not more than 40 natives gather their winter store of dried fish on the river.

The walrus, above referred to, are killed only when they leave their natural element and resort to the secluded sandy beaches and bars during the breeding season.

For the temperature of the Kuskokvim division I have but very unsatisfactory data. In the whole valley of the Kuskokvim no observations have been taken, but at Alexandrovsk station, on the Nushegak river, I succeeded in obtaining a set of monthly means of temperature covering the period from September, 1879, to August, 1880, inclusive. These observations were taken by Mr. J. W. Clarke, the agent of the Alaska Commercial Company at that place, as follows:

| | Deg. F. |
|---|---|
| September, 1879 | 45.1 |
| October, 1879 | 32.0 |
| November, 1879 | 24.8 |
| December, 1879 | 11.5 |
| January, 1880 | 1.5 |
| February, 1880 | 14.2 |
| March, 1880 | 21.2 |
| April, 1880 | 26.5 |
| May, 1880 | 36.3 |
| June, 1880 | 46.5 |
| July, 1880 | 54.1 |
| August, 1880 | 53.0 |

The observer remarked that the winter of 1879–'80 had been unusually severe. Another set of mean temperatures, covering the winter months, is as follows:

| | Deg. F. |
|---|---|
| November, 1878 | 26.1 |
| December, 1878 | 26.6 |
| January, 1879 | 20.7 |
| February, 1879 | 10.0 |
| March, 1879 | 23.7 |
| April, 1879 | 29.1 |
| May, 1879 | 35.8 |

I append a tabulated list of the villages and stations in this division, with their population, as follows:

KUSKOKVIM DIVISION.

| Settlements. | Location. | Total. | White. | Creole. | Aleut. | Athabaskan. | Eskimo. |
|---|---|---|---|---|---|---|---|
| Total | | 8,911 | 3 | 111 | 255 | 500 | 8,036 |
| Nunivak island | Bering sea | 400 | | | | | 400 |
| Tanunak | Nelson island | 8 | | | | | 8 |
| Kaliookhlogamute | Nelson island | 30 | | | | | 30 |
| Kashigalogamute | Nelson island | 10 | | | | | 10 |
| Nulakhtolagamute | Yukon delta | 25 | | | | | 25 |
| Agiukchugamute | Yukon delta | 35 | | | | | 35 |
| Chichinagamute | Yukon delta | 6 | | | | | 6 |
| Chalitmute | Yukon delta | 60 | | | | | 60 |
| Anogogmute | Yukon delta | 75 | | | | | 75 |
| Kongiganagamute | Yukon delta | 175 | | | | | 175 |
| Koolvagavigamute | Yukon delta | 10 | | | | | 10 |
| Kinagamute | Kuskokvim river | 60 | | | | | 60 |
| Village at headwaters | Kuskokvim river | 50 | | | | 50 | |
| Napaimute | Kuskokvim river | 60 | | | | 60 | |
| Roaming Koltchane | Kuskokvim river | 35 | | | | 35 | |
| Kalmakovsky Rédoute | Kuskokvim river | 12 | 2 | 2 | | 3 | 5 |
| Kokhlokhtokhpagamute | Kuskokvim river | 51 | | | | | 51 |
| Toolooka-anahamute | Kuskokvim river | 59 | | | | | 59 |
| Okhogamute | Kuskokvim river | 130 | | 3 | | | 127 |
| Kaltkhagamute | Kuskokvim river | 106 | | | | | 106 |
| Oogovigamute | Kuskokvim river | 206 | | | | | 206 |

KUSKOKVIM DIVISION—Continued.

| Settlements. | Location. | Total. | White. | Creole. | Aleut. | Athabaskan. | Eskimo. |
|---|---|---|---|---|---|---|---|
| Single house | Kuskokvim river | 10 | | | | | 10 |
| Tookhlagamute | Kuskokvim river | 92 | | | | | 92 |
| Single house | Kuskokvim river | 10 | | | | | 10 |
| Kwigalogamute | Kuskokvim river | 314 | | | | | 314 |
| Tuluksak | Kuskokvim river | 150 | | | | | 150 |
| Akkiagmute | Kuskokvim river | 175 | | | | | 175 |
| Paimute | Kuskokvim river | 30 | | | | | 30 |
| Kik-khtagamute | Kuskokvim river | 232 | | | | | 232 |
| Kuljkhlugamute | Kuskokvim river | 75 | | | | | 75 |
| Kooigamute | Kuskokvim river | 215 | | | | | 215 |
| Mumtrekhlagamute station | Kuskokvim river | 29 | | | | | 29 |
| Mumtrekhlagamute village | Kuskokvim river | 41 | | | | | 41 |
| Napaskiagamute | Kuskokvim river | 196 | | | | | 196 |
| Napahaiagamute | Kuskokvim river | 98 | | | | | 98 |
| Lomawigamute | Kuskokvim river | 81 | | | | | 81 |
| Taghiaratzoriamute | Kuskokvim river | 52 | | | | | 52 |
| Naghikhlavigamute | Kuskokvim river | 193 | | | | | 193 |
| Akooligamute | Kuskokvim river | 162 | | | | | 162 |
| Kakhuiyagamute | Kuskokvim river | 8 | | | | | 8 |
| Shovenagamute | Kuskokvim river | 58 | | | | | 58 |
| Kik-khuigagamute | Kuskokvim river | 9 | | | | | 9 |
| Apokagamute | Kuskokvim river | 94 | | | | | 94 |
| Chimiagamute | Kuskokvim river | 71 | | | | | 71 |
| Iliutagamute | Kuskokvim river | 40 | | | | | 40 |
| Kuskokvagmute | Kuskokvim river | 24 | | | | | 24 |
| Shineyagamute | Kuskokvim river | 40 | | | | | 40 |
| Quinehahamute | Kuskokvim bay | 83 | | | | | 83 |
| Agaligamute | Kuskokvim bay | 120 | | | | | 120 |
| Takiketagamute | Kuskokvim bay | 21 | | | | | 21 |
| Kl-changamute | Kuskokvim bay | 18 | | | | | 18 |
| Mumtrahamute | Good News bay | 162 | | | | | 162 |
| Tzahavagamute | Bering sea bay | 48 | | | | | 48 |
| Aziavigamute | Azivigiak river | 132 | | | | | 132 |
| Togiagamute | Togiak river | 276 | | | | | 276 |
| Ikaliukha | Togiak river | 192 | | | | | 192 |
| Tunniakhpuk | Togiak river | 137 | | | | | 137 |
| Kassiannute | Togiak river | 615 | | | | | 615 |
| Nulatok | Togiak river | 211 | | | | | 211 |
| Kissaiakh | Togiak river | 181 | | | | | 181 |
| Annugannok | Togiak river | 214 | | | | | 214 |
| Togiak station | Bering sea | 24 | | 4 | 2 | | 18 |
| Ooallikh | Bering sea | 68 | | | | | 68 |
| Kulluk | Kulluk bay | 65 | | | | | 65 |
| Igushek | Igushek river | 74 | | | | | 74 |
| Anagnak | Nushegak river | 87 | | | | | 87 |
| Nushegak (Alexandrovsk) | Nushegak river | 178 | 1 | 86 | | | 91 |
| Kanulik | Nushegak river | 142 | | | | | 142 |
| Kaknak | Nushegak river | 104 | | | | | 104 |
| Akulvikchuk | Nushegak river | 72 | | | | | 72 |
| Agivivak | Nushegak river | 52 | | | | | 52 |
| Kalignak | Nushegak river | 91 | | | | | 91 |
| Molchatna villages | Molchatna river | 180 | | | | 180 | |
| Akuliakhpuk | Lake of same name | 83 | | | | | 83 |
| Ekuk | Bristol bay | 112 | | | | | 112 |
| Koggiung | Kvichak river | 29 | | | | | 29 |
| Kaskinakh | Kvichak river | 119 | | | | | 119 |
| Chikak | Ilyamna lake | 51 | | | | 51 | |
| Ilyamna | Ilyamna lake | 49 | | 13 | | 36 | |
| Kichik | Kichik lake | 91 | | | | 91 | |
| Paugwik (two villages) | Naknek river | 192 | | | | | 192 |
| Ik-khagmute | Lake Walker | 162 | | | | | 162 |
| Igagik | Aliaska peninsula | 120 | | 2 | | | 118 |
| Oogashik | Aliaska peninsula | 177 | | 1 | 176 | | |
| Oonangashik | Aliaska peninsula | 37 | | | 37 | | |
| Mashikh | Aliaska peninsula | 40 | | | 40 | | |

The superficial area of the Kuskokvim division is 114,975 square miles, and its total population 8,911. These figures would indicate a proportion of 1 inhabitant to every 13 square miles. The number of whites and creoles in this division (114 in all) is too small to take into consideration in this connection.

## THE ALEUTIAN DIVISION.

Before proceeding eastward along the continent of Alaska in our brief survey of the geographical divisions of the territory, we turn our attention to the Aleutian division, comprising the Aleutian islands, from the Shumagin group, in the east, to the island of Attoo, in the extreme west, and also a small section of the Aliaska peninsula at its southern extremity. The islands appear to be a mere continuation of the main Alaskan range of mountain groups. Many of these islands contain volcanic peaks, and some of them are still in a state of moderate activity. Slight shocks of earthquake are common throughout the chain, but many years have elapsed since the occurrence of violent phenomena traceable to volcanic action. All the islands are mountainous, and many of them exhibit snow-covered peaks of from 4,000 to 8,000 feet in height. The entire division is treeless, dwarfed specimens of creeping willow being the nearest approach to timber found anywhere on the islands or mainland. The soil consists of vegetable mold, clays, volcanic detritus, and here and there a light calcareous loam. Grasses of all kinds grow in great abundance, except in the interior valleys and plateaus, where a lack of drainage has allowed dense masses of sphagnum to prevail over the perennial grasses natural to the soil. The surface of the soil everywhere, even where very tall grasses seem most luxuriant, is cut up into hummocks to such a degree that to travel on foot is exceedingly difficult and tiresome.

No mineral has been found in this division with the exception of its eastern extremity, where on the island of Ounga deposits of coal have been discovered, and thoroughly prospected through a long series of years. The quality of the coal was such, however, as to make competition with other coal regions of the Pacific coast impossible.

The abundance of grass throughout this region would naturally lead to the conclusion that it might be adapted to cattle-breeding or the dairy industry, especially since the mean temperature is not at all low; but the winters are sufficiently prolonged to necessitate the feeding of cattle with hay for six or seven months of the year, and the dampness of the climate makes the curing of hay very uncertain and laborious. Under the auspices of the Russian government a weather average of seven years was obtained and recorded by the missionary Veniaminof. This has the remarkable showing of 53 clear days, 1,263 cloudy days, and 1,230 days with snow, rain, or hail. At Oonalashka, the only place where cattle are now kept by the priest and by the traders, hay can be obtained from San Francisco cheaper than it can be cut and cured on the spot. Potatoes have not thus far been successfully grown in any part of this division; but whether this be due to the quality of the soil or to the climate, or to lack of proper attention to the subject, I am not in a position to decide. I merely note the fact.

The people inhabiting this district, though distinct in language and, to a certain extent, in habits, are undoubtedly of Eskimo origin. They were the first tribe subjugated by the Russian adventurers who invaded this region about the middle of the last century, and, having maintained ever since that time the most intimate relations with their conquerors, their individuality as a race or tribe has almost completely disappeared.

In their connection with the Russian church the people of this division are divided into two parishes and one independent church organization. The parishes are Belkovsky, in the east, comprising the Shumagin group of islands and the settlements on the southern extremity of the Aliaskan peninsula, and Oonalashka parish, in the west, comprising all the islands from Avatanok to Attoo. The parish churches are located at Belkovsky and Oonalashka or Iliuliuk village, but nearly every settlement contains a small chapel, where prayers are read by unpaid native subordinate members of the clergy. An independent organization exists on the seal islands, where the natives maintain a priest and his assistant at their own expense, and with some assistance on the part of the lessees of the islands have erected a fine church.

The easternmost permanent settlement of this division is situated in Belkovsky parish, on Delarof bay, on the island of Ounga, one of the Shumagin group. The Ounga settlement has a population of nearly 200 souls, principally creoles, and presents quite an imposing appearance, owing to quite a number of neat frame buildings erected by prosperous sea-otter hunters. The most important industry of this and the adjoining settlements is the chase of the sea-otter, of which about 600 are secured every year from a range extending over the whole Shumagin group. The outlying islands and rocks, especially those of Simeonof, Nagaï, and Vosnessensky, are the favorite hunting-grounds. The native hunters have been re-enforced here by fifteen or twenty white men, who, in order to circumvent the letter of the law, which requires that none but natives shall hunt fur-bearing animals in Alaska, have married native women, and by the special authority of the Secretary of the Treasury are admitted to the same privileges as the people of the country. Being more energetic, and at the same time more reckless, in their pursuit of these valuable animals, these white men have been very successful, and many of them have built or purchased smart little sailing-vessels, enabling them to continue their hunting at all seasons of the year, even when the Aleut is kept at home by the gales and storms of winter. The final effect of this indiscriminate hunting must, of course, be extermination. Limited quantities of fox-skins of various shades are also secured on the island of Ounga.

The coal-veins existing not far from the Ounga settlement on Humboldt bay have already been referred to.

On the adjoining island of Korovinsky there is a small settlement inhabited altogether by creoles, whose ancestors had formed an agricultural colony under the auspices of the Russian Fur Company. Up to the transfer of the territory these people were not allowed to hunt, and were compelled to maintain themselves by the cultivation of potatoes and turnips and by keeping a few head of cattle, but since that time they have gradually abandoned most of their agricultural pursuits and turned their attention to the more profitable pursuit of the sea-otter.

On Popof island there is a station of fishermen in the employ of a San Francisco firm engaged in the cod-fishery on the Shumagin banks. The fishing is done to a great extent in small boats on the more shallow banks within a short distance from shore, and the fish are carried to San Francisco in schooners. The number of fish taken annually varies between 500,000 and 600,000.

The trade of Ounga is divided between two rival companies, who have established permanent stores, and many private traders, who pay occasional visits in schooners and sloops.

The next settlement to the westward, named Vosnessensky, is situated on the small island of Peregrebnoi. The population of this village does not exceed 50 souls, but they secure between 60 and 70 sea-otter skins every year, and live in comparative affluence.

One of the most important points in the Aleutian division is the settlement of Belkovsky, situated on the southern end of the Aliaska peninsula. This is a village containing 300 inhabitants, a fine, new church, and many good log and frame buildings. The houses are perched on the summit of a bluff clinging to the flanks of the mountains. There is no sheltered harbor here, or even a safe anchorage for ships, and the gales and storms sweep over the settlement with uninterrupted fury, but the hardy sea-otter hunters select this spot as the one most convenient for setting out upon their expeditions to the outlying rocks and cliffs within a circuit of 50 miles or more. The sole industry of this place is, of course, the chase of the sea-otter. The large number of from 1,900 to 2,000 of these rare and costly skins are annually sold at the three trading-stores located in the village.

Under some civilizing influence or home restraint this ought to be, comparatively speaking, a wealthy community, but, as the case now stands, every cent of their surplus earnings that is not gathered in for the support of the church by the priest is squandered by the people in dissipation and for useless luxuries. The best and most costly styles of ready-made clothing are in common use, and only when at sea on their hunting expeditions do the natives wear home-made water-proof garments.

Some 50 or 60 miles to the southward of Belkovsky lies the island of Sannakh, the richest hunting-ground of this whole division. Numerous hunting parties from the islands and the mainland to the east and west can be found here at all times of the year, encamped in tents or rude turf and sod shelters, watching for the rare intervals of weather sufficiently fine to allow them to put out to sea in search of their quarry. The trading companies have established here small depots of supplies, in order to take from the hunters every excuse for leaving the island and neglecting their business until they have collected a sufficient number of skins to warrant their departure for localities affording better opportunities to spend their money. In many instances these parties remain at Sannakh from three to five months at a time, and consist chiefly of men, with one or two women to do camp duty and to provide a few comforts for the drenched, chilled, and exhausted hunter when he returns from the surf-beaten reefs and rocks.

Just north of Belkovsky is the small village of Nikolaievsky, containing less than 50 inhabitants, while to the southward, but still on the mainland of the peninsula, there is the larger settlement of Protassof, or Morshevoi. The latter place contains nearly 100 people, who are successful sea-otter hunters, securing an average of 500 skins every year. These people are equally as opulent and extravagant as their neighbors at Belkovsky, and are even more dissolute. In spite of an average annual revenue of nearly $1,000 to each family, the whole place presents an aspect of great poverty, misery, and debauchery, which has put its stamp more firmly and more shamefully upon the people of this place than elsewhere in all Alaska.

Near this village, less than half a mile away, there is a series of warm sulphur springs and ponds, which would afford the sickly natives partial or permanent relief could they only be induced to bathe therein; but, while there is not one man, woman, or child in the village free from cutaneous disease of some kind, not one of them can be induced to make the exertion necessary to try the efficacy of the waters.

The natural food resources of this whole region—fish, berries, seal, etc.—are abundant and varied. Not far from Morshevoi walrus can be secured with but little difficulty, and large herds of reindeer formerly came down at regular intervals from the upper peninsula to its westernmost point, and even crossed the strait to Oonimak island, but of late, for some cause unknown, they have ceased to make their appearance. The old men and youths not absorbed by the sea-otter parties trap foxes all over the mountains and rolling plains and shoot a bear occasionally, while the women are busily engaged in collecting drift-wood and brush, the only fuel found in the country.

Passing to the westward from Belkovsky the traveler first notices the snow-covered peaks of two volcanoes on Oonimak island, of which the larger is Mount Shishaldin, rising to a height of 8,000 feet. Smoke rises constantly from the crater of this mount, and shocks of earthquake occur very frequently. The island is uninhabited, and has been in that condition for the greater part of the present century, though it is richer than many other islands of the Aleutian chain in natural means of sustaining life.

Foxes are quite plentiful here, and sea-otters frequent the reefs and points, but ever since, nearly one hundred years ago, almost all the inhabitants of four or five populous villages were massacred by the Russian promyshleniks, a superstitious dread seems to prevent the Aleutian from making a permanent home at Oonimak.

Three small islands intervene between Oonimak and Oonalashka islands—Avatanok, Akoon, and Akutan—with a small settlement of sea-otter hunters on each.

Oonalashka island, next in size to Oonimak, is the point of greatest importance in this division, having at its principal village (Iliuliuk) the parish church, a custom-house, with the port of entry for all western Alaska, two large trading establishments, wharves, and other commercial facilities. Nearly all the sea-otters secured from the Shumagins in the east to Attoo island in the west are collected here and shipped to San Francisco.

The bay of Oonalashka, or Captain's harbor, is completely land-locked, and is free from ice at all times of the year. Cod-fish and halibut are plentiful throughout the bay, and herring and salmon crowd its waters in each season. It would seem easy for a small community to exist here on the natural resources alone, but the people of Iliuliuk are all sea-otter hunters, going as far as Sannakh and other distant hunting-grounds upon expeditions extending over many months. As these men are generally successful the settlement is nearly as prosperous, financially, as that of Belkovsky, but they find themselves in a better condition, owing to the moral influence of the parish priest located here and the example of quite a number of the whites of a better class who have here congregated. The wharves and shipping afford a constant source of revenue to those of the natives who are able and inclined to labor, and nearly all the families are enabled to dispense with the laborious process of gathering drift-wood and small brush for heating and cooking purposes, buying cord-wood imported from Kadiak and coal shipped from British Columbia or San Francisco.

A school, in which both English and Russian are taught, is maintained by one of the trading firms, but the attendance is at best irregular. Nearly 50 per cent. of the adults of Iliuliuk, however, are able to read and write in the Aleutian language and a few in the Russian.

The same firm that maintains the school also employs a physician and keeps a well-stocked dispensary, where natives are treated free of charge. This island and the fur-seal islands are the only localities in all Alaska where medical attendance can be obtained.

Experiments in vegetable gardening in Oonalashka island have not been attended with success. From eight to ten cows are kept, but, as already explained above, their sustenance during the winter is obtained with great difficulty.

When first discovered by the Russians this island contained many populous villages, but of these but four remain to day outside of the harbor settlement. The villages of Makushin, Koshigin, and Chernovsky in the west and Borka in the east are all inhabited by sea-otter hunters, who spend but a small portion of the year in fishing and trapping black and red foxes. Altogether there are between 700 and 800 people on the island of Oonalashka, of which about 25 are white.

As they live here to-day, in their more than semi-civilized condition, each family generally inhabits its own hut or barabara. They have long since ceased to dress themselves in skins or their primitive garments made from the intestines of marine mammals, save at a few points where extreme poverty compels them to wear bird-skin parkas and other garments handed down from ancient times. The visitor to any one of these Aleutian settlements will find its people dressed in "store-clothes", and on Sundays will notice a great many suits of tolerably good broadcloth. The women of the "wealthy" families dress in silks on great occasions, but generally in gowns of cotton fabrics made up with special reference to the latest fashion brought up from San Francisco. Although in their hunting excursions, and frequently when about the village, they still wear the ancient "kamleyka", or water-proof shirt, made from intestines, as also moccasins or boots made of the throats of seals and soled with the tough flippers of the sea-lion, they all dress up on Sundays and on the church holidays in calfskin boots and ladies' kids and slippers, shipped from San Francisco. Broad-crowned caps with a red band are still much in vogue among the male exquisites, evidently a legacy of former times, when Russian uniforms were seen on these shores. As a rule, however, the males dress soberly, with but little attention to display, color, or ornamentation, though they lavish some skill and taste in trimming their water-proof garments used in the chase or in traveling; as also the seams of the "kamleikas", the skin-boots, and other water-proof covers, including those of their canoes and bidarkas, the latter being frequently embellished with tufts of gaily-colored sea-bird feathers and delicate lines of goose-quill embroidery.

The women have a natural desire for bright ribbons and flashy jewelry, such as the traders supply them with; and the extent to which they deck their persons with gewgaws and trifles of this kind is only limited by their means. With the exception of a few whose lords have been exceptionally fortunate in capturing sea-otters they seldom wear bonnets or hats; but around their houses or at church they have handkerchiefs of cotton or silk tied over their heads, the married women, after the Russian peasant fashion, drawing them tightly about the head in the shape of a turban, almost completely hiding the hair from view, while the unmarried girls tie them loosely over the top of the head. The hair, when attended to at all, is put up in braids and tied up behind.

The interior of Oonalashka island consists of a labyrinth of ravines and gulleys with steep, grass-grown hill-sides and masses of volcanic rock and lava, deeply indented and cut in every direction by sparkling streams. Deep snow in winter and a dense growth of vegetation in summer make traveling across the island exceedingly difficult; and it is safe to assert that scarcely one in a hundred of the inhabitants ever penetrates to within a mile of the sea-shore.

The volcano Makushin, situated between the village of that name and Iliuliuk, though smoking occasionally, has had no eruption during the present century.

The next settlement to the westward is that of Nikolsky, on the southwest coast of Oumnak island. When the Russians first arrived in this vicinity this island was the site of no less than eleven Aleutian villages and settlements, and the people, who at first welcomed their unknown visitors in the most friendly manner, became subsequently enraged at the treatment received at their hands and offered a stubborn resistance. The struggle here, as elsewhere, resulted in an almost total extermination of the original inhabitants, and Nikolsky, with its 120 inhabitants, is all that is left to-day of a once numerous people. What these people have lost in numbers they have gained in prosperity, selling every year, as they do, their 120 or 150 sea-otter skins to the rival trading firms at excellent prices. Black, cross, and red foxes are quite abundant, and the straits on both sides of the island contain excellent cod-fish and halibut banks. Immediately back of the village, and connected with each other, there are several fresh-water lakes, with an outlet to the sea through a shallow, meandering stream that passes down through the settlement, and at certain seasons of the year trout and salmon run up in such numbers, and with so much persistency, that they fairly crowd themselves out upon its banks, leaving nothing for the native to do but to stoop down and pick them up. The characteristics of the natives are the same as those described in the review of Oonalashka. They support their chapel, as in other villages, and have their prayers read by one of their own number. Drift-wood is less plentiful here than in other districts, and this scarcity involves additional labor on the part of the women, who must gather the "chiksha", or creeping tendrils of the empetrum. The men of Oumnak must also make long journeys to other islands to capture sea-lions and seals, and on that account are not so well supplied with bidarkas.

In the year 1878 the island was disturbed by a volcanic eruption, and a small mud volcano arose between the prominent volcanic peak near the southern end of the island and the village. In 1880 both the old and the new peaks were still smoking, and the latter was sputtering. During the shaking and trembling connected with these phenomena the fish seemed to have left the shores, and the inhabitants were for a season obliged to go to adjoining islands to lay in their winter supply. Quite a number of young fur-seals are secured here annually by the natives, these animals passing down from the waters of Bering sea into the northern Pacific ocean during the autumn and early winter. The flesh of these animals is greatly prized, and the skins make excellent clothing and bedding.

The next settlement in order as we proceed westward is the village of Nazan, on Atkha island. The people of this island have always spoken and still speak a dialect differing considerably from that of the Oonalashka people. This difference was deemed sufficiently important by Veniaminof, the missionary of these islands, to have translations made into it of the principal books of prayer and portions of the New Testament used in the church services; and it is interesting to observe how families which have been separated for generations from their kindred on the fur-seal islands, or in the Oonalashka district, or even on the Aliaska peninsula, have preserved their distinct idiom and transmitted it to their children, who to-day speak both dialects distinctly and are proud of the accomplishment.

The village of Nazan contains 230 inhabitants, who are lodged in houses or barabaras of rather respectable appearance. They have a well-preserved little church, and give every indication of being a thrifty and prosperous community. Between 175 and 200 sea-otter skins are annually sold at the two trading-stores.

Removed as they live from the evil influences of "too much civilization", the men of Atkha constitute perhaps the finest body of sea-otter hunters in the country. They make long journeys from their home, being carried on sailing-vessels with all their hunting paraphernalia, bidarkas, etc., to distant islands, where they establish temporary camps and scour the outlying reefs and points, where their experience teaches them to search for the shy sea-otter. These hunters remain in camp, engaged in the chase for periods of many months at a time, until, in accordance with previous agreement with the traders, the vessels that carried them out return to take them back. On the return of the party the hunters tally their skins, settle all outstanding obligations, make their donations to the church, and speedily spend the surplus upon the outer and the inner man.

The island of Atkha possesses also other natural resources. Those of the male population who do not go out with the sea-otter parties secure quite a rich harvest of fox-skins, the black, cross, and red fox being quite numerous; and even the blue fox (*Vulpes lagopus*), now confined to but few localities throughout Alaska, is still found here.

The women of Atkha are quite expert in the manufacture of fine grass cloth and grass ware, and for this purpose they gather the grasses, dry and prepare them with the greatest of care, and spare no amount of labor and unlimited patience in the execution of their designs, which take the form of cigar-cases, baskets, mats, and the like. There is something exceedingly tasteful and exquisite in the delicate blending of colors and patterns which the grass-workers of Atkha employ in the production of their wares, and an instance is known to me of a work-basket being made to order for a trader by an old native woman as the very best evidence of her skill. She was engaged upon the work six years, and it is unnecessary to say that the basket was a remarkable exhibition of beautiful handicraft.

Formerly the people now located at Nazan lived at Korovinsky bay, on the north side of the island, where the first church was established as early as 1826; but a few years ago, when both fish and drift-wood were becoming scarce, in order to better themselves, they removed to their present village-site. Where they are now the Alaska mackerel is quite abundant, and quantities of this palatable fish are salted in barrels and shipped to California.

At one time under the Russian *régime* Atkha was quite an important place: it was the central depot of the western district, the jurisdiction of which extended westward as far as the Kurile islands, and the Aleuts now on the Russian seal islands of Bering and Copper, off the Kamchatka coast, are all descendants of natives of Atkha. The Russians introduced cattle and goats here as an experiment in those days. The latter became very unpopular with the timid Aleuts on account of their pugnacious disposition and a morbid propensity for feeding upon the grasses and flowers that grew on the earthen roofs of the barabaras, frequently breaking them in or causing serious leaks. Though there is an abundance of nutritious grasses all over the island, the stock-raising experiment was allowed to lag, and finally, a short time after the transfer of the country to the United States, the last of the bovine race found its way into the soup-kettle and to the tables of the traders.

The numerous islands lying between Atkha and Oumnak in the east and Atkha and Attoo in the west are uninhabited, though nearly all show evidence of ancient settlements. At the present time they are each visited in succession by the sea-otter hunting parties of Atkha.

The extreme western settlement of the United States, or of North America, is located on the island of Attoo. This was the first land made and discovered by the Russians as they navigated eastward from the Commander islands, on the coast of Kamchatka. Nevodchikof, a trader and navigator, landed here first in 1747. At that time the adjoining island of Agatoo was also inhabited by the Aleutians, but to-day the only settlement is a village of little over one hundred inhabitants at the head of the land-locked harbor of Chichagof. These people are pecuniarily perhaps the poorest of the whole Aleutian race, the sea-otter, upon which they depend entirely for the means of purchasing such articles of dress and food as they have learned to regard as necessaries, having dwindled down to a mere fraction of the number formerly found on the hunting-grounds. The able-bodied men of the village now secure an annual average of only 20 or 25 sea-otter skins. Though the volume of their trade with white men is exceedingly limited, nature supplies them with a profusion of food, and ample supplies of drift-wood to serve as building material and fuel. Cod, halibut, and Alaska mackerel occur here in great abundance, and a small species of salmon ascends the shallow streams every year. The women and children gather large stores of eggs of the aquatic birds that breed along the cliffs and rocky shores, and for many years the most provident among the villagers have caught wild geese alive, clipped their wings, and domesticated them. Their present hunting-grounds extend over outlying rocks and islets some distance to the eastward and southward, but in spite of this disadvantage they are strongly attached to the place of their birth, and have declined many offers made by traders to remove them to more favorable localities for hunting the sea-otter. Large numbers of sea-lions are killed annually in the immediate vicinity, and nearly every particle of these huge animals can be put to some use. Of the skins they make boat-covers and boots, and also use them in repairing the roofs of their houses; the intestines are made into water-proof garments, the sinews taking the place of thread, while the meat is a very palatable article of diet. Though poor, these people impress the visitor in many respects more favorably than their wealthier and better situated brethren in other parts of the Aleutian chain. The chief of the village, or "toyon", acts in the triple capacity of trader, leader in the chase, and leader in the church. Naturally the consumption of flour, sugar, tea, and woolen and cotton goods by this community is limited by the causes above referred to, and for clothing they have recourse to a great extent to the primitive bird-skin parkas and other skin dresses and garments such as were made and worn by their ancestors.

On account of the scanty supply of sea-otters the natives have turned their attention to the protection and preservation of the blue fox, and of these they now kill about 200 annually, with every prospect of increasing their stock in hand. The island itself supplies them with nothing except a great abundance of berries in their season, principally the salmon berry and the *Empetrum nigrum.* The grasses found on all these islands seem to grow here, with exceptional excellence, as high as the waists and even the heads of the people, and are used largely by the people in the manufacture of mats, rugs, screens, etc., adding very much to their domestic comfort; they also weave or plait a great many handsome specimens of grass-work in the shape of baskets.

The islands of the Pribylof group comprising the breeding-grounds of the fur-seal, now occupied by a wealthy trading firm under lease from the United States government, are four in number, only two of which are frequented by the seals. Saint Paul and Saint George contain all these so-called rookeries, while Otter and Walrus islands are never visited by the millions of these animals playing in the waters about them. The subject of the fur-seal industry and its commercial and physical aspects has been fully discussed in a monograph written by Mr. H. W. Elliott, under the direction of the Superintendent of Census, and it only remains to say here that the business has been so thoroughly worked up and systematized as to bring it to a par with a well-conducted cattle ranch on a large scale—with this difference, perhaps, that greater care is lavished upon the seals, and greater caution with reference to their comfort than is generally bestowed by farmers upon their cattle.

The people now classed as natives of the islands are in reality natives and descendants of natives of the various islands of the Aleutian division, a majority having sprung from Atkha and Oonalashka. When the Russian navigator Pribylof discovered the islands, toward the end of the last century, he found them uninhabited, and in order to slay and skin the vast numbers of seals and sea-otters then found there it was necessary to import laborers from the more populous districts. Under the Russian *régime*, when these sealers were lodged in wretched subterranean hovels and were fed upon seal meat and blubber the year round, it was considered a hardship to be stationed there, and the managers of the Fur Company found it necessary to relieve their force from time to time. Since the islands have fallen under the direct management of the United States government the condition of the people has been improved to such an extent as to stop all applications for removal from the islands and to create a great demand on the part of the people of other islands to be transplanted there. Under the terms of the lease the lessees have erected comfortable cottages for all the families, and provide them throughout the year with fuel and an abundant supply of salted salmon free of charge. In addition to this, each family derives from the compensation paid by the lessees for the labor of killing and skinning the seals, which is done upon a co-operative plan devised by the natives themselves, a cash income of from $350 to $450.

Many other opportunities arise at various times during the year for adding to their income by labor of various kinds at a good rate of wages. Whatever necessaries, comforts, and luxuries the sealers may desire to procure from the stores are sold to them at very reasonable rates. Were it not for the strong propensity for gambling existing among them every sealer would have his bank account, but even now there is quite a respectable list of names upon the books of the company of those who annually draw interest from deposits in the savings banks of San Francisco. A school on each island, maintained by the lessees, under direct supervision of the special agents of the Treasury Department stationed on the islands, exerts its beneficial influence among the younger members of these isolated communities. Many of the boys and girls can exhibit quite respectable specimens of penmanship, and even composition in the English language. These were produced at school, and under great pressure; but if the visitor attempts to address one of these youngsters in English the reply will be a grin and a shake of the head. They have not thus far learned to apply the knowledge acquired. The average attendance at the school on Saint Paul is 69, and at that on Saint George 23, out of a total population of 390.

The islands are of volcanic origin, and almost entirely barren, with the exception of a scant covering of coarse grass on sheltered slopes, and as the climate is exceedingly rigorous and the atmospheric conditions very unfavorable no cultivation of the soil can ever be thought of. There is an abundance of fish in the waters about the islands, but as soon as the ice disappears the seals come, and where millions of these animals, each of which can devour from 15 to 20 pounds a day, are feeding, there cannot be much left for the human beings on shore.

On Saint George only there is quite a large supply of birds' eggs in the breeding season, and these, with a few walrus secured from Walrus island, are the only additions that nature makes to the larder of the islanders.

Blue foxes have been transplanted to these islands, and have been carefully protected and preserved from deterioration by the admixture of white foxes that sometimes reach the islands over the ice. At present about 600 of these animals are killed annually, making another addition to the revenues of the community.

I append a tabulated list of the villages and stations in this division, with their population, as follows:,

ALEUTIAN DIVISION.

| Settlements. | Location. | Total. | White. | Creole. | Aleut. |
|---|---|---|---|---|---|
| Total |  | 2,451 | 82 | 479 | 1,890 |
| Attoo | Attoo island | 107 | 1 | 32 | 74 |
| Nazan | Atkha island | 236 | 2 | 14 | 220 |
| Nikolsky | Oumnak island | 127 | 2 | 8 | 117 |
| Iliuliuk | Oonalashka island | 406 | 14 | 162 | 230 |
| Makushin | Oonalashka island | 62 | 1 | 30 | 31 |
| Koshigin | Oonalashka island | 74 | 1 | ........... | 73 |
| Chernovsky | Oonalashka island | 101 | 3 | 4 | 94 |
| Borka | Oonalashka island | 140 | 1 | 6 | 133 |
| Akutan | Akutan island | 65 | 2 | ........... | 63 |
| Akoon | Akoon island | 55 | 1 | ........... | 54 |
| Avatanok | Avatanok island | 19 | ........... | ........... | 19 |
| Saint Paul | Pribylof island | 298 | 14 | ........... | 284 |
| Saint George | Pribylof island | 92 | 4 | ........... | 88 |
| Belkovsky | Aliaska peninsula | 268 | 11 | 89 | 168 |
| Nikolaievsky | Aliaska peninsula | 43 | ........... | ........... | 43 |
| Protassof | Aliaska peninsula | 100 | 2 | 21 | 77 |
| Vosnessensky | Vosnessensky island | 22 | 1 | ........... | 21 |
| Ounga | Ounga island | 185 | 15 | 69 | 101 |
| Korovinsky | Korovin island | 44 | ........... | 44 | ........... |
| Pirate cove | Popof island | 7 | 7 | ........... | ........... |

The superficial area of the Aleutian division is 14,610 square miles, and the total population 2,451, indicating a proportion of 1 inhabitant to 6 square miles, 1 white to 178 square miles, 1 creole to 30½ square miles, and 1 Aleut to 7⅔ square miles.

## THE KADIAK DIVISION.

This division comprises the south side of the Aliaska peninsula as far west as the narrow isthmus between Port Moller and Zakharof bay, the Kadiak group of islands, the Kenai peninsula, and the coast of the mainland eastward to Mount Saint Elias. Its western and northern boundary is the main Aliaska chain of mountains and lake Ilyamna and the continuous mountain groups of the peninsula.

From the head of Bristol bay, where the Kvichak river discharges the waters of the inland sea of Ilyamna down to Port Moller, the settlements are small and widely scattered. The sea along this whole coast is very shallow, and sandy bars extend far into the ocean. Being of the same continental Eskimo stock with the inhabitants of the Kuskokvim division, the people here live very much in the same manner.

The huge walrus frequents the coast at nearly all seasons of the year, providing the inhabitants with ample stores of food and canoe material, in addition to their tusks, the latter the common currency of this region. As already mentioned above, these marine mammals are generally killed on shore outside of their natural element, but the more venturesome among the natives go out to sea in parties of from five to ten canoes and boldly attack the whales frequenting these waters with their young.

The country between Bering sea and the alpine chain of mountains extending along the eastern shore is a gradually-ascending plain, dotted with lakes fed from the glaciers and eternal snows in the east, and having their outlets in the west. In the northern portion of the peninsula a belt of timber reaches down in the center to the vicinity of lake Bocharof, but beyond this the forest disappears, and only the deep ravines exhibit a stunted growth of creeping willow and alder brush. The reindeer browses and herds all over this region, retreating during the summer up to their inaccessible retreats among the snowy peaks of the mountain range, where they are often seen by the traveler below as a moving line of black dots winding around the summits. During the autumn and winter they seek the vicinity of the lakes and scatter over the tundra, where they are hunted with comparative ease. Foxes, land-otters, martens, and minks are plentiful throughout this section, and the gigantic brown bear of continental Alaska rivals the native fishermen in the wholesale destruction of the finny inhabitants of lake and stream.

The people of Port Moller and Oogashik are of the Aleutian tribe, which in former years made warlike expeditions along this coast, extending as far to the northward as the Naknek river and lake Walker. At the village situated on one of the feeders of the latter lake the present inhabitants still tell the story of the night attack made by the "bloodthirsty" Aleuts long years ago, when every soul in the place was dispatched without mercy, with the exception of one man, who hid himself under a waterfall close by, and thus survived to tell the tale.

The peculiar formation of this country led to the discovery at an early date of several easy portage routes across the peninsula. The Russian promyshleniks first made their way to Bristol bay and Nushegak across the peninsula from Kadiak, and found abundant evidence to show that this route of communication had been an intertribal highway for ages past.

During the early years of the Russian-American Company's sway in these regions a large proportion of their traffic was carried on in this way from Kadiak to Bristol bay, and thence to the Kuskokvim and Yukon rivers and Saint Michael. This was a tedious and expensive mode of transporting merchandise, but it was long preferred to the risk and uncertainty of sending sailing-craft around to Saint Michael through the shallow and stormy waters of Bering sea. On the eastern side of the peninsula the mountains rise abruptly from the sea, a short day's climbing transplanting the traveler from tide-water into the midst of glaciers and eternal snows and scenes of alpine grandeur and solitude.

The group of islands of which Kadiak is the largest is, perhaps, at the present day the most important section of this division, being the central depot and station of the several firms engaged in the fur-trade. Kadiak island was discovered by the Russian traders as early as 1762, but was abandoned, owing to the hostile disposition of the natives, who were then quite numerous, and it was not until twenty years later that a permanent foothold was gained by Shelikhof, the founder and organizer of the Russian-American Company. For many years after Kadiak was the headquarters of that powerful corporation and the residence of the governor of all the Russian colonies on the northwest coast of America, until Baranof's ambition drove him to the eastward along the coast, where he met with English and American traders among the islands of the Alexander archipelago, and there established himself, claiming Russian sovereignty over the coast to the southward far beyond the present boundary of Alaska.

The first missionary establishment of the Russian church on these shores also landed on Kadiak island, and from here a few courageous apostles set out to regions then totally unknown to preach the gospel among the savage tribes. A century of uninterrupted presence of christianizing influences among them has so transformed these natives that not a vestige of their former fierce and savage nature can now be found, and their settlements will compare favorably in neatness and domestic comfort with most of the fishing villages of northern Europe. The climatic conditions of the island are more favorable than in most other sections of Alaska, the cultivation of potatoes and turnips and the rearing of cattle being among the general industries of the people. At the creole

A Hoen & Co. Lith Baltimore

LAKE WALKER, ALIASKA PENINSULA.—MT KAKHTOLINAT.

settlement of Afognak there is quite an extensive acreage, fenced in, under cultivation; and at the village of Saint Paul, on Wood island, and on Spruce island these farming operations are extending every year. The crops are by no means abundant, and cannot be counted upon as a certainty every year; but there is enough to add much to the comfort of life and a pleasant and wholesome variety to the dietary of the people. Experiments in sheep-raising have also been made with encouraging results, so far as the quality of the wool is concerned; but the increase in lambs is much less than in Oregon or California, and is still more diminished by the ravages of eagles and ravens. As the northern portion of the island of Kadiak and the smaller islands to the northward are timbered, the people here have facilities for ship or boat building, of which they avail themselves to the fullest extent. One or more small crafts can always be found in process of construction, principally upon orders from the prosperous white sea-otter hunters of the Shumagin islands or for the trading firms and private traders. A deputy collector of customs stationed at Kadiak has quite a respectable list of small craft built and registered in the district.

Sea-otter parties are fitted out in nearly every village, and are frequently taken to distant hunting-grounds in sloops and schooners. The old men and youths remain at home and employ their time profitably in hunting bears and trapping foxes, principally of the black and the cross variety. The salmon fishery is increasing in volume with astonishing rapidity, and furnishes labor for numerous hands, whites as well as native males and females. Cod-fish is found nearly everywhere in the shallow soundings of the coast, and forms a great staple of food with the people, but at present it is not exported.

The parish priest of the Russian church located at Kadiak village has under his spiritual jurisdiction nearly the whole of this division, with the exception of the western coast of the Aliaska peninsula and the upper portion of Cook's inlet, the latter section being confided to the care of a missionary monk located at Kenai, on the Rédoute Saint Nicholas.

On the coast of the peninsula opposite Kadiak island coal has been found, together with many indications of the existence of petroleum; but if other mineral deposits are hidden within the recesses of the mountains they have thus far escaped the searching eye of the prospector and explorer.

The settlement of Katmai, in this vicinity, was once the central point of transit for travel and traffic across the peninsula. Three different routes converged here and made the station a point of some importance; now Katmai's commercial glory has departed, and its population, consisting of less than 200 creoles and Innuits, depend upon the sea-otter alone for existence. The men could have reindeer in plenty by climbing the mountains that rear their snow-covered summits immediately behind them, but they prefer to brave the dangers of the deep and to put up with all the discomfort and inconvenience connected with sea-otter hunting, and in case of success purchase canned meats and fruit from the trading-store, leaving the deer on the mountain undisturbed.

The people of two villages across the divide, in the vicinity of lake Walker, come down to Katmai to do their shopping and to dispose of their furs, undertaking a very fatiguing tramp over mountains and glaciers and across deep and dangerous streams in preference to the canoe journey to the Bristol Bay stations. Only at long intervals a small party will proceed to Nushegak to visit the Russian missionary stationed there, to whose spiritual care they have been assigned without regard to locality or convenience.

Of the creoles embraced in the parish of Kadiak 103 are reported by the church authorities as being able to read and write in the Kadiak and a small proportion of them in the Russian language.

Northward from the Kadiak group we find a deep indentation of the coast, bounded by a lofty mountain range, with which several volcanic peaks in the westward and the peninsula in the east form the great estuary known as Cook's inlet.

When the Russian traders first penetrated into the recesses of this region under the lead of two rival companies, in 1787 and 1789, they made war upon each other. Scenes of piracy and bloodshed were enacted in swift succession for ten long years, until Baranof, with his iron will and hand, settled all disputes by sending the disputants to Siberia for trial and punishment. Historically this whole region is one of the most interesting in all Alaska. It is also interesting to the ethnologist, from the fact that here are found the only instances of the interior Indian tribes of the Athabaskan family impinging upon the coast. The people known as Kenaitze (Kinnats or Tinnats) are strongly defined; but they are a separate people from the Eskimo inhabiting Kadiak and the sea-coast adjoining. The height of the male of the Kenai tribe is greater than that of the Eskimo, and a full-grown man of less than 5 feet 8 inches is rarely encountered. They are slim, lithe, and sinewy; the eyes are set straight in the head; the nose is prominent, frequently aquiline; the mouth is large, with full lips, the chin frequently receding; the skin is very perceptibly darker than that of the Eskimo; they wear their hair, which is thick and coarse, much longer than the natives of Kadiak; and the males gather it into a thick, stubby braid, hanging down the back, thickly smeared with grease and sometimes powdered over with feathers and down.

At the head of the inlet and on the rivers emptying into it from the north we find these people more primitive in their manners and customs, dressing in buckskin shirts and trowsers, the men and women almost alike. Many of their hunting shirts and breeches are tastefully embellished with porcupine quills and grass braiding, bead embroidery and fringes, while both nose and ears of the men are pierced for the insertion of the white shells of the dentalium, or hyqua, here called "sukli". This shell was formerly in general demand among the Indian tribes of the territory, but now this seems to be the only section where there is a steady call for the article. The women are treated well and kindly, but they have much heavier burdens laid upon them in the line of manual labor than those imposed upon their wives by the Kadiak or Aleutian natives. The Kenaitze travel a great deal by land, and the women serve as pack-animals. In their domestic architecture and economy they also differ much from the Eskimo, their houses being always erected above the ground with logs and roofed with bark, the under side of each log being hollowed out, so as to fit down tightly over the round surface of the one beneath. They build their roofs with regular rafters, pitched sufficiently to shed the rain and melting snow, and a fire-place is reserved in the center, with a small aperture directly above it in the roof. The door to this structure is a low, square hole at one end large enough to admit a stooping person, and a bear-skin is usually hung over it, or a plank is placed before it. The floor is generally the natural earth, while around the sides of the room, a foot or two from the ground, and wide enough to allow the people to stretch out upon at night, is erected a rude stage. On this staging they lay grass mats and skins for bedding and covering. This is the most primitive style of dwelling. Those among them who have had frequent intercourse with the trading-posts and villages farther down the inlet have added to their houses wings, or small box-like additions, tightly framed together, with an entrance only from the interior of the larger structure. These little additions, used as sleeping apartments and sometimes as bath-rooms, are furnished with the luxury of a plank floor, and in many instances have a small window of transparent bladder or intestine.

On all the principal hunting-grounds, or along the trails most frequented by the Kenaitze, are found structures similar to those above mentioned, with additions built very compact and low, which serve as places of refuge for the hunter and traveler in times of snow-storm and excessive cold. A party of hunters can retire into one of these shelters and keep up quite a high degree of temperature with their own animal heat for hours, and even days, if the storm should be prolonged, and they are safe from the cold, though the air they breathe may not be of the best.

The Kenaitze are in disposition much more taciturn than their Innuit neighbors and are more dignified in demeanor; but they are ardent hunters, spending most of their time and energy in the chase on land, where the fur-bearing animals peculiar to the country are numerous, varied, and valuable, and often make long journeys into the interior, up and through mountain defiles, and even over summits and glaciers, erecting at every convenient camping-ground the temporary shelters above referred to. At localities where tribes or families meet for traffic or hunting they build up somewhat larger structures, consisting of two open sheds, with sloping roofs facing each other, allowing the inmates to warm themselves by one and the same fire. These people along the rivers and the northern portion of the inlet build birch-bark canoes, but when they get down to the sea-board or to the Innuit settlements of the lower peninsula they buy bidarkas or skin-canoes for the purpose of fishing or navigating in salt water. Wooden canoes or dug-outs are not known west of the mouth of the Copper river.

The Kenaitze are expert fishermen, and certainly enjoy an abundance of piscatorial food, salmon of fine size and quality running up their rivers, and trout crowd the hundreds of lakes in their country, where they are found all through the winter and caught through the ice. The fishermen descend to tide-water only when king-salmon, or "chavitcha", come up from the sea in dense masses, or when schools of white whales or grampus follow up the "eulachan", or candle-fish, until they are left high and dry by the receding tide and fall easy victims to the natives. The variety of native mammals is very great. Bears both brown and black—the former of great size and ferocity, frequently from 10 to 12 feet in length, strongly suggestive of the grizzly—are killed in large numbers by the hunters every year. The deer found here is apparently a larger cousin of the reindeer, the woodland caribou. Moose, single and in family groups, can be found feeding through the low brush-wood and alder swamps, and mountain sheep inhabit the higher mountains, feeding upon the nutritious grasses and moss found in the clefts of mountain tops and rocky ledges. The fleece of this sheep (or goat?) is surprisingly long and coarse, their skins making a favorite bedding of the natives. These natives trap the beaver on streams and lakes, the land-otter, not only in the interior, but on the sea-shore, and kill the porcupine, the whistling marmot, wolves, black and gray, the lynx, the wolverine, the marten, mink, musk-rat, and a small white weasel, called here "ermine" by courtesy. Of wild fowl they have the grouse (both the white ptarmigan and the ruffled grouse), wild geese and ducks in millions during the breeding season, and the blue sand-hill crane and white swan in flocks.

From the Kenai settlements on the eastern shore of the inlet and the Kustatan village opposite, southward, the men are also sea-otter hunters, going down to Anchor point and the Barren islands in parties, or to the reefs of Chermaboura and cape Douglas. The Kenaitze population proper is all located north of a line drawn from Anchor point to the Ilyamna portage of the west coast of the inlet, south of the deep indentation of the Kenai peninsula called Chugachik or Kuchekmak gulf. This country is settled by Innuits, who have peopled the east coast of the peninsula, and from there eastward along the mainland nearly to the Copper river. Two of the trading-stations in the Kenai district are located among these Innuits at English bay and Seldovia. Three more stations, consisting each of two rival stores, are located at Kenai (Rédoute Saint Nicholas), on the river Kinik, and the village of Toyonok, or West Foreland.

The central point of all this region is Kenai, once the site of the earliest permanent settlement on the inlet, the remnants of which can still be seen. A Russian missionary is located here, and a new church is nearly completed.

At the time of the transfer of the territory Kenai was still a fortified place, with a high stockade and octagonal bastions at the salient points. Both stockade and bastions, with their primitive armament of 1½-pound falconets, have disappeared since then, but a number of new buildings have sprung up, and a thrifty colony of creoles has taken to the cultivation of potatoes and turnips on a larger scale than had ever been attempted before. Perhaps ten or twelve acres are planted here now, and several of the families keep cattle. Some of the choicest salmon of the territory is salted here, and is barreled and shipped to San Francisco. The hunting-grounds in the immediate vicinity do not yield their former abundance of valuable furs, but the presence of the missionary establishment causes a concentration of natives from all parts of the inlet at least once a year and brings considerable trade to this old station. It was on the river Kaknu, or Kenai, that the Russian mining engineer Doroshin reported the existence of surface gold in paying quantities. After laboring with a numerous party in the mountains for two seasons, at great expense to the Russian-American Company, he returned with a few ounces of the precious metal, but he could present no inducement to the corporation to proceed any further in this enterprise. Since that time American prospectors have passed years in this region following up the Russian's tracks, but not one of them has thus far found gold enough to warrant him to work the find. In former years Kenai was also the site of a large brick-yard, the only establishment of the kind in the colony, from which all stations and settlements were supplied with the material for the old-fashioned Russian ovens or heaters.

About 30 miles down the coast from Kenai there is another settlement deserving at least a passing notice. A number of "colonial citizens", or superannuated employés of the old Russian company, were ordered to settle some fifty or sixty years ago at Ninilchik, and their descendants live there still. Each family has quite a large garden patch of turnips and potatoes, yielding enough to allow the owners to dispose of a large surplus to traders and fishermen. They have quite a herd of cattle, and the women actually make butter; but they are not sufficiently advanced in farming lore to construct or use a churn, and the butter is made in a very laborious manner by shaking the cream in bottles. They also raise pigs and keep poultry, but on account of the hogs running on the sea-shore digging clams and feeding upon kelp, and the chickens scratching among fish-bones and other offal, both their poultry and their pork are fishy to such an extent as to be made unpalatable. The young men of the settlement go out to hunt the sea-otter at Anchor point, or even lower down the coast.

The whole region about Cook's inlet is wooded, the forest being here and there interspersed with marshy tundras; but everywhere along the coast the timber is small and stunted, being of larger dimensions only in the interior.

In the vicinity of Anchor point, on Kuchekmak gulf, and on Graham's or English harbor, extensive coal-veins appear along the bluffs and come to the surface. The Russian-American Company jointly with a San Francisco firm worked here for years to develop the mines and obtain a product good enough for the use of steamers and engines, but after sinking a large capital the enterprise was abandoned before the transfer of the territory took place. A few remnants of the extensive buildings erected in connection with these mining operations still remain on the north shore of English bay.

The easternmost section of this division comprises the coast bordering upon the gulf of Chugatch, or Prince William sound, and from there to Mount Saint Elias this is essentially an alpine region. The whole coast between cape Saint Elizabeth in the west and the mouth of Copper river in the east is deeply indented with coves and fiords, and towering peaks rise abruptly from the sea. Nearly every valley and ravine has its glacier, some of the latter being among the most extensive in the world. In Port Valdez, at the northern extremity of the sound, a glacier exists with a face 15 miles in length at the sea-shore, while its downward track can be traced almost to the summit of the alps. Huge icebergs drop off its face with a thundering noise almost continually and drift out to sea, and the whole extensive bay is covered with small fragments, making it inaccessible to even boat navigation, and consequently a safe retreat for seals, which sport here in thousands. Port Fidalgo in the east and Port Wells in the west also have tremendous glaciers, and another glacial formation forms the portage route between Chugatch bay and Cook's inlet. Though covered with a dense forest to a height of 1,000 feet from the sea-level, these mountains are comparatively poor in animal life, and support in small settlements only a very limited population scattered along the coast and islands. The timber is nearly all spruce, some of it of extraordinary size, but no practical use has been made of this material since Baranof established a ship-yard in Resurrection bay, on the Kenai peninsula, and with the aid of English shipwrights constructed a few small vessels. One of these crafts was a three-master, and boasted the title of frigate, though it measured only 100 tons.

Traces of the Russian woodman's ax are still plainly visible along the western coast of the sound and on Montague island, and the huge logs still lie where they were felled in anticipation of an industry that was not developed.

The principal fur-bearing animals of this section are the black and the brown bear, otter, marten, and mink, but on the eastern side of Nuchek island there is quite an extensive sea-otter hunting-ground, which supports two large trading-stores on that island. Whales are plentiful in these waters, but the natives are not bold enough to attack them. Cod-fishing banks exist in a few localities, and all the rivers and streams have their annual run of salmon. In the early times of the Russian *régime* Nuchek, which was then called Rédoute Saint Constantine, was quite an important trading center, being visited by Thlinket tribes from the coast to the eastward as far as Bering bay, and also by the Copper River Indians of the Tinneh family. This traffic, to a certain extent, still exists, but not in the old dimensions. There is every reason to believe that the Copper River people have much decreased in numbers, and that they find other outlets for their trade to the northward on the Yukon or the Tennanah.

Under the protection of the Russians the Eskimo race here occupied the coast as far eastward as Kaiak island and Comptroller bay, but in late years the Thlinket have gradually advanced westward, first mixing with the Eskimo and then absorbing and superseding them, until at the present day they are established in predominant numbers even west of the mouth of the Copper river.

The number of sea-otters sold at the Nuchek stores every year does not exceed 150, and are all killed between the islands of Nushegak and Kaiak. The whole Eskimo population of this secluded district is only about 500, and, as they are poor, they will most probably remain in this seclusion, which is broken but once or twice a year by the arrival of the trading-schooner. They have food in plenty such as it is, consisting of seal-blubber, salmon, the meat of the marmot, porcupine, and bear, varied occasionally by the welcome addition of mountain sheep, an animal that is found over all this alpine region, and is as persistently and skillfully hunted by the natives as is the chamois in Switzerland and the Tyrol. The meat of this mountain sheep, or goat, is in every way equal to the finest tame mutton, but by the time one of the native hunters brings a carcass down from the mountains to the sea-coast or the trading-store the meat is sadly bruised and lacerated, and presents rather an uninviting appearance. Foxes, of course, are plentiful here, as everywhere in Alaska, in two or three varieties, some very fine specimens of silver-gray being brought down to the coast by the Copper River Indians. No mineral deposits have been discovered in these mountains, with the exception of pure native copper, specimens of which have been secured from Copper river ever since the Russians first made their appearance there, but repeated attempts by Russians, and later by Americans, to locate the source from whence these specimens came have always resulted in failure. An American prospector who lived with those Indians for two years reports that he failed to discover copper or gold in paying quantities anywhere in that region, but his individual opinion is not sufficient to deny the existence of copper deposits, of which so many specimens have been procured; and the ultimate location of these deposits is only a question of time and energy.

Of the features of the coast between Copper river and Mount Saint Elias but little is known, but it is evidently a narrow table-land between the high mountains and the sea, well timbered, and traversed by numerous shallow streams that take their origin in the glaciers and eternal snows. The natives describe it as an excellent hunting-ground. The island of Kaiak is undoubtedly the point where Bering first approached the North American continent, and upon the southern point of which he bestowed the name of cape Saint Elias. It is not permanently inhabited, but hunting parties from the mainland sometimes remain here for many months at a time.

The Eskimo of this section partake of the same characteristics with the people of Kadiak and the peninsula.

Timber exists here in the greatest abundance. The dwellings of the people are generally under ground, according to Innuit custom, but where the Thlinket or Kolosh race has mixed with them and gained supremacy the mode of architecture changed at once to substantial log structures entirely above ground, generally with a plank platform running along the entire front, on which the inmates assemble in fine weather, and sit upon their haunches, wrapped in greasy blankets, smoking and staring stupidly into vacancy. At Nuchek there is a Russian chapel, but it is eight or nine years since a priest has made his appearance there. A creole reads prayers every Sunday in the chapel, which is kept in excellent repair with the aid of donations from all the surrounding villages. It is touching to observe the constancy and faith of these poor people, who have gathered at this central point from a circuit of one hundred miles every spring for the last nine years in the expectation of seeing a priest come at last to give them his blessing and to solemnize the marriages that have been contracted during this long interval. Baptism can be performed by the church reader under the rules of the Russian church.

I append a tabulated list of the settlements and the population of the entire peninsula division, as follows:

KADIAK DIVISION.

| Settlements. | Location. | Total. | White. | Creole. | Eskimo. | Athabaskan. | Thlinket. |
|---|---|---|---|---|---|---|---|
| Total | | 4,352 | 34 | 917 | 2,211 | 864 | 326 |
| Mitrofania | Aliaska peninsula | 22 | | 22 | | | |
| Kaluiak | Aliaska peninsula | 30 | | 1 | 29 | | |
| Sutkhoon | Aliaska peninsula | 25 | | | 25 | | |
| Kuyukak | Aliaska peninsula | 18 | | | 18 | | |
| Katmai | Aliaska peninsula | 218 | | 37 | 181 | | |
| Kukak | Aliaska peninsula | 37 | | | 37 | | |
| Ashivak | Cape Douglas | 46 | | 6 | 40 | | |
| Saint Paul | Kadiak island | 288 | 20 | 253 | 15 | | |
| Lesnova | Wood island | 157 | 2 | 56 | 99 | | |
| Yelovoi | Spruce island | 78 | | 78 | | | |
| Oozinkie | Kadiak island | 45 | | 45 | | | |

KADIAK DIVISION—Continued.

| Settlements. | Location. | Total. | White. | Creole. | Eskimo. | Athabaskan. | Thlinket. |
|---|---|---|---|---|---|---|---|
| Afognak (two villages) | Afognak island | 339 | | 195 | 144 | | |
| Ooganok (two villages) | Kadiak island | 73 | | | 73 | | |
| Ooiak | Kadiak island | 76 | | | 76 | | |
| Karluk | Kadiak island | 302 | 1 | 24 | 277 | | |
| Akhiok | Kadiak island | 114 | | | 114 | | |
| Ayakhtalik | Kadiak island | 101 | | 4 | 97 | | |
| Kagniak | Kadiak island | 109 | 1 | 6 | 102 | | |
| Three Saints bay | Kadiak island | 7 | | 4 | 3 | | |
| Old harbor | Kadiak island | 160 | | 5 | 155 | | |
| Orlova | Kadiak island | 147 | | 8 | 139 | | |
| Chiniak village | Kadiak island | 24 | | | 24 | | |
| Killuda | Kadiak island | 36 | | | 36 | | |
| Alexandrovsk | Kenai peninsula | 88 | 1 | 12 | 75 | | |
| Yalik | Eastern coast Kenai peninsula | 32 | | | 32 | | |
| Seldovia and Ostrovki | Kenai peninsula | 74 | | 38 | 36 | | |
| Laida | Kenai peninsula | 29 | | | | 29 | |
| Ninilchik | Kenai peninsula | 53 | | 53 | | | |
| Kassilof | Kenai peninsula | 31 | | | | 31 | |
| Chkituk and Chernila | Kenai peninsula | 50 | | 10 | | 40 | |
| Skilakh | Kenai peninsula | 44 | | | | 44 | |
| Kenai Rédoute | Kenai peninsula | 44 | 2 | 42 | | | |
| Titukilsk and Nikishka | Kenai peninsula | 57 | | | | 57 | |
| Kultuk | Kenai peninsula | 17 | | | | 17 | |
| Knakatnuk | Kinik river, Cook's inlet | 57 | 1 | 1 | | 55 | |
| Zdluiat | Kinik river, Cook's inlet | 10 | | | | 10 | |
| Nitakh | Kinik river, Cook's inlet | 15 | | | | 15 | |
| Kinik | Kinik river, Cook's inlet | 40 | | | | 40 | |
| Sushetno (1st village) | Cook's inlet | 44 | | | | 44 | |
| Sushetno (2d village) | Cook's inlet | 46 | | | | 46 | |
| Toyonok station and village | Cook's inlet | 117 | 2 | 6 | | 109 | |
| Kustatan | Cook's inlet | 65 | | | | 65 | |
| Chenega | Prince William sound | 80 | | | 80 | | |
| Kanikhluk | Prince William sound | 54 | | | 54 | | |
| Tatikhlek | Prince William sound | 73 | | | 73 | | |
| Nuchek | Prince William sound | 74 | 3 | 11 | 60 | | |
| Ikhiak and Alaganu | Mouth of Copper river | 117 | | | 117 | | |
| Cape Martin | Mouth of Copper river | 7 | 1 | | | | 6 |
| Atnah villages | Copper river | 250 | | | | 250 | |
| Chilkhaat villages | Comptroller bay | 170 | | | | | 170 |
| Yaktag villages | Foot of Mount Saint Elias range | 150 | | | | | 150 |

The superficial area of the Kadiak district is approximately 70,884 square miles; the inhabitants, numbering 4,352, would give us a ratio of 1 inhabitant to 16¼ square miles. The ratio of civilized population (white and creole) is 1 to 74½ square miles.

## THE SOUTHEASTERN DIVISION.

The narrow strip of coast-line from Mount Saint Elias to Portland canal, a strip that was patched upon the solid body of the Russian possessions on this continent through the ambition of Baranof, differs in all its characteristics from the bulk of Alaska, partaking essentially of those of the coast of British Columbia and the islands adjoining. Though Baranof, or rather the company which he represented, at the beginning of the present century was powerful enough not only to establish but to maintain possession of the narrow belt between the mountains and the sea, he was never able to extend the Russian possessions into the interior where the outposts of the Hudson Bay Company were already located, and as the successor of the Russians the people of the United States have shut off the British possessions from the sea-coast for a distance of nearly 500 miles.

This whole division is densely wooded and exceedingly mountainous in its formation; the coast is deeply indented with bays and fiords, and for two-thirds of its length is sheltered by the numerous islands of the Alexander archipelago. The forests, impinging as they do upon the sea-coast everywhere, are easily accessible, and will be of the greatest value in the future either as fuel or as building material. The Alaska spruce is the prevailing forest tree, but in the southern section of the division the yellow cedar, the most valuable of all the northern trees, exists in considerable quantities. The wood of this tree has always been an article of export to a limited extent, and it is purchased by the cabinet-makers of the Alaska coast at the present day; but the extent to which this industry might be developed is not yet known. Large bodies of this timber are found farther south in the adjoining British possessions. Coal has been discovered on many of the islands and on the mainland, but no practical use has thus far been made of the discoveries. An extensive vein of bronze-copper was opened on Prince of Wales island by a British Columbian firm, but for some reason unknown the enterprise languishes. Discoveries of gold-bearing quartz have been made on Baranof island, in the immediate vicinity of Sitka, only since the transfer of the territory, and for a time quite an excitement was created; but now these ledges are scarcely worked at all, being simply held by the owners for further developments, or until some process can be discovered for working with profit the peculiar grade of ore existing there. In the meantime surface gold was discovered on the peninsula between the inlets of Takoo and Chilkhat. The mining population of Sitka, and, to a great extent, that of the Wrangell and the Cassiar country, was drawn away to the new discoveries, where they are now engaged with apparent success. Veins of quartz have also been located in the same locality; and with the undaunted prospector throughout all this region, in a few years more the mining resources of southeastern Alaska will be fully known.

Next in importance to the mining industry stands the fur-trade, once the sole foundation of the country's prosperity. From the silver and the black fox, the marten, and the land-otter the most valuable furs are secured by the natives, together with skins of the black and the brown bear, a limited quantity of beaver, and a few sea-otter. Owing to excessive competition the prices paid for these furs are abnormally high, and the profits from the trade must be correspondingly small.

Salmon, halibut, and herring crowd all the waters of the sea-coast as well as those of the interior channels of the archipelago, and two or three canning and salting establishments have been in operation for some years. The oil procured from herring and dog-fish and shark finds a ready market. A few small saw-mills furnish rough lumber for local consumption, and a few small craft, including one steamer of 80 tons burden, ply over the sheltered inland waters and as far north as Bering bay on the open coast. The natives on many of the islands make quite a profitable business of killing hair-seals for their hides and the oil rendered from the blubber.

The climate of this division, especially from Cross sound to the southern boundary, is very peculiar. The temperature is not as low as might be expected in this latitude, thermometrical observations extending over nearly fifty years presenting a minimum of only 4° below zero, while the maximum reached +87°; this, however, occurred but once during the period mentioned. The mean annual temperature derived from all these observations is 43° 28′.

The rainfall statistics, extending over the same period, show a mean annual precipitation of over 80 inches, and several of the annual records are above 90, while one reaches 103. The number of days on which rain fell during the periods referred to averaged 165 per annum, and of snow-fall 33; but during several years the rainy days numbered as high as 250 and even 264 a year. The highest number of days on which snow fell here was 47. This enormous precipitation makes it plain that, in spite of the comparatively high temperature, the climate of southeastern Alaska cannot be called an agreeable one, or one that would hold out a prospect of success to agricultural emigrants. Vegetable gardens, however, have been successfully cultivated all over this district, wherever white men settled who were willing to bestow the necessary labor upon this way of ameliorating their daily fare. Potatoes were found among the natives of this region by the very first English and American visitors, especially among the Hyda tribes, and at present they are freely offered for sale by the natives wherever white people congregate for mining or trading. Owing to the rugged and mountainous formation of the country, and the thick undergrowth making the forest almost impenetrable, the keeping of cattle is surrounded with great difficulties, and hay is not easily cured during the few sunny days of which this section can boast.

Nearly all the natives inhabiting the southeastern division are of one kin—the Thlinket tribe, or "Kolosh" as they were called by the Russians. Only at the southern portion are found a few settlements of the Hyda tribe from British Columbia. When the Russians first came to the Alexander archipelago the natives offered a stubborn resistance to their permanent establishment. The first block-house or station erected by Baranof, at old Sitka, was taken by surprise and all the inmates put to death by the combined Sitka and Stockin tribes, and about the same time the Thlinket of Bering bay or Yakutat fell upon the settlement established there, killing the inhabitants and carrying off a few women into captivity. About this time, also, two large sea-otter hunting parties, consisting of Innuits, under the leadership of Russians, were surprised and almost annihilated by the Kolosh.

Undaunted by these disasters Baranof drove the native warriors from their fortified position on the site of the present town of Sitka and established himself there, making that point the headquarters of the great Russian Fur Company. From that time forth the Thlinket only indulged in an occasional robbery or murder of isolated hunters, but no cordial intercourse was ever established between them and their conquerors. The business between them was carried on in a cautious manner, highly suggestive of a state of siege. The Russian priests made very little impression upon the warlike pagans, who only occasionally for the consideration of a present consented to submit to the ceremony of baptism.

As late as 1855 the Sitka Indians attacked the Russian fortifications, an action of several days resulting, during which quite a number were killed and wounded on both sides, but the difficulty was finally settled by treaty.

At that time the town of Sitka was thoroughly fortified with numerous bastions and batteries mounting between sixty and eighty cannon of various calibers. The most important of the batteries was located about the mansion of the chief manager of the Russian-American Company, which was perched upon a steep, rocky elevation, and is still known as "the castle". Here seventeen cannon (12- and 24-pounders) were planted and kept constantly loaded. Every male inhabitant of the Russian settlement of Sitka had his station assigned to him in case of attack by the natives, and all employés were drilled occasionally in the manual of arms, etc. The military garrison, consisting of 180 soldiers of the Siberian battalion, mounted guard regularly, with sentries stationed at the various gates in the stockade.

For nine years after the transfer of the Russian possessions to the United States a military post was maintained here, consisting at first of nearly 250 men, but the number was gradually diminished, and the last troops were withdrawn in 1876. A few difficulties arose during this time between the troops and the Indians of Sitka and one or two of the more distant tribes, but they were generally adjusted by arbitration and a mere display of readiness to fight. A United States man-of-war now (1880) does police duty at Sitka, patrolling occasionally the interior channels of the Alexander archipelago. It is safe to predict that the mere presence of some armed force in this section will always be sufficient to keep in check the naturally warlike and arrogant Thlinket.

Since the transfer of the territory the town of Sitka has continued to be considered as the most important point in Alaska, and whatever display there has been of military or civil power on the part of the United States was made here. The collector of customs for the district of Alaska resides at Sitka, and is unable to communicate with his deputies in the west except by way of San Francisco.

For thirty or forty years previous to the acquisition of Alaska by the United States the Sitka settlement contained a number of schools and churches—the latter comprising the cathedral of the diocese, two smaller Russian chapels, and a Lutheran church for the use of Germans, Swedes, and Finlanders in the employ of the Russian company. Of the schools one was for the sons of the higher officers of the company, under the ambitious name of "Colonial Academy", one a boarding-school for girls of the same class, and two other schools for the children and orphans of the lower grades of employés and laborers.

For some time Sitka was also the site of a theological seminary of the Russian church. All these establishments, with the exception of the cathedral, have been discontinued, and at present the only efforts in the field of education are made by missionaries and teachers sent out by the Presbyterian board of missions, with some pecuniary assistance of the naval authorities at Sitka. Mission schools have been located at Chilcoot, Hoonyah, Wrangell, and at Shakan, on Prince of Wales island. At Wrangell there is also an industrial home for native girls, maintained by the Presbyterians, and the chapel and the parsonage of the Roman Catholic church. Concerning these missionary establishments, the Rev. Sheldon Jackson, D.D., has furnished the following statistics:

> The first school at Wrangell was established in 1877, and placed in charge of a lady teacher. In 1878 a home for girls was added to the establishment; and in the season of 1880 and 1881 this latter establishment contained 30 inmates, while the school had an average attendance of 60.
>
> At Sitka a school was opened in April, 1878, and kept open with varying success until in April, 1880. An attendance of 130 (grown people and children) was reported.
>
> One of the naval officers stationed at Sitka introduced upon his own responsibility a system of compulsory education, appointing regular truant officers; each child was labeled, and if found on the streets during school-hours was arrested, and the head of the household to which he or she belonged was fined or imprisoned. This extraordinary and arbitrary measure worked so well that the "average attendance" was suddenly forced up to between 230 and 250—one day reaching 271—a result highly gratifying to the Presbyterian teachers, whatever objections the public at large may have to this *modus operandi* on constitutional grounds. The school above mentioned was for the Indians alone. For the benefit of the creole children a school was established in 1879, with the assistance of the naval authorities, who furnished a teacher and interpreter in the person of an educated creole lady, who was rated as an "able seaman". This school had an average attendance of from 45 to 55 children, who were instructed in the English language and primary branches.
>
> In the summer of 1880 a Christian Indian woman of the Tongas tribe was sent to open a school among the Chilkhats at the head of Lynn channel, and here, later, buildings were erected at that point by the Presbyterian board of missions, and a competent teacher installed, who reports an average attendance of 75 pupils.
>
> A school was also established among the Hoonyah tribe on Cross sound; the teacher reports 70 pupils.
>
> At the southern end of Prince of Wales island, on Cordova bay, a chief presented a house to the Presbyterian mission and a school was opened, with an average attendance of 80 pupils.
>
> At Shakan, on the north end of Prince of Wales island, a small school has been opened and placed in charge of a native teacher and his wife, both former pupils of the Wrangell school.

We append a tabulated list of the settlements and population of the southeastern division, as follows:

SOUTHEASTERN DIVISION.

| Settlements. | Location. | Total. | White. | Creole. | Thlinket. | Hyda. |
|---|---|---|---|---|---|---|
| Grand total | | 7,748 | 293 | 230 | 6,437 | 788 |
| NATIVES. | | | | | | |
| *Chilkhat tribe.* | | | | | | |
| Yondestuk | Chilkhat river and bay | 988 | | | 171 | |
| Kutkwutlu | Chilkhat river and bay | | | | 125 | |
| Kluckquan | Chilkhat river and bay | | | | 565 | |
| Chilcoot | Chilcoot river | | | | 127 | |
| *Hoonyah tribe.* | | | | | | |
| Koudekan | Chichagof island | 908 | | | 800 | |
| Klughuggue | Chichagof island | | | | 108 | |

SOUTHEASTERN DIVISION—Continued.

| Settlements. | Locations. | Total. | White. | Creole. | Thlinket. | Hyda. |
|---|---|---|---|---|---|---|
| *Khootznahoo tribe.* | | | | | | |
| Augoon | Admiralty island, Hood's bay | 666 | | | 420 | |
| Scutskon | Admiralty island, Hood's bay | | | | 246 | |
| *Kehk tribe.* | | | | | | |
| Klukwan | Kuprianof island | 568 | | | 261 | |
| Village | Kuprianof island | | | | 82 | |
| Village | Koo island | | | | 100 | |
| Village | Port Houghton | | | | 50 | |
| Village | Seymour's channel | | | | 75 | |
| *Auk tribe.* | | | | | | |
| Village | Stephens passage | 640 | | | 290 | |
| Village | Admiralty island | | | | 300 | |
| Village | Douglas island | | | | 50 | |
| *Takoo tribe.* | | | | | | |
| Tokeatl's village | Takoo river and inlet | 269 | | | 26 | |
| Chitklin's village | Takoo river and inlet | | | | 113 | |
| Katlany's village | Takoo river and inlet | | | | 106 | |
| Fotshou's village | Takoo river and inlet | | | | 24 | |
| *Stakhin tribe.* | | | | | | |
| Shustak's village | Etholin island | 317 | | | 38 | |
| Kash's village | Etholin island | | | | 49 | |
| Shakes' village | Etholin island | | | | 38 | |
| Towayat's village | Etholin island | | | | 82 | |
| Kohltiene's village | Stakhin river | | | | 28 | |
| Hinauhan's village | Stakhin river | | | | 31 | |
| Kadishan's village | Stakhin river | | | | 27 | |
| Shallyany's village | Stakhin river | | | | 24 | |
| *Prince of Wales Island tribe.* | | | | | | |
| Kouyou | Prince of Wales island, west coast | 587 | | | 60 | |
| Hanega | Prince of Wales island, west coast | | | | 500 | |
| Klawak | Prince of Wales island, west coast | | | | 27 | |
| *Tongas tribe.* | | | | | | |
| Village | Island mouth Portland canal | 273 | | | 173 | |
| Cape Fox | Prince of Wales island | | | | 100 | |
| *Sitka tribe.* | | | | | | |
| Sitka, Indian village | Baranof island | 721 | | | 540 | |
| Silver Bay | | | | | 39 | |
| Hot Springs | | | | | 26 | |
| Indian River | | | | | 43 | |
| Old Sitka | | | | | 73 | |
| *Yakutat tribe.* | | | | | | |
| Scattered villages between cape Spencer and Bering bay. | Coast of mainland | 500 | | | 200 | |
| Yakutat | Bering bay | | | | 300 | |
| *Hyda tribe.* | | | | | | |
| Kassan and Skowl | Prince of Wales island | 788 | | | | 173 |
| Klinquan | Prince of Wales island | | | | | 125 |
| Koianglas | Prince of Wales island | | | | | 62 |
| Howakan | Prince of Wales island | | | | | 287 |
| Shakan | Prince of Wales island | | | | | 141 |
| Total native | | 7,225 | | | 6,437 | 788 |
| WHITES AND CREOLES. | | | | | | |
| Wrangell | Etholin island | 106 | 105 | 1 | | |
| Shuck | Stephens passage | 10 | 10 | | | |
| Soundun | Holkham bay | 10 | 10 | | | |
| Shakan | Prince of Wales island | 8 | 5 | 3 | | |
| Old Sitka | Baranof island | 6 | 6 | | | |
| Sitka | Baranof island | 376 | 157 | 219 | | |
| Kassan | Prince of Wales island | 7 | | 7 | | |
| Total white and creole | | 523 | 293 | 230 | | |

The superficial area of this island division is, as nearly as it can be computed from the limited data at my command, about 28,980 square miles. This would give a density of population of 1 inhabitant to nearly 4 square miles. The ratio of civilized (white and creole) population was, in 1880, 1 to 55½ square miles. This element is now probably three times as numerous, or 1 to 19 square miles. The Thlinket and Hyda, however, are very susceptible of civilization, and are rapidly advancing in their social status, thanks to the efforts of missionaries and the contact with Caucasian miners and traders.

RECAPITULATION OF THE POPULATION OF ALASKA.

| Divisions. | Total. | White. | Creole. | Eskimo. | Aleut. | Athabaskan. | Thlinket. | Hyda. |
|---|---|---|---|---|---|---|---|---|
| Total | 33, 426 | 430 | 1, 756 | 17, 617 | 2, 145 | 3, 927 | 6, 763 | 788 |
| Arctic | 3, 094 | | | 3, 094 | | | | |
| Yukon | 6, 870 | 18 | 19 | 4, 276 | | 2, 557 | | |
| Kuskokvim | 8, 911 | 3 | 111 | 8, 036 | 255 | 506 | | |
| Aleutian | 2, 451 | 82 | 479 | | 1, 890 | | | |
| Kadiak | 4, 352 | 34 | 917 | 2, 211 | | 864 | 326 | |
| Southeastern | 7, 748 | 293 | 230 | | | | 6, 437 | 788 |

The earliest actual count of any Alaskan people now on record was made by Delarof (an agent of the Shelikhof Company) in the year 1792. This count comprised all the villages on Kadiak island and the settlement of Yukatmak (Katmai), on the Aliaska peninsula. The number then given was 6,510 of both sexes, as against Shelikhof's estimate of 50,000, made only six years before that date. Four years later, in 1796, Baranof counted 6,200 inhabitants on Kadiak island and the opposite coast of Aliaska peninsula.

On the Aleutian islands Panof, a trader, claimed to have counted 1,900 inhabitants as early as the year 1781, but this was only a verbal statement transmitted by others. In 1792 Captain Sarychef, of the Billings exploring expedition, who had been instructed to enumerate the natives, reported the population of the Aleutian islands as 2,500 of both sexes, but the result of an actual count made by order of the imperial chamberlain, Rezanof, resulted in the number of 1,942, approximating closely the estimate of Panof, made over twenty years before.

At the time of Baranof's retirement from the management of the Russian colonies in America, his temporary successor, Captain Hagemeister, of the Russian navy, ordered an enumeration of the natives. This count included, of course, only those tribes over whom the Russian-American Company had absolute control. Of this partial census we have two returns, differing slightly in the totals. One was first published in the report of an imperial inspector Kostlivtzof, who dated it 1818, which reads as follows:

NATIVE POPULATION OF RUSSIAN COLONIES IN AMERICA IN 1818.

| Districts. | Total. | Males. | Females. |
|---|---|---|---|
| Kadiak | 3, 430 | 1, 484<br>142 | 1, 769<br>35 |
| Aliaska peninsula | 869 | 402 | 467 |
| Kenai (Cook's inlet) | 1, 471 | 723 | 748 |
| Chugach (Prince William sound) | 477 | 172 | 188 |
| Oughalentse (Prince William sound) | | 51 | 66 |
| Mednovtze (Copper river) | 567 | 294 | 273 |
| Fox islands (Aleutian) | 1, 469 | 463 | 559 |
| Pribylof islands (Aleutian) | | 188 | 191 |
| Aleutian | | 42 | 26 |
| Total | 8, 283 | 3, 961 | 4, 322 |
| Russians | 354 | 344 | 10 |
| Creoles | 256 | 147 | 109 |
| Aggregate | 8, 893 | 4, 452 | 4, 441 |

No estimate of the Thlinket or Kolosh accompanied this document.

The other return of the same enumeration was published by Tikhménief in his *Historical Review*, and dated 1819. It is as follows:

NATIVE POPULATION OF RUSSIAN AMERICA IN 1819.

| Districts. | Total. | Male. | Female. |
|---|---|---|---|
| Kadiak district | 3, 252 | 1, 483 | 1, 769 |
| Aliaska peninsula | 869 | 402 | 467 |
| Chugach (Prince William sound) | 477 | 172 | 188 |
| Oughalentse (Prince William sound) | | 51 | 66 |
| Fox islands (Aleutian) | 1, 748 | 464 | 559 |
| Pribylof islands (Aleutian) | | 188 | 191 |
| Aleutian laborers at Sitka | | 285 | 61 |
| Kenai (Cook's inlet) | 1, 471 | 723 | 748 |
| Mednovtze (Copper river) | 567 | 294 | 273 |
| Total | 8, 384 | 4, 062 | 4, 322 |
| Russians | 391 | | |
| Creoles | 244 | | |
| Thlinket or Kolosh (estimate) | 5, 000 | | |
| Aggregate | 14, 019 | | |

The discrepancies between these two returns are small, and are easily accounted for by the difference in date.

Three years later, in 1822, another return placed the native population under control of the company at 8,286.

Next in chronological order comes a population return of the Russian colonies in America, forwarded by chief manager Baron Wrangell, under date of January 1, 1825, as follows:

| Islands. | Total. | Males. | Females. |
|---|---|---|---|
| Total | 8, 481 | 4, 102 | 4, 379 |
| Kadiak island | 2, 819 | 1, 351 | 1, 468 |
| Aliaska, coast opposite | 190 | 99 | 91 |
| Ookamok island | 88 | 51 | 37 |
| Chugach, Prince William sound | 1, 563 | 782 | 781 |
| Kenai, Cook's inlet | 1, 299 | 636 | 663 |
| Nushegak, Bristol bay | 671 | 306 | 365 |
| Iliuliuk, Oonalashka island | 333 | 152 | 181 |
| Chernovsky, Oonalashka island | 43 | 21 | 22 |
| Borka, Oonalashka island | 27 | 11 | 16 |
| Oumnak island | 137 | 62 | 75 |
| Oonalga island | 11 | 3 | 8 |
| Akutan island | 36 | 18 | 18 |
| Akoon island | 139 | 59 | 80 |
| Avatanok island | 43 | 22 | 21 |
| Tigalda island | 52 | 24 | 28 |
| Oogamok island | 49 | 19 | 30 |
| Aliaska, adjoining coast | 207 | 118 | 89 |
| Oonimak island | 99 | 45 | 54 |
| Sannakh island | 101 | 43 | 58 |
| Ounga island | 50 | 25 | 25 |
| Atkha island | 130 | 63 | 67 |
| Chugal island | 62 | 29 | 33 |
| Adakh island | 193 | 104 | 89 |
| Amchitka island | 42 | 14 | 28 |
| Attoo island | 97 | 45 | 52 |

This count also includes only the natives under control of the company, ignoring the Thlinket, and must be ascribed to Veniaminof during the first year of his sojourn on the Aleutian islands. According to this statement the aggregate of Aleutian tribes was then 1,850 of both sexes, while that of Kadiak and the adjoining coast of the Aliaska peninsula was 3,097, figures which do not agree with a comparative statement of population of these two sections published in 1830, and also ascribed to Veniaminof, as follows:

| Years. | Kadiak and Aliaska. | Years. | Aleutian islands. |
|---|---|---|---|
| 1792 | 6, 510 | 1781 | 1, 900 |
| 1806 | 3, 944 | 1806 | 1, 898 |
| 1817 | 4, 198 | 1813 | 1, 508 |
| 1821 | 3, 649 | 1825 | 1, 478 |
| 1825 | 3, 396 | 1830 | 1, 460 |

From this it will be seen that the aggregate population of the two districts in 1825 was nearly the same as that given in the preceding table of Wrangell, though the distribution differs somewhat.

In the year 1831 the same priest, Veniaminof, made a careful count of the Aleutian people, which may be considered as authentic. The result of his investigations was a tabular statement, arranged by villages and islands, giving also the number of houses and canoes in each settlement. I cannot do better than republish it in full:

CENSUS OF OONALASHKA DISTRICT IN 1831.

| Islands. | Villages. | INHABITANTS. | | | Houses. | Canoes. |
|---|---|---|---|---|---|---|
| | | Male. | Female. | Total. | | |
| Oonalashka | Iliuliuk | 90 | 106 | 196 | 27 | 15 |
| Do | Natuikinsk | 6 | 9 | 15 | 2 | 2 |
| Do | Pestriakof | 18 | 21 | 39 | 5 | 4 |
| Do | Vesselovsky | 7 | 8 | 15 | 3 | 3 |
| Do | Makushin | 15 | 20 | 35 | 6 | 5 |
| Do | Koshigin | 18 | 23 | 41 | 8 | 9 |
| Do | Chernovsky | 20 | 24 | 44 | 4 | 10 |
| Do | Imagnak | 15 | 17 | 32 | 4 | 2 |
| Do | Kalekhta | 6 | 8 | 14 | 2 | 2 |
| Do | Bobrovskaia | 21 | 20 | 41 | 4 | 6 |
| Total Oonalashka (ten villages) | | 216 | 256 | 472 | 65 | 58 |

CENSUS OF OONALASHKA DISTRICT IN 1831—Continued.

| Islands. | Villages. | INHABITANTS. | | | Houses. | Canoes. |
|---|---|---|---|---|---|---|
| | | Male. | Female. | Total. | | |
| Oumnak | Recheshnaia | 38 | 45 | 83 | 13 | 12 |
| Do | Tulik | 11 | 15 | 26 | 3 | 6 |
| Total Oumnak (two villages) | | 49 | 60 | 109 | 16 | 18 |
| Akoon | Artelnaia | 16 | 16 | 32 | 7 | 9 |
| Do | Recheshnaia | 19 | 18 | 37 | 5 | 8 |
| Do | Srednaia | 7 | 9 | 16 | 2 | 4 |
| Total Akoon (three villages) | | 42 | 43 | 85 | 14 | 21 |
| Pribylof | Saint George and Saint Paul | 88 | 94 | 182 | | |
| Borka | Sidanak | 17 | 27 | 44 | 6 | 7 |
| Oonalga | Oonalga | 10 | 13 | 23 | 3 | 4 |
| Avatanok | Avatanok | 24 | 25 | 49 | 5 | 9 |
| Akutan | Akutan | 6 | 7 | 13 | 2 | 1 |
| Tigalda | Tigalda | 38 | 59 | 97 | 6 | 14 |
| Oonimak | Shishaldin | 38 | 53 | 91 | 2 | 4 |
| Ounga | Delarof | 52 | 64 | 116 | 13 | 15 |
| Total small islands (nine villages) | | 273 | 342 | 615 | 37 | 54 |
| Aliaska peninsula | Morshevoi | 16 | 29 | 45 | 7 | 6 |
| Do | Belkovsky | 49 | 53 | 102 | 10 | 16 |
| Do | Pavlovsk | 28 | 31 | 59 | 8 | 9 |
| Total Aliaska peninsula (three villages) | | 93 | 113 | 206 | 25 | 31 |
| Scattered at Sitka and elsewhere | | 10 | 18 | 28 | | |
| Grand total of district | | 683 | 832 | 1,515 | 157 | 182 |

This table gives us the proportion of nearly ten inhabitants to each house, 8 inhabitants to every canoe, and 1 canoe to between 3 and 4 male inhabitants (about 1 canoe to every 2 adults). The excess of females over males was nearly 10 per cent.

In the year 1835 the same priest, then stationed at Sitka, made a close estimate of the Kolosh or Thlinket of southeastern Alaska, which seems remarkably accurate in its total, though some of the villages enumerated by Veniaminof are not known to us now. He divided the Thlinket into sixteen villages or clans, as follows:

ESTIMATE OF KOLOSH IN 1835.

| | |
|---|---|
| 1. Yakutat village | 150 |
| 2. Ltuia or Avetzk | 200 |
| 3. Icy strait (Cross sound) | 250 |
| 4. Chilkat (Lynn canal) | 200 |
| 5. Akut (Auk) | 100 |
| 6. Sitkha | 750 |
| 7. Takoo | 150 |
| 8. Hootznoo | 300 |
| 9. Kehk | 200 |
| 10. Kuyutzk | 150 |
| 11. Henu (Hunyah or Hanega?) | 300 |
| 12. Stakhin | 1,500 |
| 13. Tongass | 150 |
| 14. Kaigan (Hydan) | 1,200 |
| 15. Chassin | 150 |
| 16. Sanakhan | 100 |
| Total | 5,850 |

In 1839 Veniaminof made another estimate, including the total population of the country now called Alaska. He wrote as follows:

> The northwestern part of America, from Bering strait to the meridian of Mount Saint Elias, or 141° west of Greenwich, and all the islands situated along the coast of America farther to the eastward, and a portion of the mainland, to a distance of 50 versts from the sea-shore, down to longitude 130° and latitude 50°, belongs to Russia, and is bounded in the east by the British possessions. Our America

is peopled by a multitude of tribes and races, the number of which is, of course, unknown to us, but as far as the names of tribes in our part of America have been ascertained, they are as follows:

| | |
|---|---|
| 1. The Kolosh, inhabiting the islands and the narrow strip of the American continent at the extreme south-eastern limits of the Russian possessions, whose number is now about | 5,000 |
| 2. The Oughalentze, living near Mount Saint Elias, numbering not more than | 150 |
| 3. The Mednovtze, who live on Copper river, to the number of | 300 |
| 4. The Kolchane, living far away in the interior of the continent, near our boundaries; their number is unknown. | |
| 5. The Chugach, living on the gulf of the same name, numbering now | 471 |
| 6. The Kenaitze, living on the shores of the gulf of Kenai, numbering | 1,628 |
| 7. The inhabitants of the southern shore of the Aliaska peninsula, numbering | 1,600 |
| 8. The Aglegmute, on the northern shore of Aliaska peninsula, numbering | 402 |
| 9. The Kadiaks or Koniagi, living on the island of Kadiak, numbering | 1,508 |
| 10. The Oonalashkans or Aleuts, inhabiting the Fox islands and a portion of the Aliaska peninsula, numbering | 1,497 |
| 11. The Atkhans, or Atkha Aleuts, inhabiting the Andreiean of islands, numbering | 750 |
| 12. The Kuskokvims, living on the river Kuskokvim, which empties into Bering sea, numbering about | 7,000 |
| 13. The Kvikhpaks, Kiatentze, Malegmute, and other tribes inhabiting the shores of Bering sea and the rivers emptying into the same, and also the coast of the Northern ocean, whose number cannot be less than all those above mentioned together. | |
| To this native population of Russian America we must add Russians living in the various settlements, to the number of | 706 |
| Creoles—that is, the offspring of Russians from native American mothers—who form the foundation for a class of American citizens of Russia, numbering | 1,295 |

Consequently our total population in America may be given as follows:

| | |
|---|---|
| Known and counted | 10,313 |
| Known, but not counted | 12,500 |
| Estimated only | 17,000 |
| Making a total of | 39,813 |

Though objection may be made to certain details of this estimate as incorrect, the total comes sufficiently near to our latest data to convince us that Veniaminof had then a better conception of the population of Russian America than the compilers of the official reports of the Russian-American Company exhibited during many succeeding years.

Next in chronological order we find an enumeration of the Thlinket and Hyda tribes of Alaska, made under the auspices of Sir James Douglas, of the Hudson Bay Company, in the year 1839, when the latter firm had obtained from the Russian-American Company a ten years' lease of the continental coast between Lynn canal and the southern boundary. This document was never printed, but has been preserved in the archives of the Hudson Bay Company and in Sir James Douglas' private papers. Its figures are somewhat in excess of Veniaminof's estimate, but approach more closely to our most recent enumeration. The names of tribes and clans, as given by Douglas, cannot all be identified now, but the whole table, circumstantial as it is in its classification of adults and children of both sexes and even of slaves, bears the imprint of authenticity. Subjoined I give it in full as copied from the manuscript journal:

CENSUS OF NATIVE TRIBES OF RUSSIAN AMERICA BETWEEN LATITUDE 59° AND 54° 40′ N., EXCLUSIVE OF THE SITKA TRIBE ON BARANOF ISLAND, IN 1839.

| Traders' names of tribes. | Native tribal names. | Locations. | Total. | Adults. | | Children. | | Slaves. | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Men. | Women. | Boys. | Girls. | Male. | Female. |
| Total | | | 7,190 | 2,125 | 1,996 | 1,238 | 1,201 | 295 | 335 |
| Chilcat | Chilkhaat | Lynn canal | 498 | 167 | 116 | 71 | 66 | 42 | 36 |
| Cross sound | Hoonyah | Cross sound | 782 | 258 | 234 | 108 | 88 | 40 | 54 |
| Auke | Auke | North of Takoo river | 203 | 72 | 61 | 35 | 31 | 2 | 2 |
| Tako Samdan | Tako, Samdan, Sitka | Takoo river, Sitka river | 493 | 127 | 110 | 71 | 60 | 59 | 60 |
| Hoochenoo | Hootznoo | Hood's bay | 729 | 247 | 240 | 85 | 76 | 40 | 41 |
| Hanega | Henega | Prince of Wales island | 269 | 82 | 80 | 29 | 27 | 27 | 24 |
| Kake | Kehk | Kehk archipelago | 393 | 109 | 106 | 70 | 64 | 24 | 20 |
| | Stakhin: | | | | | | | | |
| Stikeen | Liknaahutly | Stakhin river | 118 | 31 | 24 | 30 | 27 | 2 | 4 |
| Do | Ta-ee-teeton | do | 93 | 38 | 29 | 10 | 9 | 3 | 4 |
| Do | Kvaskaguatee | do | 135 | 59 | 41 | 10 | 6 | 6 | 13 |
| Do | Kukatu | do | 234 | 97 | 67 | 36 | 32 | 2 | |
| Do | Naaniagh | do | 390 | 83 | 117 | 60 | 46 | 32 | 52 |
| Do | Talguatee | do | 169 | 52 | 51 | 27 | 33 | 2 | 4 |
| Do | Kiksatee | do | 99 | 31 | 21 | 21 | 18 | 4 | 4 |
| Do | Kadi-ettee | do | 172 | 61 | 60 | 20 | 19 | 4 | 8 |
| Port Stuart | Ahialt | Port Stuart | 180 | 50 | 45 | 42 | 49 | | |
| Tourgass | Kitahoonet | Clarence strait | 315 | 85 | 90 | 60 | 65 | 6 | 9 |

CENSUS OF NATIVE TRIBES OF RUSSIAN AMERICA BETWEEN LATITUDE 59° AND 54° 40′ N.—Continued.

| Traders' names of tribes. | Native tribal names. | Locations. | Total. | ADULTS. | | CHILDREN. | | SLAVES. | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Men. | Women. | Boys. | Girls. | Male. | Female. |
| Cape Fox | Lukhselee | Cape Fox | 177 | 45 | 50 | 39 | 43 | | |
| Kaigani | Youahno | Prince of Wales archipelago | 234 | 68 | 70 | 44 | 52 | | |
| | Clickass | do | 417 | 98 | 105 | 102 | 112 | | |
| | Quiahanless | do | 148 | 30 | 35 | 42 | 41 | | |
| | Howguan | do | 458 | 117 | 121 | 113 | 107 | | |
| | Shaaguan | do | 229 | 53 | 61 | 54 | 61 | | |
| | Chachini | do | 249 | 65 | 62 | 59 | 63 | | |

From this time forward the biennial reports of the Russian-American Company to the imperial ministerium of commerce gave the population of the Russian possessions in America as from 56,000 to 70,000. No authority for these statements existed, but they were repeated again and again until the sale of the country to the United States, though in the meantime several enumerations were made showing a very different result.

The first enumeration of the tribes on Norton sound and on the lower Yukon, or Kvikhpak, was accomplished by Lieutenant Zagoskin, of the Russian navy, during an exploration of that region in the years 1842, 1843, and 1844. It is, of course, impossible at this date to recognize all the names of villages given by Zagoskin, but as far as I can trace his count to personal observation, it appears to have been accurate. His exploration took place just after the whole region traversed by him had been depopulated by small-pox. In the table which is here reproduced, Zagoskin's division of the people into Christians and pagans has been omitted:

ENUMERATION BY LIEUTENANT ZAGOSKIN, I. R. N., OF NATIVES OF NORTON SOUND AND LOWER YUKON IN 1842 1843, AND 1844.

| Tribes and villages. | Houses. | People. | Total. |
|---|---|---|---|
| KANG-YULIT PEOPLE [INNUIT]. | | | |
| *Chnagmute tribe, Norton sound.* | | | |
| Oonalaklik village | 2 | 13 | |
| Nigvilnuk village | 1 | 5 | |
| Kikhtaguk village | 3 | 28 | |
| Tachik village | 3 | 19 | |
| Atkhvik village | 4 | 57 | |
| Tikmikhtalik village | 4 | 45 | |
| Pashtolik village | 7 | 116 | |
| Total Chnagmute | 24 | 283 | 283 |
| *Kvikhpagmute, Kvikhpak river.* | | | |
| Kavlanagmute village | 1 | 11 | |
| Nigikligmute village | 1 | 13 | |
| Kanigmute village | 4 | 45 | |
| Ankachagmute village | 6 | 122 | |
| Takchagmute village | 3 | 40 | |
| Ikuagmute village | 6 | 130 | |
| Nukhluagmute village | 4 | 60 | |
| Ikogmute village | 5 | 92 | |
| Ikaligvigmute village | 3 | 45 | |
| Paimute village | 5 | 123 | |
| Total Kvikhpagmute | 38 | 681 | 681 |
| *Kuskokvigmute, Kuskokvim river.* | | | |
| Khalkagmute village | 5 | 120 | |
| Ookhagmute village | 4 | 61 | |
| Tulukagnagmute village | 5 | 90 | |
| Kvigimpaĭnagmute village | 4 | 89 | |
| Total Kuskokvigmute | 18 | 360 | 360 |
| Total Kang-yulit | 80 | | 1,324 |
| TTYNNAĬ PEOPLE [TINNEH]. | | | |
| *Yunakhotana, Kvikhpak river.* | | | |
| Noggai village | 1 | 10 | |
| Minkhotliatno village | 3 | 46 | |
| Total Yunakhotana | 4 | 56 | 56 |
| *Yunnakakhotana, Koyukuk river.* | | | |
| Notaglita village | 3 | 37 | |
| Tlialilkakat village | 3 | 27 | |
| Tashoshgon village | 2 | 30 | |
| Tok-khakat village | 1 | 6 | |
| Nok-khakat village | 3 | 50 | |
| Kakhliakhliakat village | 2 | 26 | |
| Tsonagogliakhten village | 1 | 11 | |
| Tsogliakhten village | 1 | 7 | |
| Khotilkakat village | 4 | 65 | |
| Oonilgachtkhokh village | 2 | 17 | |
| Nulato village | 1 | 13 | |
| Total Yunnakakhotana | 23 | 289 | 289 |
| *Inkilik tribe, Kvikhpak river.* | | | |
| Kunkhogliak village | 2 | 11 | |
| Oolukak village | 4 | 35 | |
| Tuttago village | 2 | 32 | |
| Kakagokhakat village | 1 | 9 | |
| Khutulkakat village | 2 | 16 | |
| K-khaltat village | 1 | 9 | |
| Khogoltlinde village | 4 | 60 | |
| Takaiak village | 7 | 81 | |
| Khulikakat village | 1 | 11 | |
| Total Inkilik | 24 | 264 | 264 |
| *Tlegonkhotana, Tlegon river.* | | | |
| Innoka village | 3 | 44 | |
| Ttalituĭ village | 3 | 45 | |
| Total Tlegonkhotana | 6 | 89 | 89 |
| *Yugelnut, Kvikhpak, and Kuskokvim rivers.* | | | |
| Inselnostlende village | 2 | 33 | |
| Khuingitatekhten village | 3 | 37 | |
| Iltenleiden village | 6 | 100 | |
| Tlegoshitno village | 3 | 45 | |
| Khuligichakat village | 5 | 70 | |
| Kvigimpaĭnagmute village | 3 | 71 | |
| Vashichagat village | 5 | 80 | |
| Anvig village | 5 | 120 | |
| Makki village | 3 | 44 | |
| Anilukhtakpak village | 8 | 170 | |
| Total Yugelnut | 43 | 770 | 770 |
| *Goltzane, interior.* | | | |
| Khunanilinde village | 1 | 9 | |
| Tochotno village | 1 | 9 | |
| Total Goltzane | 2 | 18 | 18 |
| Total Ttynnaĭ | 102 | | 1,486 |
| Total Kang-yulit | 80 | | 1,324 |
| Grand total | 182 | | 2,810 |

The importance of Zagoskin's population statistics is altogether of a relative nature. He simply counted those whom he came in contact with, and made no estimates of people living away from his line of progress; hence I can make no comparison between his data and mine. But from this partial return it is seen that, then as now, the villages in the vicinity of the sea-coast were more populous than those of the interior, and that the houses of the Tinneh tribes must be of almost the same capacity as those of the Innuit. Of the former Zagoskin counted 1,486, living in 102 houses, making an average of nearly 15 inmates to each dwelling, while the Innuit counted by him numbered 1,324, in 80 houses, an average of a little over 15 to each dwelling. Among the Innuit the average number of dwellings in each village is nearly four, while the Tinneh villages average less than three.

From this time forward until the year 1860 no population returns of Russian America were published, with the exception of the fictitious total of 56,000, contained in the brief biennial reports of the Russian-American Company, referred to above.

In 1860 the holy synod, the highest ecclesiastical authority in Russia, published in its annual report a census of Christians in Russian America, as furnished by the priests and missionaries stationed in the colonies. This included nearly all the natives under immediate control of the company, and was as follows:

CHRISTIANS IN RUSSIAN AMERICA IN 1860, EXCLUSIVE OF RUSSIANS.

| Tribes. | Total. | Males. | Females. |
|---|---|---|---|
| Total | 10, 668 | 5, 455 | 5, 213 |
| Creoles | 1, 676 | 853 | 823 |
| Aleut (including Kaniags) | 4, 391 | 2, 206 | 2, 185 |
| Kenaitze | 937 | 430 | 507 |
| Chugach | 456 | 226 | 230 |
| Mednovtze | 18 | 17 | 1 |
| Magmute | 19 | 18 | 1 |
| Aglemute | 39 | 19 | 20 |
| Aziagmute | 206 | 105 | 101 |
| Kuskokvims | 1, 395 | 755 | 640 |
| Kvikhpaks | 379 | 226 | 153 |
| Agulmute | 39 | 19 | 20 |
| Ingalik | 476 | 263 | 213 |
| Koltchan | 190 | 97 | 93 |
| Koloshians | 447 | 221 | 226 |

In 1861 Lieutenant Wehrman, of the Russian navy, but then in the employ of the Russian-American Company, compiled a census of the Kolosh or Thlinket tribes by settlements. Wehrman gave the number of free males and females and male and female slaves separately. The appended reproduction of Wehrman's table will show plainly that he obtained only the totals at each place and divided them subsequently:

THLINKET (KOLOSH) POPULATION IN 1861.

| Villages. | Total. | FREE. | | SLAVE. | |
|---|---|---|---|---|---|
| | | Males. | Females. | Males. | Females. |
| Sitka villages | 1, 344 | 715 | 535 | 51 | 43 |
| Khutznoo villages | 600 | 280 | 280 | 20 | 20 |
| Chilkhat villages | 1, 616 | 728 | 728 | 80 | 80 |
| Kake villages | 445 | 210 | 210 | 13 | 12 |
| Takoo villages | 712 | 335 | 337 | 20 | 20 |
| Hoonyah villages | 411 | 195 | 197 | 10 | 9 |
| Tongass villages | 333 | 154 | 154 | 13 | 12 |
| Cross Sound villages | 331 | 154 | 154 | 13 | 10 |
| Assan Harbor villages | 118 | 56 | 56 | 3 | 3 |
| Kuyutzk villages | 262 | 126 | 126 | 5 | 5 |
| Stakhine villages | 697 | 308 | 308 | 41 | 40 |
| Kaïgan villages | 758 | 280 | 280 | 99 | 99 |
| Ltuïa villages | 590 | 265 | 267 | 29 | 29 |
| Yakutat villages | 380 | 163 | 168 | 25 | 24 |
| Total | 8, 597 | 3, 969 | 3, 800 | 422 | 406 |
| Total free | 7, 769 | ............ | ............ | ............ | ............ |
| Total slave | 828 | ............ | ............ | ............ | ............ |

If the totals of the above table be correct there appears to have been no increase or decrease in the numbers of Thlinket during the twenty years intervening between the count of Wehrman and that of Sir James Douglas, the latter having arrived at a total of 7,190 exclusive of the Sitkan clan, which numbers 1,344 in Wehrman's table.

During the last few years of the Russian-American Company's existence the population returns made by various colonial and inspecting officers appear very much confused. Thus we have two counts dated January 1, 1862, showing the same total, but differing very much in distribution. Both counts are incomplete, ignoring the Thlinket and nearly all the northern natives. One enumerates the people by race and tribe, the other by districts; they were printed by Tikhmenief in his *Historical Review*, as follows:

| | |
|---|---|
| Russians | 577 |
| Foreigners | 6 |
| Creoles | 1,892 |
| Aleut (including Kadiaks) | 4,752 |
| Kenaïtze | 927 |
| Chugach and Atnah | 719 |
| Kuskokvims | 1,283 |
| | 10,156 |

| | |
|---|---|
| Sitka district | 988 |
| Kadiak district | 5,985 |
| Oonalashka district | 1,359 |
| Atkha district | 972 |
| Kurile district | 253 |
| Northern district | 545 |
| Kenaï district | 54 |
| | 10,156 |

In Tikhmenief's work no explanation is given that might enable us to analyze these puzzling figures. For instance, the 1,283 Kuskokvims could only be counted with the northern district, but the total of that district is given in the other list as only 545.

In 1863, in the second volume of his work, Tikhmenief published a table with the following heading: "Population statistics of inhabitants of Russian America dependent upon and actually counted by the Russian-American Company," as follows:

| | |
|---|---|
| January 1, 1830 | 10,327 |
| 1831 | 10,423 |
| 1832 | 10,493 |
| 1833 | 10,800 |
| 1834 | 10,670 |
| 1835 | 10,867 |
| 1836 | 10,989 |
| 1837 | 11,022 |
| 1838 | 10,313 |
| 1839 | 8,070 |
| 1840 | 7,574 |
| 1841 | 7,580 |
| 1842 | 7,470 |
| 1843 | 7,581 |
| 1844 | 7,896 |
| 1845 | 7,224 |
| 1846 | 7,783 |
| 1847 | 7,874 |
| 1848 | 8,707 |
| 1849 | 8,892 |
| 1850 | 9,081 |
| 1851 | 9,273 |
| 1852 | 9,452 |
| 1853 | 9,573 |
| 1854 | 9,514 |
| 1855 | 9,660 |
| 1856 | 9,725 |
| 1857 | 9,792 |
| 1858 | 10,075 |
| 1859 | 9,902 |
| 1860 | 10,121 |
| 1861 | 10,136 |
| 1862 | 10,156 |
| 1863 | 10,125 |

This list ought to agree with the number of Christians reported by the holy synod, but in the year 1860, for instance, the priests and missionaries reported 547 Christians in excess of the "total counted" of the Russian-American Company. The above table is of importance chiefly as showing the effects of the small-pox epidemic, which appeared in the Russian colonies in 1837. During the first two years the loss was nearly 3,000, and the population gradually decreased from 11,022, in 1837, reaching its lowest point, 7,224, in 1845. During the second year of the epidemic the mortality was greatest, over 2,000; but it must be remembered that these figures relate only to those natives under the immediate control of the company and accessible to medical treatment and vaccination. If the mortality in these favored sections was 20 per cent., it is safe to assume that in the remote regions of the north, in the densely-peopled districts of the Yukon, Kuskokvim, and Bristol bay, it must have been fully 50 per cent., if not more. This assumption is borne out fully by the evidence of native tradition and ruins of depopulated and abandoned villages still in existence. The abandoned village-sites in the Yukon and Kuskokvim valleys far outnumber the settlements now inhabited, and whole populous villages were converted into cemeteries by the burial of the dead in their own dwellings. Such funereal towns are still frequently met with in the whole coast region of Alaska west of Mount Saint Elias. Among the Thlinket tribes, who practice cremation, the losses must have been equally great, but with them no traces of the universal calamity of nearly half a century ago remain, except in the blind and pox-marked persons of the few aged of both sexes.

We have still another count of inhabitants of Russian America, published in 1863 by a special inspector of the imperial government, Kostlivtzof, as follows:

INHABITANTS OF RUSSIAN AMERICA JANUARY 1, 1863.

| Tribes. | Males. | Females. | Total. |
|---|---|---|---|
| Creoles | 925 | 971 | 1, 896 |
| Aleut | 1, 236 | 1, 192 | 2, 428 |
| Kenaïtze | 430 | 507 | 937 |
| Kadiaks | 1, 115 | 1, 102 | 2, 217 |
| Chugach | 226 | 230 | 456 |
| | 3, 932 | 4, 002 | a 7, 934 |
| To this Kostlivtzof added an estimate of Atnahs or Copper River natives | | | 2, 500 |
| And Kolosh or Thlinket | | | 20, 000 |
| Making a total of | | | 30, 434 |

a This is 2,191 less than the company's total for the same year, but the Russians and northern natives were omitted.

About as good an estimate as Veniaminof made over twenty years previously, if we except the classification. By reducing his estimate of Atnahs to 500, and that of Thlinket to 8,000, and classing 14,000 as northern natives, Kostlivtzof would have been nearer the truth and still within his own estimate of the total population of the present Alaska.

To show the extravagant estimates of the population of Alaska made at the time of its acquisition by the United States, I quote the following tables from the reports of Major-General Halleck, United States army, and of Rev. Vincent Collyer, both made in the year 1868:

MAJOR-GENERAL HALLECK'S ESTIMATE OF POPULATION OF ALASKA.

| | |
|---|---|
| Koloshians: Hydas | 600 |
| [Thlinket]: | |
| Henegas | 500 |
| Chatsinas [?] | 500 |
| Tongass | 500 |
| Stickeens [Stakhin] | 1, 000 |
| Kakes [Kehk] | 1, 200 |
| Kous [?] | 800 |
| Koutznous | 800 |
| Awks | 800 |
| Samdam Takos | 500 |
| Chilkahts | 2, 000 |
| Hoodsnahoos | 1, 000 |
| Hunias | 1, 000 |
| Sitkas | 1, 200 |
| Hyaks | 15, 000 |
| Kenaïans [Athabaskans] | 25, 000 |
| Aleutian | 10, 000 |
| Eskimo | 20, 000 |
| Total | 82, 400 |

The Rev. Vincent Collyer, in his report to the commissioner of Indian affairs, reproduced General Halleck's wild estimate, and added a special estimate of the number of Kolosh or Thlinket, furnished by a trader, Mahoney, who certainly ought to have been better informed:

MAHONEY'S ESTIMATE OF THLINKET.

| | |
|---|---|
| Bering bay: | |
| Yakutat | 300 |
| Stikine | 1,200 |
| Tongass | 800 |
| Admiralty island: | |
| Auk | 750 |
| Cross sound: | |
| Whinega [?] | 500 |
| Whinega (interior) | 800 |
| Chilkaht inlet: | |
| Chilkaht | 2,500 |
| Anega [?] | 300 |
| Stephens passage: | |
| Takos | 2,000 |
| Sitka | 1,000 |
| Admiralty island: | |
| Hoodsinoo | 1,000 |
| Kake | 750 |
| Total Thlinket | 11,900 |

General Halleck's table, in addition to a general overestimate, contains such duplications as "Koutznoo" and "Hoodsnahoo", both the same tribe; "Kakes" and "Koos" also the same, and 15,000 "Hyaks", an imaginary tribe.

A single glance at any map of southern Alaska will reveal the utter absurdity of the Collyer-Mahoney estimate.

## EDUCATION.

On the subject of education in Alaska but little is to be said. Under the administration of the Russian-American Company schools were maintained at various stations, under the personal superintendence of the trader or agent, in which children of both sexes were taught during the winter season. Many competent copyists, clerks, and book-keepers were furnished from these district schools. At Sitka these establishments were conducted on a more pretentious scale, with competent teachers (generally selected from naval and petty officers), scientific apparatus, and facilities for studying navigation. This was a great step in advance from the first primary class established on Kadiak island in 1784, by Grigor Shelikhof and his wife; but from the beginning to the end of the Russian company's rule that corporation, while apparently complying to the letter with the requirements of its charter relative to the maintenance of schools, arranged all educational facilities offered to the natives of Alaska with the sole object of benefiting the business of the company rather than with that of educating the people. Bright youths among the creoles (offspring of Russian fathers and native mothers) were carefully trained in navigation and the mechanic arts, but they were compelled to remain in the company's service for fifteen years after finishing their course of instruction. Competent masters of vessels, mechanics, and book-keepers were thus secured at small expense, and firmly bound to the company's interests, as there was no danger of their leaving the service if dissatisfied. Creole girls in limited numbers were trained to become housekeepers and wives of the employés of the company, who were thus prevented from leaving the colonies. To the masses of the native population, however, educational facilities were not extended, as none of the Russian missionary stations maintained a school except for the training of children of the clergy. There was a seminary at Sitka for several years, in which many of the creole and native priests now officiating in Alaska received their first instruction, but this establishment was subsequently removed to Kamchatka. In the creole settlements of the Kadiak and Aleutian districts parents taught their children to write a little and read the catechism, prayers, and a few chapters of the Bible in the Russian language or one of the native dialects, and this rudimentary education is still found to exist in many of the isolated communities. Nearly all these schools were discontinued some years previous to the transfer of the country to the United States, when the Russian company was endeavoring to relieve itself from the maintenance of schools, churches, and local government.

At present the only schools in all western Alaska where English is taught are on the Pribylof islands, and at Iliuliuk settlement, Oonalashka, both being maintained at the expense of a trading firm. The daily attendance in the seal-island (Pribylof) schools is kept up to an average of 56 on Saint Paul island and 16 on Saint George, through the constant efforts of government agents stationed on the islands. At Oonalashka, a village of nearly 300 inhabitants, the attendance varies from 10 to 20. Two other schools, where Russian only is taught, are reported at Belkovsky, in the Aliaska peninsula, and at Alexandrovsk, on the Nushegak river, with an average attendance of 6 for each. But in spite of these poor facilities, settlements like Kadiak, Belkovsky, Iliuliuk, Afognak, where the creole element prevails, furnish an exhibit of from 50 to 75 per cent. of the population able to read and write in Russian or the native vernacular, or both. This is all that can be said concerning education in western Alaska.

In southeastern Alaska quite a different and more promising state of affairs exists. Here the Presbyterian board of missions has done much in the way of establishing schools and furnishing teachers for the same, and under its auspices a school and a home for girls have been maintained at Wrangell. The former institution has a daily attendance of from 60 to 100 pupils, while the home contains 30 inmates.

At Sitka a school was established in April, 1878, also under the auspices of the Presbyterian mission, with two teachers, which school is still in operation, with an average daily attendance of from 100 to 150. With the assistance of the naval commander at Sitka a school was opened there in 1879 for the benefit of the Russian-speaking children, whose parents felt scruples about sending their children to sectarian schools of another denomination. The attendance in this school is reported to average from 45 to 55.

At present the Presbyterian missionaries have schools in operation in the Chilkhat villages, on Lynn canal, at the principal Hoonyah village on Cross sound, and also at Kaigan, on the south end of Prince of Wales island, among the Hyda tribe.

A number of native Alaskan youths have also been received into the United States Indian school at Forest Grove, Oregon, but thus far they have all been selected from the pagan tribes of southeastern Alaska by the Presbyterian missionaries, while the bulk of native Alaskan population, located in the west, has been totally neglected. The natives and creoles all along the coast, from Mount Saint Elias westward, are too strongly wedded to the faith of the Greek Orthodox church (adopted by their forefathers nearly a century ago) to take kindly to sectarian schools of another denomination.

The Russian church claims on its registers 10,950 members, distributed as follows:

| | |
|---|---|
| Sitka parish | 275 |
| Oonalashka parish | 1,364 |
| Belkovsky parish | 633 |
| Kadiak parish | 2,606 |
| Pribylof parish | 372 |
| Nushegak mission | 2,848 |
| Yukon mission | 2,252 |
| Kenai mission | 600 |

Of these numbers at least half of those counted with the northern missions, or 2,500, may be safely stricken off as fictitious; 1,013, the creoles, are semi-civilized, a small percentage being able to read and write, while the remainder are savages to all intents and purposes.

In the discussion of this subject, embodying as it does a vital interest to the people of Alaska, we are brought face to face with many natural and some artificial difficulties. In the first place, the limit to which a savage people, forced by all the pressure of a higher civilization, will progress has been repeatedly marked in the examples recorded of the educational disappointments and successes which have attended the efforts of our government and our clergy to elevate the minds and advance the comfortable living of our own immediate aborigines. If the youth of Alaska are to be lifted above their existing low medium level, in our opinion the government of the United States is the best able, from its position of strict neutrality among religious creeds, to promote the progress of simple elementary education among those people.

The Russian church, which is the dominant ecclesiastical power in Alaska, is of course poor, comparatively speaking, necessarily so, and the great majority of these chapels are in the hands of natives and creoles, who are not members of the clergy. A somnolent organization is their chief constitution, and they drone through the exercises of the church as appointed, preside at its calendar days of festivity, and then retire seemingly exhausted and desirous of repose. If anything can be done to reach these men, to invigorate and stir them up, it must come from the individual supervision and orders of some active, zealous head of the church.

Among the 7,000 or 8,000 members of the Russian church I have found less than 400 able to read and write in either the Russian, the Aleutian, or the Kadiak vernacular, though in the villages where parish churches are located quite 30 per cent. of the people possess these rudiments of education.

Not one of the three missions of the Yukon, Nushegak, and Kenai possesses a school, and in the village immediately surrounding the former (which now has a native missionary) I found but one man outside of the attachés of the church who could even speak the Russian language. The late Bishop Nestor had planned the establishment of a training-school for native boys from all parts of the territory at Oonalashka, but at his death the project was abandoned.

Among the Innuits are found a quickness of apprehension and a lurking spirit of inquiry which point them out as capable of being very much benefited by an intelligent system of educational labor, provided it can be established in their country. They are, if anything, brighter and more desirous of learning than the Aleutians themselves, who appear, as a people, to be degenerating, owing to the hybridization constantly going on in their country.

The natives themselves are quickened into appreciation of the benefits of an education when they observe the advantages which those among their number who are conversant in the method and manner of conducting trade and keeping accounts have over the rest, and see the advancement of these to positions of trust and confidence by the traders. This practical application reaches them fairly and fully, where the most eloquent and cogent advocate of the abstract advantages of education would fail to make the slightest impression or to arouse a passing interest in their minds.

All those who now read and write, principally their own language, among the Aleutians as a class and the Kadiak people, have derived these elementary rudiments of instruction from the Greek Catholic church. The father who can read and write, as a rule, teaches his son, while the exercises of the church keep the lesson somewhat fixed in the juvenile mind.

At the location of all parish churches it is supposed or expected that schools will be maintained by the church authorities, but, as already mentioned, there is much laxity in this respect, and at least 20,000 natives are entirely without the remotest influence of church or school—a fact our boards of foreign missions might take into consideration.

Under existing circumstances the general government could extend educational facilities only through the medium of the Indian bureau, a branch of administration having as yet no foothold in Alaska. The extension of all the complicated and expensive machinery of that bureau would be unwise, indeed, among tribes now entirely self-supporting and occupying no lands attractive to white men; but as an entering wedge, and an earnest of future civilization, fifteen or twenty youths might be chosen from various regions, instructed in some of the Indian schools (such as that at Carlisle, Pennsylvania, for instance), and, if found capable, trained as teachers in some normal school. Care should be taken in the selection of boys, who should be pure natives and not the offspring of traders and native women, in order to insure the desired future benefit.

Quite a large number of Aleutian youths have been, since the transfer, from one cause or another, taken down to San Francisco and the states east of the Rocky mountains, and there educated, and in all instances of which I have knowledge they have invariably returned, if living, to the country of their birth. This is simply natural, and needs no extended explanation.

## DISEASES.

Those diseases which are most fatal to life in one section of Alaska seem to be applicable to all the others. In the first place, the native children, as they grow up, have little or no parental supervision or care in regard to clothing, etc., from a purely sanitary point of view; for the little fellows, male and female, for the first few years of their lives are more often naked than clothed at all seasons of the year, though the little girls, as a rule, earliest receive their garments. Exposed as they are in their manner of living to draughts, to insufficient covering, and cold nooks for slumber, they naturally at the outset of their rude lives lay the foundation for pulmonic troubles in all their varied degrees. Consumption is therefore the simple and comprehensive title for that disease which destroys the greatest number throughout Alaska. The Aleut, the Indian, and the Eskimo suffer from it alike; and they all exhibit the same stolid indifference to its stealthy but fatal advancement—no extra care, no attempt to ward it off, protect, or shelter against it, not even until the supreme moment of dissolution. (*a*)

After consumption, perhaps the largest number of deaths may be ascribed to scrofulous diseases, which, taking the form of malignant ulcers, eat into the vitals and destroy them, rendering the people of whole settlements sometimes lepers in the eyes of the civilized visitor; and it is hard to find a settlement in the whole country where at least one or more of the families therein has not the singularly prominent scars peculiar to the disease. Most of this scrofulous complaint being on the surface of the patient's body, as it were, one would naturally look for some care and attention on the part of the sufferer toward the alleviation of his own misery, while with regard to consumption, that being more concealed and less disagreeable both to the native and his associates, they are not likely to notice it in the way of applying remedies; but, so far as I know, the same apathy exists among the natives with regard to the treatment of the latter. It is, of course, immensely aggravated and made more violent by their neglect and filthy habits.

Following these two great sources of disease and death may be enumerated quite a number of other ills, such as paralysis, inflammation of the bowels, a few cases of fits, and a rather abrupt ending of advanced middle-aged life from what is called "general debility"; or, in other words, these people, as a rule, live to no great age, as might be inferred from the method and exigencies of their life. When a man or woman rounds his or her fifty years he or she is a rare example of the tribe; yet if he or she is free from rheumatic troubles, or the death-grasp of disease, it is never without injured vision; for it is a noteworthy fact that eye diseases necessarily arise from the smoky interiors of their barabaras and other places of residence, which, with the snow, so affect the eyes that the middle-aged are rarely without signs of decay, the various stages of granular ophthalmia being most marked.

For the prevention of snow-blindness the Eskimo people use their peculiar goggles, but the greater evil of smoke poison to the ophthalmic nerve is not overcome by any of them. Nearly all of the traders have their medicine-chests, and much relief and real kindness are extended by them to the suffering natives immediately about

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*a* A rather disgusting habit, common to all the uncivilized natives, may perhaps serve to spread the disease. Devoted wives carefully gather in cups or other receptacles the expectorations of their consumptive husbands (blood as well as matter) and swallow them.

them wherever they are; but what they do or can do is a mere drop in the bucket. Hence it will be observed that the natives of Alaska are not a long-lived people as a rule, and when a very old person is found among them he gives evidence of what must have been in youth a magnificent constitution.

The Indian, Eskimo or Aleut, has not, however, an exalted idea of our pharmacy; in other words, he appreciates only forcible treatment and nothing else will satisfy him. As an example, of Epsom salts the traders are obliged to give, if they give any at all, to a suffering native, a great dose, or there is no effect whatever in the operation. Naturally the traders use only the very simplest remedial agent known to the apothecary. As a rule, however, of internal remedies, a child's dose ordinarily will act readily upon an adult native, while, on the other hand, applications to the skin—tinctures, liniments, etc.—must be of treble strength to produce the desired effect. For instance, tincture of iodine to reduce swelling on an Alaska native's body must be of such a strength that it would blister a Caucasian epidermis.

The natives themselves have no medicine whatever, nor any knowledge, as far as can be discovered, of any medicinal herb whatever—which is a very singular fact. All their lesser and slighter indisposition, arising from any natural cause, they treat by the universal and everlasting sweat-bath. This is their panacea, and this is all, except when they call in the "shaman" to either worry the unhappy patient to death, or to prolong his wretched existence for a period by stimulating perhaps an undue nervous tension, which causes the usually languid and resigned sufferer to rally, as it were, before the flame flickers out.

These people are certainly fatalists and are wonderful in their patience when suffering all the ills that flesh is heir to in their lonely, desolate homes.

In addition to the troubles for which the natives themselves are responsible, dreadful consequences arose from the introduction of small-pox, through Russian intercourse, first in 1838 and 1839. This disease swept like wild-fire up from its initial point at the confines of the southern limits of the Alexander archipelago over the whole length of the Aleutian chain, Cook's inlet, Bristol bay, and Kuskokvim, fading out in the north, until entirely checked by the Arctic cold. It actually carried in its grim grasp one-half of the whole population of Alaska to an abrupt and violent death. In certain places it swept out the entire population, being exceedingly virulent among the Thlinket of the Alexander archipelago. The physician who knows this, however, will readily understand how a people living as they have lived and yet live, with their strange apathy, ignorance of sanitary regulations, will be crushed before the onslaught of this disease. When La Pérouse visited this country, at Lityua bay he found natives (in 1786), to his great astonishment, marked by small-pox, which it seems the savages had contracted from a visit made to the coast to the southward by the Spaniards nine or ten years earlier; yet there is no definite knowledge that this epidemic in those early times even approximated the extent of the ravages of that which we have just cited. In 1843 and 1844 another outbreak of small-pox took place on the Aleutian islands, but the people did not suffer as they had previously done, great numbers of them having been vaccinated by the Russians in the meantime.

Upon this point the only interest or attention which these people have given to our medical practice is manifested; they occasionally ask why the American government does not send out its agents for the purpose of vaccinating their people, as the Russians did—a suggestion which, though late, may be timely.

Syphilitic disease was probably first introduced in Alaska by the Russians, though several writers claim that the scourge already existed in the Aleutian islands when the Muscovite hunters made their appearance there. At any rate, Captain Cook records that several of his crew contracted the disease during their brief stay on Oonalashka island in the year 1778. Syphilis yet exists in all coast settlements, chiefly in the vicinity of stations visited by shipping, and also in the interior where the people have constant intercourse with the sea-board. It is found in all stages and degrees, being entirely neglected by the natives themselves, and only at a few trading centers, where wealthy firms maintain physicians, and perhaps in the towns of southeastern Alaska, is anything done to check its ravages.

Another imported plague among these people is due to the introduction of the measles, a simple trouble with us, but of fatal power with them, assuming, doubtless on account of the exigencies of the climate and the natives' methods of life, the "black" form. It first ravaged Kadiak island and the mainland contiguous, on one or two occasions, and produced a panic also at Sitka. The climate of Alaska renders its treatment very difficult, and it is an exceedingly dangerous complaint there for those even who have the best of care and medical attention. The last extended occurrence of this disease took place during the winter of 1874–'75, principally confined to the Kadiak islands.

Typhoid pneumonia, also, from time to time, has wasted whole settlements, chiefly on the sea-board. The creoles and natives seem to yield at once to this disease, making scarcely any effort to resist its progress. It assumes an altogether epidemic form, its advance being easily traced as it is carried from one village to another by trading-vessels or canoes. During the last few years the number of skilled sea-otter hunters has been reduced nearly one-half by this disease.

In the absence of all vital statistics, the question as to whether the natives of Alaska are increasing or decreasing in numbers is difficult to answer, but as an individual opinion it may be stated that the inhabitants of the Aleutian archipelago, the peninsula, and Cook's inlet are to-day nearly as numerous as they have been at any time since the destruction in 1838 and 1839 caused by the small-pox plague of that season. All authorities agree in saying that these people have never regained their former strength in point of numbers.

The Eskimo on the Arctic coast and Saint Lawrence island, utterly demoralized by the unchecked importation of spirituous liquors by whalers and traders, are rapidly decreasing under the alternate effects of wild intoxication and of starvation, the latter being the consequence of utter recklessness engendered by the former. Their extermination will probably follow that of the walrus—their staff of life—now being wantonly destroyed by thousands for ivory alone.

With reference to the Athabaskans of the interior and the Eskimo tribes south of Bering strait it may be said that they seem to be as numerous now as they were twenty years ago, and that they probably number as many as the country will support, always bearing in mind their extraordinary wastefulness in seasons of plenty. Were they provident, they might live by tens where a single one exists now.

The Thlinket of southeastern Alaska have perhaps the greatest vitality of any of the Alaskan tribes. At present they are under the influence of Presbyterian missionaries, and we may hope for a gradual amelioration in their mode of life and the introduction of some regard for sanitary measures. Living in more intimate relations, and in constant and universal contact with Caucasians, the Thlinket are subject to the drawbacks as well as the advantages of such an association; but taking everything into consideration, a rapid decrease of native population in this section of Alaska need not be apprehended, and there is possibility of increase in the future.

## POLITICAL STATUS.

Alaska is now, and has been since its acquisition by the United States, "a thing which it is not," a territory in name only, without its organization. It is a customs district, for the collection of customs only, with a collector and three deputies separated by hundreds and even thousands of miles. It has no laws but a few treasury regulations, with no county or other subdivisions, and, of course, no capital. The collector of customs and the only representative of police restrictions—a man-of-war with its commander—are located at Sitka, cut off from all communication with the bulk of the territory except by way of San Francisco.

In the strip of country between cape Fox and Mount Saint Elias, 300 miles long by from 30 to 60 miles wide, including islands containing about 29,000 square miles, there are at present possibly 1,500 whites and creoles able to perform the functions of citizenship, and 7,000 wild Indians; about enough for a small county organization.

In all the western region there are 139 white males and 5 females, including 3 boys and 1 girl. Though not speaking English, among the creoles might be found between 400 and 500 sufficiently intelligent to understand what constitutional government means, making an average of less than one possible citizen for every 600 square miles of superficial area, without regard to the fact that many of the men are foreigners.

The main difficulty of organizing or legislating for Alaska lies in the utter impossibility of reconciling the widely-diverging interests and wants of two sections, entirely separate geographically, and having no one feature alike, beside being very unequal in size. The general map accompanying this report will illustrate this at a glance. The only practical and economical solution of the question will be to treat each section separately.

A reference to the map will impress the observer with the vast distance, in many cases, from one settlement to its neighbor, rendering, as a rule, communication between the small villages and settlements of the territory infrequent and rare, San Francisco being the central point for information received annually from the whole territory: for instance, the people of Kadiak or Oonalashka hear from and learn of any one in Sitka by the "Golden Gate", and *vice versa*.

The only official knowledge which the government has or can have of the condition of affairs in Alaska has been and must be derived from the cruising of the revenue-marine steamers, and from the commander of the naval vessel stationed in the Alexander archipelago, who monthly reports the natives "in all parts of Alaska" quiet and peaceable.

The mail line established between Sitka, Wrangell, and Port Townsend, in Puget sound, is the only branch of the postal service extended over Alaska.

## MEAN TEMPERATURE AT VARIOUS POINTS IN ALASKA.

The following table shows the means of temperature for the months of January and July at various points in the territory:

| | In January. | In July. |
|---|---|---|
| | *Deg.* | *Deg.* |
| Sitka | +30 | +55 |
| Tongas | +33 | +58 |
| Wrangell | +22 | +58 |
| Kadiak | +28 | +57 |
| Coast of Bering sea | −10 | +50 |
| Yukon basin: | −26 | +65 |
| Saint Michael | + 3 | +54 |
| Pribylof islands | +28 | +46 |

## A FEW REMARKS ON SPELLING OF RUSSIAN AND NATIVE NAMES.

In spelling the Russian and Alaskan names and terms throughout this report I have endeavored to represent Russian and native sounds by their true phonetic equivalents in the English alphabet.

The Russian names and words ending in *off*, *ow*, or *ov*, as heretofore variously spelled, should be written *of*, the pronunciation being exactly that of the English word "of": for instance, *Baránof*, *Veniamínof;* in the possessive case, however, or in the plural, the sound of "*v*" always takes the place of the "*f*", *e. g.*, *Baránova*, *óstrova*, etc.

In words like Kamchatka the letters *ch* represent the full phonetic value of the corresponding Russian letter. The old way of spelling it, Kamschatka, is purely German, and not to be tolerated in an English work.

The Russian and native strong aspirate, resembling somewhat the German *ch* in *Woche*, I have represented by *kh*.

Profiting by observance of linguistic defects in former publications on Alaska I have abstained as much as possible from the use of Russian or native terms. The few such terms retained for the want of a good English equivalent are:

*Barábara*, a term of Siberian origin for a semi-subterranean hut or dwelling.

*Beluga*, the white grampus or white whale.

*Bidár*, a Kamchatkan word, an open boat, with a wooden frame and covered with seal, sea-lion, or walrus skin.

*Bidárka*, a skin-canoe of the Aleutians, covered all over, with the exception of one, two, or three circular openings to accommodate as many paddlers.

*Kaiak*, Eskimo skin-canoe.

*Kamleïka*, a Siberian term, water-proof shirt of seal, whale, or bear gut.

*Parka*, a Kamchatkan word, upper garment of fur, with small head-opening and sleeves, varying in length.

*Promyshlénik*, a Russian word for fur-hunters or laborers, now obsolete.

*Shamán*, a Kamchatkan term for sorcerer or medicine-man, used by many tribes who once were subject to Russian influence.

*Toyón*, Kamchatkan term for chief, introduced by Russians. *Tuyúk* and *Tookoo* with Aleutians and other tribes.

*Túndra*, a Siberian term, a moor, morass, or swampy plain, producing a dense growth of mosses and grasses over a frozen subsoil and ice, which does not thaw to a greater depth than 18 inches below the surface.

*Túngak*, a term used by certain Eskimo tribes for a shaman or conjurer.

# CHAPTER II.—RESOURCES.

The territory of Alaska, so called, an area nearly equal to one-sixth of the whole United States and territories, is a region to which the attention of the American people was very suddenly and earnestly directed in the summer of 1867, when it was secured as a measure of diplomacy and good will between the American and Russian governments. The Russians, who occupied the land with an eye primarily to the fur-trade and its dependencies, retired from that country, leaving us a generally correct map of the vast extent of rugged coast, locating its people in a measure correctly, with some facts and figures bearing upon the resources, natural history, and trade, which have since been found to be quite accurate, but which at the time of the transfer were so clouded and distorted by the advocates of the purchase and its opponents that the real truth in regard to the subject could scarcely be observed.

When the United States took possession of Alaska a great many active and ambitious men on the Pacific coast were imbued with the idea that much that was really valuable in Alaska in the line of furs and the precious metals would be developed to their great gain and benefit if they gave the subject the attention which it deserved. Accordingly, many expeditions were fitted out at San Francisco, Puget sound, and other points on the Pacific coast, and directed to an examination of these reputed sources of wealth in that distant country. Thirteen years have rolled by, and in that time we have been enabled to judge pretty accurately of the relative value of this new territory in comparison with that of our nearer possessions, and it is now known that the fur-trade of Alaska is all and even more than it was reputed to be by the Russians.

In this connection the most notable instance, perhaps, of the great value of these interests may be cited in the case of the seal islands. It will be remembered that at the time of the transfer, when the most eloquent advocates of the purchase were exhausting the fertility of their brains in drumming up and securing every possible argument in favor of the purchase, though the fur-trade of the mainland, the sea-otter fisheries, and the possible extent of trade in walrus oil and ivory were dwelt upon with great emphasis, these fur-seal islands did not receive even a passing notice as a source of revenue or value to the public. Yet it has transpired, since the government has been wise enough to follow out the general policy which the Russians established of protecting the seal life on the Pribylof islands, that these interests in our hands are so managed and directed that they pay into the treasury of the United States a sum sufficient to meet all the expenses of the government in behalf of Alaska, beside leaving a large excess every year.

Of other resources, such as the adaptation of the country for settlement by any considerable number of our people as agriculturists or husbandmen, and its actual value as a means of supplying gold and silver, coal or timber, it must be said that as yet no very remarkable gold or silver mines have been discovered, nor have there been any veins of coal worked that would in themselves sustain any considerable number of our people or give rise to any volume of trade.

The timber of Alaska in itself extends over a much larger area of that country than a great many surmise. It clothes the steep hills and mountain sides, and chokes up the valleys of the Alexander archipelago and the contiguous mainland; it stretches, less dense but still abundant, along that inhospitable reach of territory which extends from the head of Cross sound to the Kenai peninsula, where, reaching down to the westward and southwestward as far as the eastern half of Kadiak island, and thence across Shelikhof strait, it is found on the mainland and on the peninsula bordering on the same latitude; but it is confined to the interior opposite Kadiak, not coming down to the coast as far eastward as cape Douglas. Here, however, it impinges on the coast or Cook's inlet, reaching down to the shores and extending around to the Kenai peninsula. From the interior of the peninsula, above referred to, the timber-line over the whole of the interior of the great area of Alaska will be found to follow the coast-line, at varying distances of from 100 to 150 miles from the sea-board, until that section of Alaska north of the Yukon mouth is reached, where a portion of the coast of Norton sound is directly bordered by timber as far north as cape Denbigh. From this point to the eastward and northeastward a line may be drawn just above the Yukon and its immediate tributaries as the northern limit of timber of any considerable extent. There are a number of small water-courses rising here that find their way into the Arctic, bordered by hills and lowland ridges on which some wind-stunted timber is found, even to the shores of the Arctic sea.

In thus broadly sketching the distribution of timber over Alaska it will be observed that the area thus clothed is very great; yet when we come to consider the quality of the timber itself, and its economic value in our markets, we are obliged to adopt the standard of the lumber-mills in Oregon and Washington territory. Viewed in this light, we find that the best timber of Alaska is the yellow cedar, which in itself is of great intrinsic value; but this cedar is not the dominant timber by any means; it is the exception to the rule. The great bulk of Alaskan timber is that known as Sitkan spruce, or balsam fir. The lumber sawed from this stock is naturally not of the first quality.

The fisheries, which I shall speak of hereafter, as also of the fur-trade, cover a very large area, but their value and importance, in consequence of the limited market afforded for exportation on the Pacific coast, has not been fully developed. The supply certainly is more than equal to any demand.

The soil of Alaska is not sterile, being at many points of the requisite depth and fertility for the production of the very best crops of cereals and tubers. The difficulty with agricultural progress in Alaska is, therefore, not found in that respect; it is due to the peculiar climate.

Glancing at the map the observer will notice that hydrographers have defined the passage of a warm current, sufficient in volume and high enough in temperature to traverse the vast expanse of the North Pacific from the coast of Japan up and across a little to the southward of the Aleutian islands, and then deflecting down to the mouth of the Columbia river, where it turns, one branch going north up along the coast of British Columbia by Sitka, and thence again to the westward until it turns and bends back upon itself. The other grand arm, continuing from the first point of bifurcation, in its quiet, steady flow to the Arctic, passes up to the northeastward through the strait of Bering. (*a*) This warm current, stored with tropical heat, gives rise naturally, as it comes in contact with the colder water and air of the north, to excessive humidity, which takes form in the prevalent fog, sleet, and rain of Alaska, as noted and recorded with so much surprise by travelers and temporary residents from other climes. Therefore at Sitka, and, indeed, on the entire sea-board of South Alaska and the Aleutian islands, instead of finding a degree of excessive cold carried over to the mainland across the coast range, which the latitude would seem to indicate, we find a climate much more mild than rigorous; but the prevalence of fog clouds or banks, either hanging surcharged with moisture or dissolving into weeks of consecutive rain, so retard and arrest a proper ripening of fruits and vegetables in that climate that the reasonable certainty of success in a garden from year to year is destroyed.

When we look at Alaska we are impressed by one salient feature, and that is the remarkable distances which exist between the isolated settlements. It is not at first apparent, but it grows on the traveler until he is profoundly moved at the expenditure of physical labor, patience, and skill required to traverse any considerable district of that country.

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*a* The existence of this northern branch of the warm Japanese current has been denied by Mr. William H. Dall, of the United States coast and geodetic survey.

The Sitkan district is essentially one of rugged inequality, being mountainous on the mainland to the exclusion of all other features, and equally so on the islands. It is traversed here, there, and everywhere by broad arms of the sea and their hundreds and thousands of lesser channels.

Land travel is simply impracticable. Nobody goes on a road; savages and whites all travel by the water. Perhaps the greatest humidity and the heaviest rainfall in the Alaskan country occur here. The equable and not rigorous climate permits of free navigation at all seasons of the year, and it is seldom indeed that the little lakes and shallow lagoons near the sea-level are frozen so firmly as to allow of a winter's skating.

The Aleutian and Kadiak districts are quite as peculiar in themselves and as much individualized by their geological age and formation as is the Sitkan division. They hold within their boundaries a range of great fire-mountains—grumbling, smoking, quaking hills; some of these volcanic peaks being so lofty and so impressive as to fix in the explorer's eye an image superb and grand, and so magnificent as to render adequate description quite impossible. Like the Sitkan district, the Aleutian and Kadiak regions are exceedingly mountainous, there being very little low or level land compared with the sum total of their superficial area; but in that portion extending for 1,100 miles to the westward of Kadiak, nearly over to Asia, bare of timber, a skeleton, as it were, is presented to the eye and strikes one with a sense of an individuality here in decided contrast with that of the Sitkan country. The hills not clothed with timber are covered to their summits in most cases with a thick crop of circumpolar sphagnum, interspersed with grasses, and a large flora, bright and beautiful in the summer season. To thoroughly appreciate how much moisture in the form of fog and rain settles upon the land, one cannot do better than to leave the ship in the harbor, or the post where he is stationed, and take up a line of march through one of the narrow valleys near by to the summit of one of the lofty peaks. He will step upon what appeared from the window or the vessel a firm green sward, and sink to his waist in a shaking, tremulous bog, or slide over moss-grown shingle, painted and concealed by the luxuriant growth of cryptogamic life, where he expected to find a free and ready path.

Passing from this district, a very remarkable region is entered, which I have called the Yukon and the Kuskokvim divisions. I have during two summers traversed the major portion of it from the north to the south, confirming many new and some mooted points. This region covers the deltoid mouth of a vast river, the Yukon, and the sea-like estuary—the Amazonian mouth of another—the Kuskokvim, with the extraordinary shoals and bars of Bristol bay, where the tides run with surprising volume. The country itself differs strikingly from the two divisions just sketched, consisting, as it does, of irregular mountain spurs planted on vast expanses of low, flat tundra. It is a country which, to our race perhaps, is far more inhospitable than either the Sitkan or Kadiak divisions; yet, strange to say, I have found therein the greatest concentrated population of the whole territory. Of course it is not by agricultural, or by mining, or any other industry, save the aboriginal art of fishing and the traffic of the fur-trade, that the people live; and, again, when the fur-bearing animals are taken into account, the quality and volume of that trade are far inferior to those of either of the previously-named divisions, and we find the natives existing in the greatest number where, according to our measure of compensation, they have the least to gain.

This country, outside of these detached mountain regions and spurs, is a great expanse of bog, lakes, large and small, with thousands of channels between them, and sluggish currents filled with grasses and other aqueous vegetation, indicated to the eye by the presence of water-lilies.

The traveler, tortured by mosquitoes in summer, blinded, confused, and disturbed by whirling "purgas", snow, and sleet in winter, finding the coast rendered almost inaccessible by the vast system of shoaling which the current of the great Yukon has effected, passes to the interior, whose superficial area comprises nearly five-sixths of the landed surface of the territory.

Here is an immense tract reaching from Bering strait, in a succession of rolling ice-bound moors and low mountain ranges, for 700 miles an unbroken waste, to the boundary-line of British America. Then, again, from the crests at the head of Cook's inlet and the flanks of Mount Saint Elias northward over that vast area of rugged mountain and lonely moor to the east—nearly 800 miles—is a great expanse of country, over and through which not much intelligent exploration has been undertaken. A few traders and prospectors have gone up the Tennanah and over the old-established track of the Yukon; others have passed to the shores of Kotzebue sound overland from the Koyukuk. Dog-sled journeys have been made by these same people among the natives of the Kuskokvim and those of the coast between Bristol bay and Norton sound. But the trader as he travels sees nothing, remembers nothing, but his trade, and rarely is he capable of giving any definite information beyond the single item of his losses or his gains through the regions he may traverse. We know, however, enough to say now, without much hesitation, that this great extent which we call the interior is by its position barred out from occupation and settlement by our own people, and the climatic conditions are such that its immense area will remain undisturbed in the possession of its savage occupants, man and beast.

The subject of the agricultural resources of the country will, however, form the topic of another chapter in this report.

## THE FURS OF ALASKA.

Of the various industries of Alaska the fur-trade is one that may be discussed in a satisfactory manner, because we have authentic records of shipments, prices, and management reaching to the beginning of this and even to the middle of the last century. At the Siberian ports of Okhotsk, Bolsheretzk, and Petropavlovsk regular and generally reliable registers were kept of all furs arriving from the east, including the islands as well as the coast of the American continent. The figures obtained from these records may safely be considered below rather than above the actual numbers, because, as the Russian government exacted a tithe or other percentage from all shipments, some shippers endeavored to smuggle through as much as they could without reporting it.

Even at this late day it is possible to apply a check to the totals of importation of furs from the region now called Alaska, by comparing the same with equally authentic figures of transactions in furs and teas on the Chinese frontier, and at Irkutsk, the center of the trade of all Siberia.

Of the large number of furs, principally sea-otter, that found their way to Europe or China directly in the vessels of American and English traders toward the end of the eighteenth century and in the beginning of the nineteenth we have full statements in the published journals of these vessels.

Only two instances of shipments of furs from Alaska to France are known—the famous expedition of La Pérouse, which touched this coast in the year 1788, and the trading venture by merchants of Marseilles, who sent out a ship under the command of Roquefeuille, in the year 1818. This French captain, who had sailed with the most sanguine expectations of opening a new field of operations to the venturesome traders of Marseilles, and of ultimately establishing a rival traffic to that of the East India Company, was doomed to disappointment. The poor quality of his trading-goods was one of the causes of his failure among Indians, who had for long years reaped the benefits of fierce rivalry between English, American, and Russian traders. He states in his own narrative that he looked upon the inferior grade of woolen goods with which he had been furnished in France as the chief cause of his ill-success in trading with the natives. He boasted, however, of the superior quality of French muskets, but as he confesses to having paid as much as a musket and 12 pounds of powder for a single sea-otter skin, it seems that he profited but little by the superiority of the article. After a summer's cruise among the islands of the Alexander archipelago Roquefeuille came to the conclusion that as a mere trader he could not succeed, and therefore followed the example of the Americans in organizing a hunting expedition on joint account with Baranof, the chief manager of the Russian colonies. In this venture also he met with misfortune; being fitted out with Aleutian hunters, he was compelled to sign an agreement to pay the sum of $200 for any native who might lose his life while in his employ, by drowning or at the hands of hostile natives. In the course of his expedition 26 Aleut hunters were killed by the Hydas, on Prince of Wales island, and as the number of sea-otters secured did not exceed 200, Roquefeuille left the port of Alaska somewhat disgusted, and reported that there was no field for French enterprise on the northwest coast of America.

The American and the English explorers and traders continued for many years to hunt sea-otters with Aleutians and their bidarkas, furnished by Baranof and his successors, but as their operations were chiefly carried on along the coast of New Albion or California the results of these ventures do not fall within the scope of this report.

The English and the American sea-captains who visited Prince William sound and the Alexander archipelago previous to Vancouver's voyage reaped the most abundant harvest of sea-otters in that section of the territory, as many as 2,000 skins being secured by a single vessel in one season; and at the beginning of the present century Baranof estimated that 100,000 sea-otters were carried away by "foreigners". The prices even at that early day were remarkably high, and we find instances of ten and twelve blankets, and even $40 in cash, having been paid for a single skin. The Russians, who were compelled to transport all their trading-goods across the Asiatic continent and then by ships from Okhotsk, were not slow to discover that it was impossible to compete in trade with their English and American rivals. The valuable animal was rapidly becoming extinct in the more accessible hunting-grounds, and Baranof concluded to extend the old policy of hunting, in preference to trading, to the sea-otter ground of the southeast. He summoned large numbers of Aleuts and natives of Kadiak, with their bidarkas, and peremptorily ordered them to proceed to his new settlement at Sitka, hunting on the way. Parties composed of 600 and 800 canoes each set out upon this perilous journey of over a thousand miles, following the line of the coast. One-third of the fleet was lost on the way. Some of the natives were surprised by violent storms in crossing the open sea from one promontory to another, while others suffered death at the hands of hostile Indians of the mainland. Those who finally reached their destination were divided into smaller parties and sent out to hunt in the intricate inlets, streams, and forests of the country. Some never returned to report either their success or their losses. The association of Siberian merchants organized in 1785 to carry on the fur-trade of the north Pacific had the favor of the empress Catharine, but the first formal charter was granted by the emperor Paul in 1799. When hunting in that region became no longer profitable the Russian-American Company continued to purchase of the Indians a few sea-otters killed by them, but, owing to the vicinity of the Hudson Bay Company, the prices paid for these skins were exceedingly high. While the Aleut and Kadiak Innuit who were compelled to hunt for the company received but $10 for the very best grade of sea-otter, the independent Thlinket sold the same quality for $30 and $40 at Sitka. The manager of the Russian company acknowledged that no profit was derived in these transactions; that the skins were purchased only to prevent their acquisition by the Hudson Bay Company.

On the Aleutian islands the killing of sea-otters was brought into system and order as soon as the Russian-American Company obtained control of the country by their charter in 1799. At first the company claimed the right to employ the Aleutian hunters in the pursuit of the sea-otter without any compensation beyond their subsistence as an offset to their exemption from imperial taxes and other duties. This profitable but unjust procedure was abolished by the emperor Alexander I, and the company was instructed to pay the Aleutian hunters for every skin deposited in the company's storehouses. The emperor's manifesto was complied with, but the price paid to the Aleutian hunters for sea-otter skins was ridiculously small; only 10 rubles of colonial scrip or leather currency being paid to the hunter for a first-class skin, and he was required to furnish his own subsistence, with the exception of a few articles of luxury—a very small quantity of flour and tobacco. Even in those early times the Russian-American Company realized from $50 to $100 for their skins in the markets of Asia and Europe.

When the Russian hunters and traders first advanced from the coast of Asia along the Aleutian chain of islands the expeditions fitted out by Siberian merchants, consisting of one or two small vessels, were generally absent from five to seven years, and at the end of that time returned with from 2,000 to 7,000 sea-otter skins. Their primitive crafts were of such wretched construction that fully 50 per cent. of these valuable cargoes were lost by shipwreck. In spite of these losses, however, the value of sea-otter and fur-seal skins imported through the port of Okhotsk was estimated at the end of the eighteenth century at nearly 2,000,000 rubles per annum, of which the imperial government exacted one-tenth as royalty from the hunters. Under the indiscriminate slaughter of many rival hunting expeditions the sea-otter disappeared rapidly, and when the Russian-American Company at last obtained exclusive control of the whole business the annual catch did not exceed 1,500 skins for nearly half a century succeeding their first charter, and at no time during the existence of the company was it officially reported as exceeding 2,000. The policy adopted by the Russian company was to hunt thoroughly over a certain sea-otter ground for two successive years and then let it remain undisturbed for three years following, but even under this careful management the total catch did not increase to the figure attained since the transfer of the country to the United States. Certain islands and their outlying rocks were more prolific in the valuable animals than they are at present, but the total yield of sea-otter skins is now five or six times what it was then.

It is true that we find such entries as the following in the records of the custom-house of Okhotsk in a single year: "The ships of the promyshleniks discharged at the custom-house in the year 1770 16,000 sea-otters, 23,000 sables, 2,400 black foxes, 14,000 red foxes, 25,000 fur-seals, 36,000 blue foxes, valued at 2,000,000 rubles, and the traders estimate the value of goods given in exchange at 200,000 rubles"; but it must be remembered that the entries of that one year may have been the result of the transactions of several ships during four or five years.

The imperial chamberlain, Rezanof, who visited the Russian colonies in America between 1805 and 1807, estimated the value of sea-otters exported annually from the colonies at 80,000 rubles. Somewhat later, in 1817, the artist Choris, who accompanied Kotzebue in his voyage around the world, reported the annual catch of this valuable animal as worth from 100,000 to 150,000 rubles. The official reports of the company, however, showed a much smaller estimate; but it is safe to state that from the time of Kotzebue's visit to the Russian colonies until their transfer to the United States no less than 2,000 sea-otters were placed in the market every successive year, and also that to those shipments alone was due the maintenance of Russian colonies on this continent.

Of the profits accruing to the Russian-American Company from this traffic, from 300,000 to 400,000 rubles were annually disbursed to employés in the colonies, but nine-tenths of this sum was ultimately carried to Russia, only a small fraction finding its way into the hands of the natives of the country. At present the change in the way of conducting the business is so great as to leave 50 per cent. of the value of furs, at the lowest calculation, in the territory. On the other hand, the value of furs shipped from the territory is also vastly increased.

In scanning the tables appended to this chapter the reader may easily trace the decrease or increase of sea-otters from year to year, and the great discrepancy between the yield of the present and of former time cannot fail to attract his attention. The remarkable increase of shipments in our time is due solely to the increased inducements to the natives to exert themselves to the utmost, in order to satisfy the new wants growing upon them every year. The animal certainly existed in the same numbers in former times, but whenever a large body of them moved from one feeding-ground to another no effort was made to trace or follow them up as is done now. As far as can be ascertained the greater slaughter of the sea-otter has not reduced the number existing in the Alaskan waters to any perceptible extent, and at present the shipments increase from year to year. In due course of time, however, the collapse must come, and the black cloud of prospective ruin and starvation is even now rising within the poor Aleut's limited scope of vision.

At an early day in the history of the Russian colonies in America transactions in the skins of fur-seals began to rival in magnitude those in sea-otter skins. During the year immediately succeeding the discovery of the Pribylof group, in 1786, over 500,000 fur-seals were killed by the Russian hunters (Veniaminof makes these figures 2,000,000), and the animals were almost extirpated from the islands. Fully one-half of the skins taken during that period were thrown into the sea in an advanced stage of putrefaction, poisoning the waters around the islands to such an extent as to drive away the seals for several seasons. It was soon discovered that the Chinese merchants of the Siberian frontier placed a high value upon these skins, frequently refusing to exchange their teas for any other equivalent, but when the Russian-American Company obtained its exclusive privileges the fur-seals were so nearly extinct that the company's traffic in their skins was at first quite insignificant. The chamberlain Rezanof, above mentioned, was the first to observe the threatened extinction of the trade, and promptly applied the remedy by prohibiting the killing of seals for a period of five years. At the end of that time the shy animals had returned and multiplied sufficiently to afford a regular and reliable source of revenue. On the Pribylof islands, as on the Aleutian group, the company paid native hunters for each skin secured, but the price was out of all proportion to the value, 40 and 50 cents each being all the poor Aleut obtained for skins worth then $40 in the Chinese market. Under the circumstances it was natural that these poor fellows did not relish life on the barren, desolate islands, and frequently asked to be relieved by other laborers.

These seal islands were early looked upon by the Russian managers as an unfailing treasury from which to draw in times of need. At the beginning of this century, when breadstuffs and other provisions were shipped to the colonies through Siberia, frequently failing to arrive at the proper time, the chief manager, Baranof, was obliged to purchase whole cargoes of goods and provisions from the English and American traders, and, having no money on hand for such transactions, he hit upon the expedient of paying in fur-seals, a currency always at hand when needed. At first this mode of payment was profitable enough, the captains accepting each skin as an equivalent for a Mexican dollar. These transactions becoming known, expeditions were fitted out in England and at New York and Boston with the sole view of exchanging cheap provisions for fur-seals at Sitka and then selling the latter at an immense profit in Chinese ports. The managers of the Russian company in St. Petersburg heard of this traffic and ordered the shipment of seal-skins to China direct on account of the company, but being continually in want of provisions the manager of the colonies could not always comply with his instructions, though he succeeded in raising the price of skins from one to two dollars.

An end was finally put to these transactions by a peremptory order from St. Petersburg to make no further payments in fur-seals. The reason for this order was a very sharp transaction on the part of a Yankee trader who had sold a cargo of provisions to Baranof at Sitka, receiving fur-seals at the rate of one dollar each in payment, and then crossed over to Kamchatka with his ship and sold the skins to the agent of the same company at that place for three dollars each.

At the time of Pribylof's discovery of the seal islands they were found to be uninhabited, and the vast numbers of seals shipped during the first decade succeeding were killed by laborers from Oonalashka and Atkha islands hired for a period of years. These Aleuts were engaged at a fixed annual salary, being relieved from time to time by others, generally at their own request. It will thus be seen that from the very beginning the Russians recognized no proprietary rights to the fur-seals as vested in the Aleuts. Subsequently, when the Russian-American Company assumed control, these laborers were allowed, and even compelled, to remain for longer periods of time, sometimes for a whole generation, as the company by its charter became sole owner of everything within the limits of the Russian colonies in America; and, consequently, every fur-bearing animal killed by natives was considered as killed for the company, payment being made in the shape of compensation for the natives' time or labor. The paragraph in the imperial charter of the company defining its rights invested that organization with full proprietary title to "all products of the sea and land, including even birds of the air, and whatever might be found in the interior of the earth".

In 1805, as already mentioned, the seal islands were visited by Rezanof and Langsdorff. The former did all in his power to arrest the indiscriminate slaughter of seals by removing one-half of the men engaged in killing, and prohibiting shipments of skins for five years thereafter. Langsdorff, on the other hand, in his voluminous reports called the attention of the imperial government to the threatened extinction of fur-seals, making the rather remarkable statement that 30,000 seals had been killed for food by the laborers on the islands, the skins being thrown away; and also that he had observed in the month of May a school of fur-seals moving southward and covering the surface of the ocean for a distance of two nautical miles. Langsdorff presumed that this abnormal movement, entirely at variance with the habits of the animal, was caused by the indiscriminate onslaught of Aleut hunters on the islands of Saint Paul and Saint George.

The measures adopted by Rezanof certainly proved effective, as only ten years later Kotzebue stated that from these two seal islands the Russian-American Company derived the most regular and ample revenue in all its vast possessions. The skins that had accumulated on the islands previous to Rezanof's arrival had been most carelessly cured by a crude process of drying over fires. Of 60,000 skins shipped from there to Canton by the ship Neva, 30,000 were thrown overboard within a day's sail of Canton in an advanced stage of putrefaction. Gradually, however, improvements were introduced in the management of the business and in the processes of curing and packing. The art of preparing seal-skins for the market by plucking and dyeing was an invention of the Chinese, reported by the Russian-American Company's agent at Okhotsk as early as 1799. The exact date at which this process was adopted by English furriers cannot now be ascertained, but it is safe to presume that it was early in the present century, as a regular demand for these skins in England can be traced to that time.

At a later period—about the year 1850—shipments directly to New York were made, and these continued at the rate of from 5,000 to 10,000 skins every year until the transfer of the territory.

When the acquisition of the Russian colonies was advocated before Congress no mention was made of any trade in fur-seals, but the annual average of fur-seal shipments from the Pribylof islands to England, the United States, and China from 1820 to 1867 was 42,000 skins, or an aggregate of 1,974,000 in forty-seven years.

It is not easy to explain why the Russians failed to work this "seal-mine" to its full capacity. In the reports of the agents on the islands to the chief manager at Sitka subsequent to 1820 we find a constant repetition of the statement that the seals were increasing in number, accompanied by a request for permission to kill a number of old seals for the purpose of obtaining oil from their blubber, and in one instance this request was granted, and in a year or two after the discovery of gold in California, when fur-seal oil sold in San Francisco at $4 per gallon. The skins of these oily old patriarchs were of no value.

It is, however, altogether due to the excessive care exercised by the Russian authorities that the fur-seals did not become extinct on the islands during the years intervening between the sale of the territory and the passage of the act of Congress making the Pribylof group a treasury reservation.

By that time the accumulation of seals had become too great to be affected by the killing of over a million within three years. The present limitation to 100,000 seals per annum was based upon the most careful observations and estimates; but it has long since become evident that, as far as any danger of extirpation is concerned, the number might safely be doubled. A change of fashion may take place at any time and depreciate, at least temporarily, the product of these islands; the beauty and durability of the material, however, are such as to insure its consumption to some extent among the votaries of fashion for an indefinite period, and just so long Alaska can be made a valuable possession without reference to any other sources of wealth that may be developed within its boundaries.

The sea-otter is an exceedingly shy and sensitive animal and does not congregate in any great numbers, rarely setting foot upon the shore, unless it be for a few hours of repose upon some outlying rock or bar, and probably during the breeding season in some secluded retreat. It is found 60 and 80 miles from land, singly and in pairs; and even females with their young may be seen drifting about at that distance. Patches of floating kelp are their favorite resting-places, and in still weather the female can be seen floating on her back, holding her offspring. Some hunters with well-developed ears or vivid imagination assert that the animal gives forth a crooning sound or lullaby, hushing the baby, as it were. During a very cold winter (in 1879–'80) some sea-otters came ashore in Cook's inlet.

In former times the Aleutian hunters prepared themselves for sea-otter expeditions by fasting, bathing, and other ceremonies. The sea-otter was believed to be possessed of a very strong aversion to the female sex, and consequently the hunter was obliged to separate himself from his wife for some time prior to his departure, and also to prepare the garments he was to wear, or at least to wash with his own hands such of his garments as had been made by women. On his return from a successful hunt the superstitious Aleut of former times would destroy the garments used during his expedition, and before entering his hut dress himself anew from head to foot in clothing prepared by his faithful spouse during his absence. The hunting garments were then thrown into the sea. One old man stated in explanation of this proceeding that the sea-otters would find the clothing and come to the conclusion that their late persecutor must be drowned, and that there was no further danger. With the spread of the Christian religion among the sea-otter hunters most of these superstitious ceremonies were abolished, but even at the present day the sea-otter hunter occupies a prominent position in the community and enjoys great social advantages. Anything he may want which is not in the possession of his own family will be at once supplied by his neighbors, and weeks and even months are spent in careful preparation of arms, canoes, and implements.

The mode of hunting the animal has not essentially changed since the earliest times. A few privileged white men located in the district of Ounga employ fire-arms, but the great body of Aleutian hunters still retain the spear and in a few instances the bow and arrow. The sea-otter is always hunted by parties of from four to twenty bidarkas, each manned by two hunters. From their village the hunters proceed to some lonely coast near the hunting-ground, either in their canoes or by schooners and sloops belonging to the trading firms, a few women generally accompanying the party to do the housework in the camp. In former times, of course, this was not the case. The tents of the party are pitched in some spot not visible from the sea, and the hunters patiently settle down to await the first favorable day, only a smooth sea permitting the hunting of sea-otter with any prospect of success. In the inhospitable climate of Alaska weeks and months sometimes pass by before the patient hunters are enabled to try their skill. A weatherwise individual, here yclept "astronome", generally accompanies each party, giving due notice of the approach of favorable weather and the exact time when it is best to set out, and few Aleuts are bold enough to begin a hunt without the sanction of this individual. At last the day arrives, and after a brief prayer the hunters embark fully equipped, and in the best of spirits exchange jokes and banter until the beach is left behind; then silence reigns, the peredovchik or leader assumes command, and at a signal from him the bidarkas start out in a semicircle from 50 to 100 yards distant from each other, each hunter anxiously scanning the surface of the water, at the same time having an eye upon the other canoes. The sea-otter comes up to the surface to breathe about once in every ten minutes, the smooth, glossy head remaining visible but a few seconds each time.

As soon as the hunter spies an otter he lifts his paddle as a signal and then points it in the direction taken by the animal, and the scattered bidarkas at once close in a wide circle around the spot indicated by the fortunate discoverer. If the animal comes up within this circle the hunters simply close in gradually, beating the water with their hands to prevent the escape of the quarry; but very often the wary animal has changed its direction after diving, and the whole fleet of canoes is obliged to change course frequently before the final circle is formed. As soon as the otter comes up within spear's-throw one of the hunters exerts his skill and lodges a spear-head in the animal, which immediately dives. An inflated bladder is attached to the shaft, preventing the otter from diving very deep. It soon comes up again, only to receive a number of other missiles, the intervals between attacks becoming shorter each time, until exhaustion forces the otter to remain on the surface and receive its death wound. The body of the animal is then taken into one of the bidarkas and the hunt continues if the weather is favorable. On the return of the party each animal killed is inspected by the chief in the presence of all the hunters and its ownership ascertained by the spear-head that caused the mortal wound, each weapon being duly marked. The man who first struck the otter receives from two to ten dollars from the owner. The skins of the slain animals are at once removed, labeled, and classified according to quality by the agents of the trading firms, and carefully stored for shipment. It frequently happens that a whole day passes by without a single sea-otter being sighted, but the Aleut hunters have a wonderful patience and do not leave a place once selected without killing some sea-otters, be the delay ever so long. There are instances where hunting parties have remained on barren islands for years, subsisting entirely on "algæ" and mussels cast from the sea. On the principal sea-otter grounds of the present time, the island of Sannakh and the neighborhood of Belkovsky, the hunting parties seldom remain over four or five months without securing sea-otters in sufficient number to warrant their return. Single hunters have sold sea-otters to the value of $800 as their share of such brief expeditions, but payment is not made until the return of the party to their home station

As soon as the result of a day's hunt has been ascertained the chief or leader reminds the hunters of their duty toward the church, and with their unanimous consent some skin, generally of a small animal, is selected as a donation to the priest, all contributing to reimburse the owner. The schools also receive donations of this kind, and the skins thus designated are labeled accordingly and turned over to the trading firms, who place the cash value at the disposal of the priest. Rivalry in the business of purchasing sea-otter skins has induced the various firms to send agents with small assortments of goods to all the hunting-grounds, as an inducement to the members of parties to squander some of their earnings in advance.

The method of killing the sea-otter is virtually the same in all sections frequented by it.

The killing of fur-seals is accomplished entirely on land, and has been reduced almost to a science of the greatest dispatch and system. The able-bodied Aleuts now settled upon the two islands of Saint Paul and Saint George are, by the terms of the agreement between themselves and the lessees, the only individuals permitted to kill and skin the seals for the annual shipment as long as they are able to perform the labor efficiently within a given time. For this labor they are remunerated at the rate of 40 cents per animal. Life-long practice has made them expert in using their huge clubs and sharp skinning-knives, both implements being manufactured expressly for this use. These men are as a class proud of their accomplishments as sealers, and too proud to bemean themselves in doing any other kind of work. For all incidental labor, such as building, packing, loading and unloading vessels, etc., the lessees find it necessary to engage laborers from the Aleutian islands, these latter individuals being generally paid at the rate of one dollar per diem.

The work connected with the killing of the annual quota of fur-seals may be divided into two distinct features, the separation of the seals of a certain age and size from the main body and their removal to the killing-ground forming the preliminary movements; the final operation consisting of another selection among the select, and killing and skinning the same. The driving as well as the killing cannot be done in every kind of weather, a damp, cool, cloudy day being especially desirable for the purpose.

As it is the habit of the young male seals up to the age of four years to lie upon the ground back of the so-called rookeries or groups of families that line the sea-shore, the experienced natives manage to crawl in between the families and the "bachelors", as they were named by the Russians, and gradually drive them inland in divisions of from 2,000 to 3,000. It is unsafe to drive the seals more than five or six miles during any one day, as they easily become overheated and their skins are thereby injured. When night comes on the driving ceases, and sentries are posted around each division to prevent the animals from straying during the night, occasional whistling being sufficient to keep them together. In the morning, if the weather be favorable, the drive is continued until the killing-ground is reached, where the victims are allowed to rest over night under guard, and finally, as early as possible in the morning, the sealers appear with their clubs, when again small parties of 20 or 30 seals are separated from their fellows, surrounded by the sealers, and the slaughter begins. Even at this last moment another selection is made, and any animal appearing to the eye of the experienced Aleut to be either below or above the specified age is dismissed with a gentle tap of the club, and allowed to go on its way to the shore, rejoicing at its narrow escape. The men with clubs proceed from one group to the other, immediately followed by the men with knives, who stab each stunned seal to the heart to insure its immediate death. These men are in turn followed by the skinners, who with astonishing rapidity divest the carcasses of their valuable covering, leaving, however, the head and flippers intact. Only a few paces behind the skinners come carts drawn by mules, into which the skins are rapidly thrown and carried away. The wives and daughters of the sealers linger around the rear of the death-dealing column, reaping a rich harvest of blubber which they carry away on their heads, the luscious oil dripping down their faces and over their garments.

The skins, yet warm from the body, are discharged into capacious salt-houses and salted down for the time being like fish in bins. This treatment is continued for some time, and after the application of heavy pressure they are finally tied into bundles of two each, securely strapped, and then shipped.

The process by which these unsightly, ill-smelling bundles are transformed into the beautiful fabrics of fashion is described briefly in a letter written by a leading furrier of New York, from which I extract the following:

> When the skins are received by furriers in the salt the latter is washed off and the fat removed from the inside with a beaming-knife, great care being taken that no cuts or uneven places are made in the pelt. The skins are next thoroughly cleansed by being stretched upon beams with the fur side up, and then a careful removal of grease or other matter attached thereto. The next step in the proceeding is a stretching of pelts upon frames and drying the same over a moderate heat. After the drying process they are soaked in water and thoroughly washed with soap. After this the fur is dried again, the pelt being kept moist, and the operator pulls out the long hair with the assistance of a dull knife. The operation—a very delicate one—is repeated several times, until nothing but the soft fur remains. The skins are then dried again and dampened on the pelt side, and shaved until a fine, even surface is obtained. Then follows the slow and tedious process of working, drying, and softening the skins by treading them with bare feet in a hogshead, with fine hard-wood saw-dust to absorb the grease. In dyeing, the liquid dye is put on with a brush, carefully covering the points of the standing fur. The skin is then pulled so as to make the points touch each other for some little time, and partially dried. The dry dye is removed and another coat applied, and the same process is repeated a number of times. A few of the coats of dye are put on, heavily pressed down to the edge of the fur; from eight to twelve coats produce a good color. The skins are then washed again and cleansed with saw-dust. The English process is said not to include the washing after dyeing.

The manner in which the proceeds of the joint labor of all the sealers are divided among them is quite worthy of attention, and in its way solves to some extent the problem of communal labor. The introduction of this rather complicated system was founded upon measures adopted by the promyshleniks, or the companies of Siberia of the last century. As an example the division of proceeds on Saint Paul island alone in the year 1879 is presented: The sum total of joint earnings was first ascertained; next the number of claims upon the fund—that is, the families, individuals, and institutions to be supported—was definitely settled. Special donations were next in order, these consisting of gifts to three chiefs or superintendents of the labor of $150 each, $100 each to two men connected with church service, and one annual donation of $450 to the parsonage of Oonalashka. The remainder was divided among the church of Saint Paul, the priest of that church, 64 actual laborers and heads of families, and 14 invalids and widows, the latter being divided into three classes according to their wants. The church, priest, and able-bodied men are entitled to what are called first-class shares in the proceeds, the others receiving second-, third-, and fourth-class shares respectively. The total number of participants in the distribution of earnings by shares in the year 1879 was 82, counting the church and priest at two shares each. The sum total of earnings was in that instance divided by 82, in order to ascertain the value of one first-class share. The value of a second-class share was ascertained by deducting 10 per cent. from the first-class share, and the same rule was followed as to the third and fourth classes. In the reduction of three classes of shares a sufficient sum is left to cover all the special gifts above mentioned. In the year referred to the division was as follows: The total earnings of sealers on Saint Paul island were $32,153 40; first-class shares, 68, of $410 75 each; second-class shares, 6, of $369 67 each; third-class shares, 6, of $328 60 each; and two fourth-class shares of $287 52 each. The special gifts conferred by unanimous consent of the community, aggregating $1,100, have already been mentioned above. The same rules are observed in dividing the earnings of sealers on the island of Saint George, where the catch rarely exceeds 20,000 per annum and the value of shares is somewhat smaller.

No better plan could be devised by experienced political economists to provide in a just and equitable manner for all the members of an isolated community cut off from all the means of support but the one secured for them by the government.

It is evident that the shipments of both sea-otters and fur-seals have more than doubled since the transfer of the Russian colonies to the United States. An official statement, made in 1863, concerning the shipments of sea-otters from Sitka during the period of twenty years preceding, places the aggregate at 25,899, or an annual production of 1,295. At the present date the number approaches 6,000. The distribution of the sea-otter is somewhat changed, but I know of only one hunting-ground where the number secured annually was greater in the past than it is now; that is on the island of Attoo, which, during the twenty years mentioned, produced 2,421 sea-otter skins, or 121 per annum, against 14 or 16 now obtained on the island each year. In the district of Kadiak and the Shumagin islands the yield has been increased, while at the same time sea-otters have made their appearance in large numbers at the southern end of Cook's inlet, where they were nearly exterminated almost a century since.

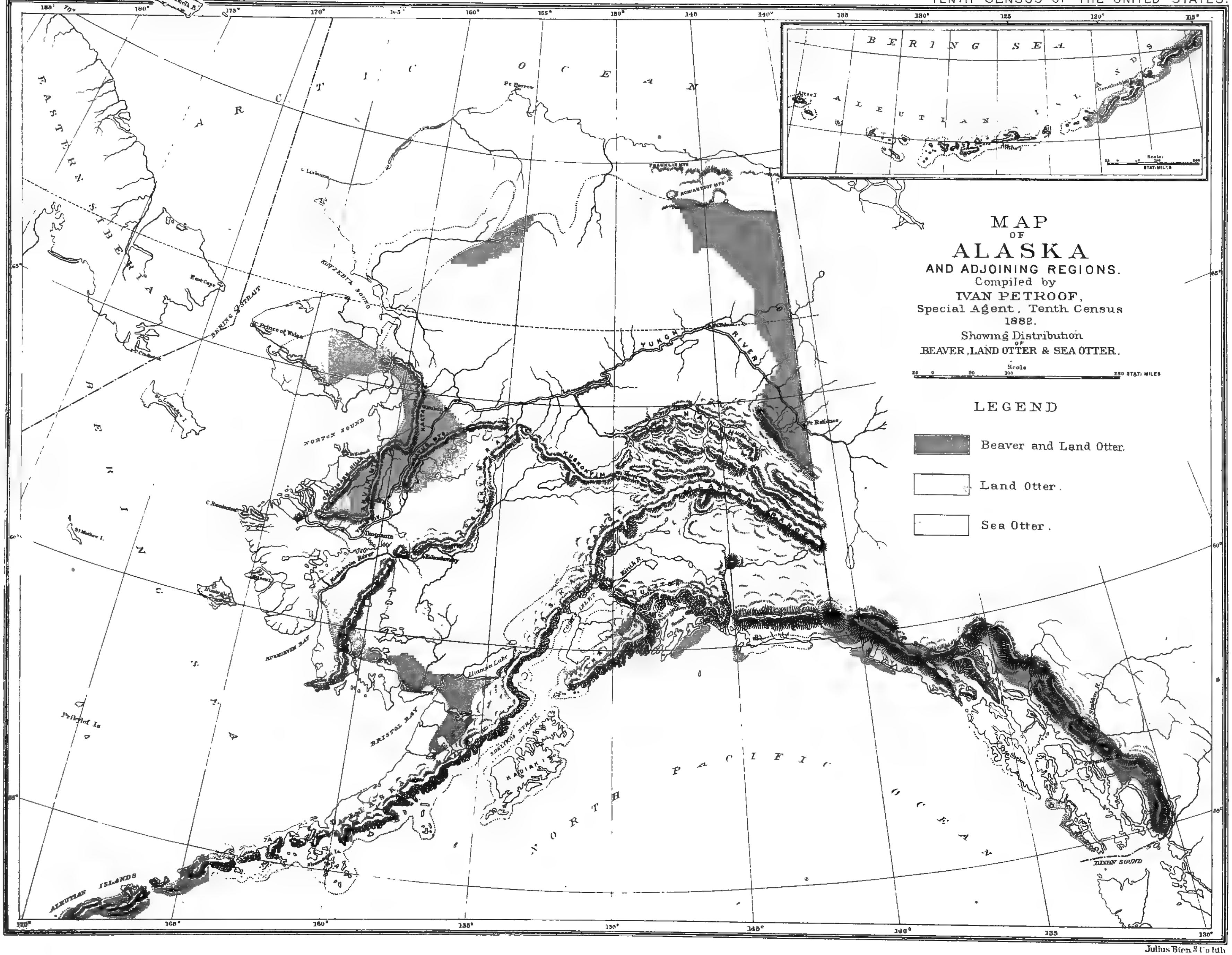
The increase in seals does not extend to the Commander islands, still under Russian control.

Of land-furs the records now available are less satisfactory with regard to the past. We have, however, an official statement covering the same twenty years—from 1842 to 1862—in which skins of foxes of three kinds (black, cross, and red), and from all sources, are reported as numbering 77,847, or 3,892 per annum; those of the Arctic fox, 54,134, or 2,706 per annum; beaver, 157,484, or 7,874 per annum; land-otter, 70,473, or 3,523 per annum; marten, 12,882, or 644 per annum; bear, 1,893, or less than 100 per annum. That this official statement was far below the actual yield is made probable by the fact that at the present day, after forty years of hunting and trapping, the yield of land furs is greater by many thousands of each species. The only fur-bearing animal of

DEPARTMENT OF THE INTERIOR

MAP II

TENTH CENSUS OF THE UNITED STATES.



Julius Bien & Co lith

this class that has decreased in numbers in our times is the beaver; and this is not due to the effects of hunting or trapping, but to several seasons of extraordinary cold, during which the submarine entrances to the beaver huts were closed by ice and the animals starved inside.

The marten or sable, though inferior to the Siberian species, is quite valuable, but the supply is limited. Whether it ever existed in larger numbers is difficult to ascertain, because the Russian company did not ship them from the colonies, but gave or sold them to the higher classes of its employés. Under the present rule of permitting only natives of the soil to hunt and trap, the balance between supply and consumption seems to be well preserved. No complaints are heard of the extinction of any fur-bearing animals, with the one exception of the beaver. As the whims of fashion change the prices of certain kinds and qualities of furs, traders induce the natives to secure those kinds in preference to others, and thus discrepancies arise in the annual catch, but this makes no difference as to the total. The fact that game, such as moose and reindeer, has been killed off to a great extent in the regions furnishing the principal land-furs would lead us to expect that the natives, deprived of their natural food-supplies, would be compelled to purchase largely imported provisions of the traders, and hunt more actively to provide means for the purchase. As far as can be observed this is the case only with regard to flour, though they seem to spend now for food money which was formerly squandered in beads and gaudy clothing unsuited to their mode of life. If extinction of fur-bearing animals in the continental region of Alaska should take place in the future it will be due entirely to the constant drain from the Arctic shore, where the Eskimos are constantly exchanging furs for whisky and other intoxicating liquors, drawing largely upon furs obtained from their neighbors in the interior as far south as the Yukon, for which they receive no return but the means of stupefying themselves for days and weeks, and perhaps a breech-loading rifle, which becomes useless in their hands as soon as the fixed ammunition is expended. The fur-bearing animals on the immediate sea-coast are almost exterminated or of little value, but the equivalent return of supplies of alcohol must be obtained, and, as a consequence, a traffic with their southern neighbors is carried on by these people, on the principle of buying furs for a little whisky and selling them for a larger quantity, the evils of this system working in both directions.

## THE DISTRIBUTION OF THE FUR-BEARING ANIMALS IN ALASKA.

THE FUR-SEAL (*Callorhinus ursinus*).—The only hauling- or breeding-grounds of the fur-seal known in Alaska are on the islands of Saint Paul and Saint George, with the addition perhaps of the adjoining otter island, where these animals occasionally haul up but do not breed. From early spring until late in the autumn fur-seals are met with in all portions of the north Pacific inclosed by the Alaska coast, from latitude 54° 40′ to Mount Saint Elias, and thence westward along Prince William sound, the east side of Kenai peninsula, and along the Aliaska peninsula and its continuation, the Aleutian chain of islands. In Bering sea the animal has not been observed to the northward of latitude 58°. In the spring of the year only fur-seals are found in large numbers in the vicinity of the strait of Fuca and along the coast of Vancouver and Queen Charlotte islands. During the time of the general migration to and from the breeding-grounds several of the passes through the Aleutian chain are crowded with adults in the spring and with young seals and yearlings in the late summer and autumn. The presence of large numbers of these animals in these secluded waters and those of Prince William sound late in the season (in June and July) has often given rise to the supposition that some breeding-grounds must exist in those localities, but the most minute and persistent search has failed to sustain the supposition.

About 50 miles south of the Aleutian chain large numbers of seals are frequently seen during the summer, and for half a century rumors of the existence of breeding-grounds in that neighborhood were launched from time to time.

The Russian-American Company fitted out numerous exploring expeditions, but these were always unsuccessful. The last enterprise of the kind was undertaken by a former employé of the Russian company, under the auspices of the present lessees of the seal islands, on the schooner John Bright, in 1873, being the third expedition of the kind fitted out by the Alaska Commercial Company in two years. On this occasion indications of land, such as are accepted by all navigators, were not wanting in the waters included in the search. After a season of fruitless search the captain finally abandoned his undertaking, coming to the conclusion, however, that within a short distance southward from the Aleutian islands there existed banks sufficiently shallow to serve as feeding-grounds for the seals, which possibly visit them for that purpose even during the breeding-season, as a journey of 300 miles is but a brief excursion for these rapid swimmers in search of food.

All other expeditions in search of the supposed "winter home" of these seals have met with the same lack of success. The Pacific ocean and the Antarctic have been scoured by the sealers and by emissaries of trading firms, but at the present day the fact seems to be established that the fur-seals, after leaving their confined breeding-places, scatter over the broad Pacific to localities where extensive elevations of the bottom of the sea enable them to subsist upon fish until the instinct of reproduction calls them again from all directions to one common goal.

THE SEA-OTTER (*Enhydra marina*).—The sea-otter seems to exist chiefly on a line parallel with the Japanese current from the coast of Japan along the Kurile islands to the coast of Kamchatka, and thence westward along the Aleutian chain, the southern side of the Aliaska peninsula, the estuaries of Cook's inlet and Prince William sound, and thence eastward and southward along the Alaskan coast, the Alexander archipelago, British Columbia, Washington territory, and Oregon.

At the beginning of the present century large numbers of these animals were also found on the coast of California, from which they have now disappeared altogether; and on the coast of Oregon, Washington territory, and British Columbia they have decreased to such a degree that only at long intervals is the patient hunter rewarded with the prize of one of these valuable skins. On the west coast of Vancouver island, in the vicinity of Nootka sound, where Meares, Portlock, Dixon, and others of the earliest English northwest traders found thousands of sea-otter skins in the possession of chiefs, the animal has been almost exterminated, and there can be no doubt that had it not been for the protection afforded under the Russian monopoly for nearly three-fourths of a century, this animal would be extinct to-day in Alaskan waters. The Innuit tribes alone entered understandingly into the measures of protection introduced by the Russians. The Thlinket, on the other hand, a fierce and savage people, opposed to system and order or control of any kind, were the most active agents in the extermination of the animal. From the time they began to understand the value of sea-otter skins, from the eagerness with which the early English visitors purchased all they had, even mere scraps and rags, the Thlinket all along the coast, from the mouth of Copper river southward, hunted and slaughtered the sea-otter indiscriminately and in the most clumsy manner, frightening away as many as they killed. Had these tribes joined to their recklessness the same skill and patient persistence observed among the Eskimo and Aleut there would be no sea-otters on that coast to-day; but in their wooden canoes they can only hunt in fine weather, and at such times the sea-otter retires from the coast to a distance which no Thlinket would venture.

In the Russian possessions about the Kurile islands and the coast of Kamchatka but a few hundred sea-otters are now killed annually. At three different times during the existence of the Russian-American Company their agents on the Kurile islands and Kamchatka reported the sea-otter as extinct, and each time the animals appeared again after they had not been hunted for a few years. Along the Aleutian chain the sea-otters frequently change from one feeding-ground to another; for instance, for a long series of years the island of Attoo and several smaller surrounding islands furnished many hundreds of sea-otter skins every year, but for some unexplained reason a migration eastward took place, and at the present time from fourteen to twenty skins are all that the poverty-stricken inhabitants sell to the traders. The numerous islands between Attoo and Atkha are each visited in turn by the hunters about once in three years, and under such management the numbers of the animals appear to remain the same. The outlying reefs of Atkha, which once furnished the most abundant supply of these valuable skins, are now entirely deserted, and the inhabitants undertake long hunting-voyages to the westward under convoy of schooners belonging to the trading firms.

From the island of Oumnak eastward the sea-otter becomes more frequent until we find it in its greatest abundance in the district of Sannakh and Belkovsky. Here, within a radius of not more than 50 miles, over 2,000 sea-otters are secured every year by the fortunate hunters without any apparent decline in numbers. From this point in a northeasterly direction the coast of the Aliaska peninsula is lined with hundreds of islands and reefs, affording ample facilities for shelter and refuge to the persecuted animal, and though it is hunted here recklessly by white and native hunters alike, using fire-arms in violation of existing regulations, no alarming decrease can be ascertained from statistics at hand. Still further northward, in the waters of the Kadiak archipelago and the southern half of Cook's inlet, and thence eastward to Prince William sound, sea-otters are found in less number than in the district described above, but still in comparative abundance, the annual yield being between 1,000 and 1,500 skins.

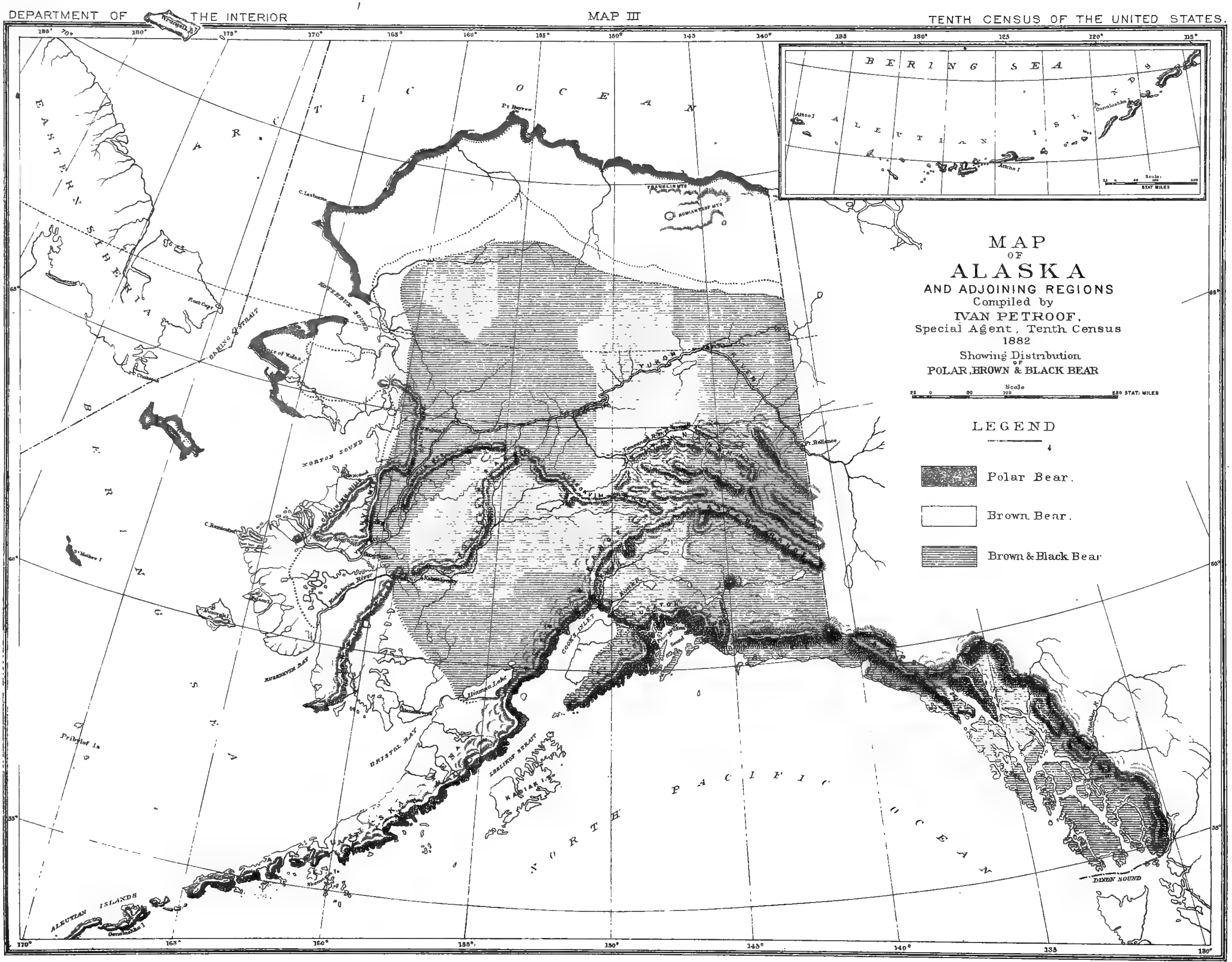
As far as it is possible for us to know, the only enemy of the sea-otter is man, with the exception, perhaps, of the so-called "killer-whale". We have reports of natives only in support of the last statement, but as this whale is known to make sad havoc among fur-seals there is no reason to doubt that they occasionally attack the somewhat larger sea-otter. Skins have come under my observation marked with scars produced evidently by the teeth of some large marine mammal.

The distribution of the sea-otter along the coast of Alaska, as indicated in the accompanying map, has not essentially changed within historic times. Certain localities have been abandoned by the animal altogether, others temporarily; but where Bering, Chirikof, and Steller, and subsequently the Russian promyshleniks found the sea-otter more than a century ago, we find it now, and the supply of such skins in the fur markets of the world is certainly as great now as at any time since the first indiscriminate slaughter prior to the establishment of the Russian monopoly; in fact it is apparently much greater.

THE LAND-OTTER (*Lutra canadensis*).—The land-otter is one of the most widely distributed fur-bearing animals in Alaska, ranking in this respect next to the common cross fox. The skin, however, is much more valuable, since of late it has been utilized for the manufacture of an imitation of seal-skin. The skin has always met with ready sale in Russia, where it is used extensively for collars and cuffs of the uniforms of army officers of the line, who cannot afford the more expensive sea-otter trimmings. The demand for it in former times was so great that the Russian-American Company, in leasing a strip of land to the Hudson Bay Company, was not only willing but anxious to accept payment in land-otter skins. The Chinese also have a liking for this fur.

The land-otter is found on the whole coast of Alaska, from the southern boundary to the northern shore of Norton sound. It also occurs on all the islands inside of these limits as far as Oonimak in the west and Nunivak in the north. Within the Arctic circle the land-otter is confined to the upper courses of rivers emptying into Kotzebue sound and the Arctic ocean, such as the Colville, the Kok, the Inland, and Selawik. It is found also

DEPARTMENT OF THE INTERIOR MAP III TENTH CENSUS OF THE UNITED STATES.



MAP
OF
ALASKA
AND ADJOINING REGIONS
Compiled by
IVAN PETROOF,
Special Agent, Tenth Census
1882
Showing Distribution
OF
POLAR, BROWN & BLACK BEAR

Julius Bien & Co. lith

along the whole course of the Yukon as far as known, along the Kuskokvim, and all over the delta lying between the mouths of these rivers, in the valleys of the Togiak and the Nushegak, and in nearly all parts of the Aliaska peninsula and Oonimak island, as well as on the Kadiak archipelago, the shores of Cook's inlet, on the Kinik and Sushetno rivers emptying into the same, on Prince William sound, and on the Copper river. The traders report the land-otter also along the whole coast from Mount Saint Elias to the southern boundary, with the exception of the smaller islands.

THE BEAVER (*Castor fiber*).—The beaver was once one of the most important among the fur-bearing animals of continental Alaska, but both in supply and demand a great decline has taken place during the last half century. It would seem that the smaller demand would cause an increase in the supply, but this has not been the case. Throughout the whole interior region north of Cook's inlet and south of the Yukon river the beavers have frequently suffered from excessive and prolonged cold during the winter, the ice in rivers and ponds forming so rapidly and to such thickness that the animals found it impossible to keep open the approaches to their dwellings under water, and they died from starvation before the thaws of spring opened their prisons. The Indians of the Kinik and Tennanah rivers state that after an extraordinarily cold winter they have frequently found the putrefying carcasses of hundreds of beavers in their so-called lodges. Thousands of old beaver-dams all over the continental portion of Alaska also testify to the former abundance of the animal, which now is thinly scattered over the same ground. At nearly every trading-post throughout Alaska where beaver-skins are at all secured, hundreds are purchased now where thousands appear on former records.

The northern limit of the beaver seems to be but little to the southward of that of the land-otter—considerably above the Arctic circle—being identical with the limit of trees. Skins are obtained from the natives living on the northern tributaries of the Yukon river, which have passed into the hands of the latter from the headwaters of the Colville and other rivers emptying into the Arctic.

All the streams emptying into Kotzebue sound are still inhabited by the beaver, and it is found on the east shore of Norton sound, along the whole course of the Yukon and its tributaries, among all the lakes and streams of the Yukon and Kuskokvim deltas, in the lake and river systems of the Togiak and the Nushegak, about lake Ilyamna and the lakes and rivers of the Aliaska peninsula down to a line identical with that forming the northern boundary of the Aleutian tribe. On the shores of Cook's inlet and the rivers emptying into the same the beaver is still comparatively plentiful, especially in the vicinity of the large lakes occupying the central portion of the Kenai peninsula. Beaver-skins are also obtained from the natives occupying the headwaters of Copper river and the series of lakes connecting the river with the Kinik and the Sushetno rivers.

In the southeastern section of Alaska, west of Mount Saint Elias, traders report the existence of the beaver on streams and rivers of the mainland, but it is probable that most of the skins obtained in that vicinity come really from the British possessions, whence all these rivers flow.

In the past, when the Hudson Bay Company reigned supreme throughout the beaver country of northwestern America, the skins of these animals represented in trade the value of an English shilling each, and were used and accepted as common currency. Within the Russian possessions the value was always somewhat higher, and at the present time the price of a beaver-skin of average size in Alaska is from $1 50 to $2, according to weight.

The Indians of the interior and a few of the Eskimo tribes look upon the meat of the beaver as a great delicacy; it is a dish that is always set before honored guests, and is much used during festivities. The long incisors of the beaver form an important item in the domestic economy of the natives who hunt this animal, the extraordinary hardness of these teeth making it possible to use them in the manufacture of chisels, small adzes, and other tools used in the working of wood and bone. Under the rule of the Russian-American Company the exportation of castoreum was quite extensive, but now that article meets with no demand outside of the Chinese market, the Celestials still looking upon it as a valuable part of their *materia medica*.

THE BROWN BEAR (*Ursus Richardsonii*).—The brown bear of Alaska, a huge, shaggy animal varying in length from 6 to 12 feet, is distributed over nearly every section of Alaska, but seems to prefer an open, swampy country to the timber. The northern limit of this animal is about latitude 67° north, where it is found on the headwaters of the rivers emptying into the Arctic, and occasionally on the streams emptying into Kotzebue sound and in the interior of the Kotzebue peninsula. Being an expert fisher, the brown bear frequents during the salmon season all the rivers emptying into Bering sea and the north Pacific and their tributaries as far as the fish will go, and at the end of the annual run of fish the animal retreats into the recesses of hills and tundra, where berries and small game are most plentiful. The banks of all the streams are lined on either side with the well-trodden trails of these huge animals, offering better facilities for the progress of the traveler than do the paths of men. The brown bear is the great road-maker of Alaska, and not only are the swampy plains intersected with paths made by him in all directions, leading generally to the easiest fording-places of streams and rivers, but the hills and ridges of mountains to the very top show the traces of this omnipresent traveler. He shows great judgment and local knowledge, for his road up the mountain is as safe to follow as is the most practicable route. In greatest numbers this animal is found in the region between the lower Kuskokvim, the Togiak, and the Nushegak rivers, and also on the Aliaska peninsula and the island of Oonimak. The island of Kadiak is full of this species of bear, but the largest specimens are shipped from the coast of Cook's inlet. The skin of a bear that had been killed in the vicinity of the Kenai mission during last summer (1880), which I measured, was 14 feet 2 inches in length. On the steep sides of the volcanic range of mountains, on the west side of Cook's inlet, brown bears can be seen in herds of twenty or thirty. Their skins are not very valuable, and, owing to this fact and to the fierce disposition of the animals, they are not commonly hunted. All natives of Alaska respect them, and it is the universal custom of hunters to address a few complimentary remarks to the intended victims before attempting to kill them. Perhaps the skins of fully one-half of the brown bears killed throughout Alaska are retained by the natives for bedding and to hang before the entrances of houses in the place of doors. The smaller skins are tanned and cut up into straps and lines, and the natives of the interior utilize them for manufacturing sledge-fastenings and the net-work bottoms of snow shoes, because this leather does not stretch when exposed to moisture as moose- and deer-skins do.

THE BLACK BEAR (*Ursus Americanus*).—The black bear of Alaska is widely distributed over the continental portion of the territory, but is generally confined to regions of timber and mountains; as far as known, it exists only on a few islands in Prince William sound and on Kaiak island. The northern limit of the black bear extends, according to observations made by Mr. E. W. Nelson, even beyond that of his brown cousin. It is said to exist farther down the rivers emptying into the Arctic, and to be quite plentiful thence southward to the valley of the Yukon. The western limit of the region where the black bear is found is perhaps a line drawn from the Selawik river southeastward to Nulato, and thence across to the Kuskokvim river in the vicinity of Kalmakovsky. From the upper Nushegak many skins are obtained, and one trader reports black bear even west of this line, on the lower left bank of the Kuskokvim and on the Togiak peninsula, but as that region is not timbered the statement appears doubtful. From Bristol bay eastward the black bear is confined to the timbered regions about lake Ilyamna, but is more plentiful on the coast of Cook's inlet and in the interior of the Kenai peninsula. From the headwaters of the Yukon, Tennanah, Sushetno, Kinik, and Copper rivers many black-bear skins are brought down to the sea-coast, and from Prince William sound and eastward the mountains and forests harbor large numbers of these animals. These skins command high prices and are still increasing in value, but the animals are shy, and to hunt them requires much time and patience. The natives do not fear them in the least, and, in fact, it is considered the work of boys to kill them. Owing to its value, probably, the natives never use the black-bear skin for bedding. The glossiest and largest of these skins come from the Saint Elias alpine range and the vicinity of Prince William sound; but the black bear never attains the size of the brown variety.

THE RED FOX (*Vulpes fulvus*).—The only fur-bearing animal found in every section of Alaska is the red fox. From point Barrow to the southern boundary, and from the British line to the island of Attoo, this animal is ever present. It varies in size and quality of its fur from the finest Nushegak variety, equal to the high-priced Siberian fire-fox, down to the diminutive, yellow-tinged specimen that rambles furtively over the rocky islands of the Aleutian chain. Its color gives variety among the uniform snow-white robes of its polar cousin along the Arctic shore, and with the unwelcome persistency of the poor relation it mingles with the aristocratic black and silver foxes, always managing to deteriorate in course of time the blood and coating of the "first families". Mountain or valley, forest or swampy plain, all seem to be the same to him. The red fox seems perfectly indifferent in regard to his diet, fish, flesh, and fowl being equally to his taste, with such little *entremets* as shell-fish, mussels, and eggs of aquatic birds. He has an advantage over his fellows in the fact that his skin is cheap, and the natives do not eat his flesh except as a last resort in times of famine. They hunt or trap the red fox only when nothing else can be obtained; the interior tribes, however, make winter garments of their skins.

Being an inveterate and intrepid traveler the red fox is not above making an occasional sea-voyage on the ice, which explains his presence on all the islands of the Aleutian chain, the Shumagin group, and even on Saint Lawrence and the Pribylof islands, over a hundred miles from any other land. It is a common practice among both Innuit and Indian tribes in the north to make household pets of young foxes whenever they can be secured alive. The average price of red-fox skins throughout the country is about $1.

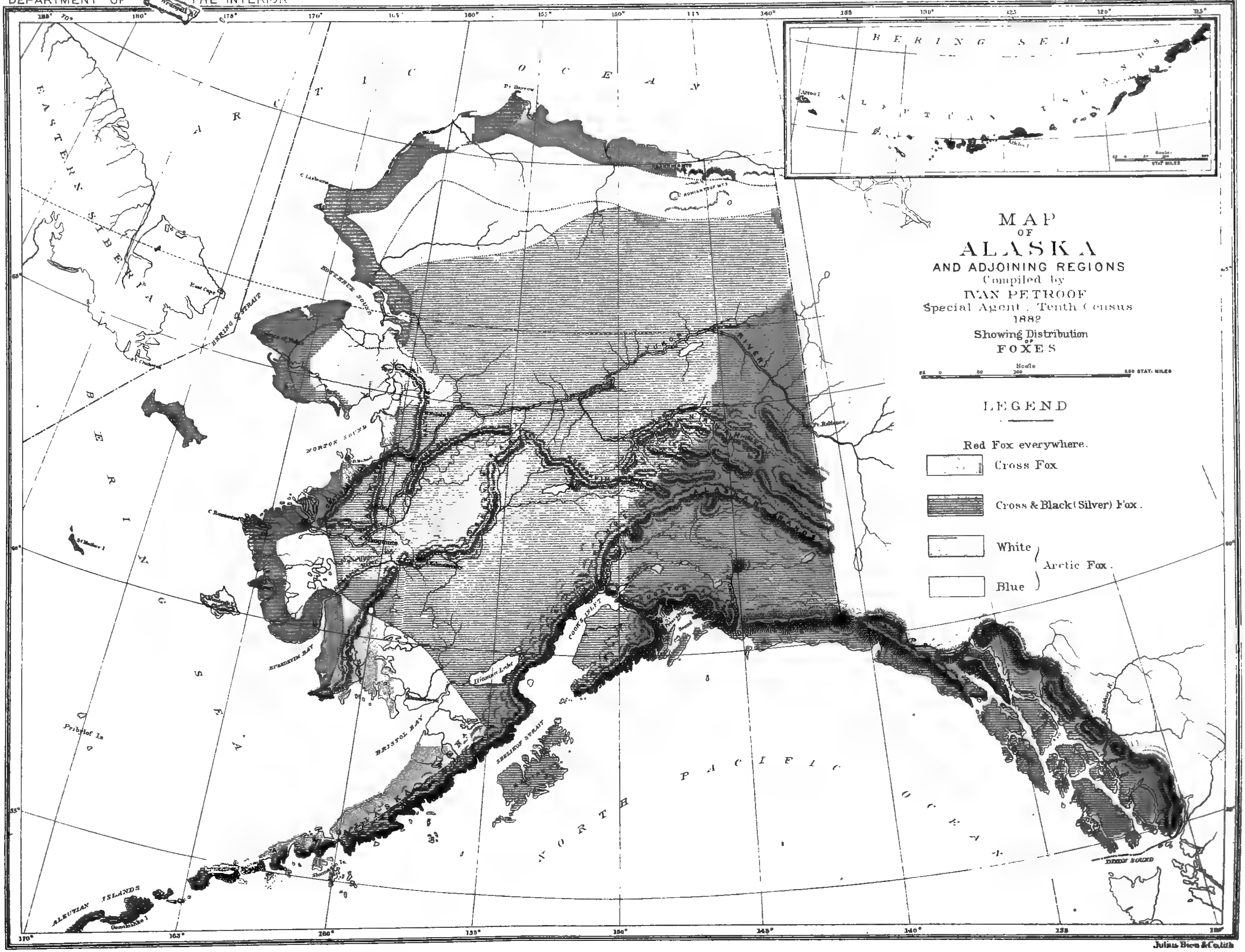
THE BLACK OR SILVER FOX (*Vulpes fulvus*, var. *argentatus*) AND THE CROSS FOX (*Vulpes fulvus*, var. *decussatus*).—The king among the various tribes of the *vulpes* family is the black or silver fox. He is found in his prime in the mountain fastnesses of the interior and on the headwaters of the larger rivers. Here he appears of large size, with long, soft, silky fur, varying in color from a silver tint to deep jet-black, the latter being the most rare and highly valued. These two qualities are found principally in the mountains on the boundary between southeastern Alaska and British Columbia, in the country of the Chilkhats and the Takoos, on the upper Copper river, the Kenai peninsula, and on the Sushetno and Kinik, the upper Yukon, Tennanah, and Kuskokvim rivers. In the last-named regions the traders pay from $10 to $15 for each skin, but in southeastern Alaska, where competition is more fierce, as much as $40 or $50 in coin are frequently paid for a single skin. Along the Yukon and its northern tributaries the black fox of an inferior quality is found almost on the sea-coast and on the shores of Norton sound and in the interior of Kotzebue peninsula. The animal is also reported to exist on the headwaters of the Colville river up to the sixty-eighth degree of latitude. Black foxes are quite plentiful on Kadiak island; and they occur on the Shumagin group, Oonimak island, and on most of the Aleutian islands as far as Atkha, but to many of these points they have been imported through the agency of man. On the timberless highlands of the far west the fur of these animals seems to deteriorate in quality.

Another species of the fox family is generally found with the silver fox, forming, in fact, the connecting link between the red plebeian and the black aristocrat. This is the cross fox, partaking of the distinguishing qualities of both the red and black, evidently the result of unrestrained intermixture. The quality and the color of the fur

DEPARTMENT OF THE INTERIOR

MAP IV

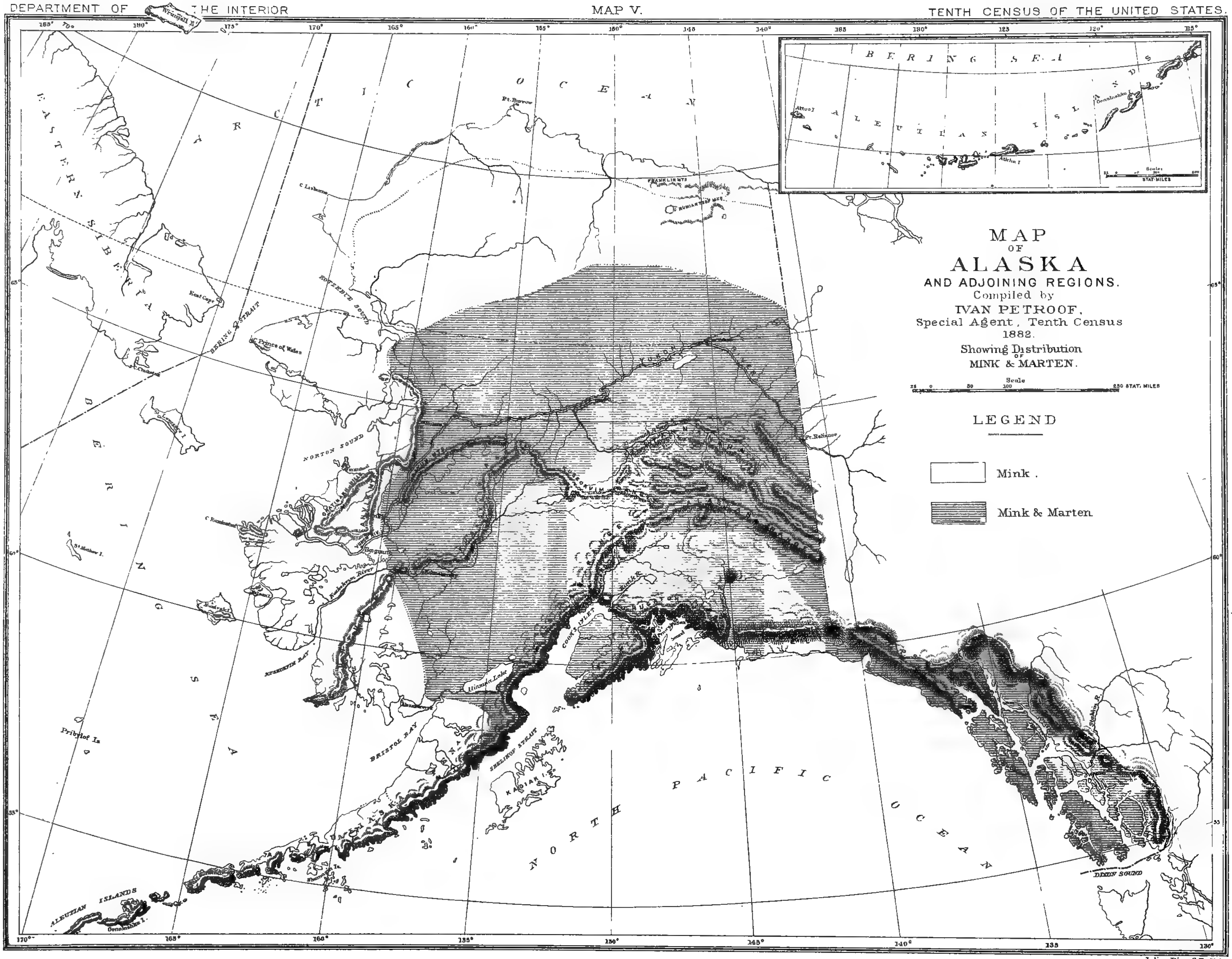
TENTH CENSUS OF THE UNITED STATES



MAP
OF
ALASKA
AND ADJOINING REGIONS
Compiled by
IVAN PETROOF
Special Agent, Tenth Census
1882
Showing Distribution
OF
FOXES

Julius Bien & Co. lith.

MAP V.



MAP OF ALASKA AND ADJOINING REGIONS.
Compiled by
IVAN PETROOF,
Special Agent, Tenth Census
1882.
Showing Distribution of MINK & MARTEN.

Julius Bien & Co. lith

of the cross fox come much nearer those of the red, and the skin of the former exceeds that of the latter but little in value—from $2 to $3 being paid for the best of them. While the distribution of the cross fox is naturally almost identical with that of the silver variety, the animal is found farther westward on the Aleutian islands, and is more frequent on the Aliaska peninsula, though on the islands of Prince William sound and on Kaiak island both the black and cross varieties exist.

The skins of silver foxes form the most important element in the trade of the whole Yukon basin, being almost the only high-priced skins found in that vicinity, but they are by no means numerous. The only section of Alaska where these animals are of the best quality and in large numbers at the same time is in the mountains about the Chilkhat and Takoo rivers, and there the reckless competition leaves but little margin for profit.

**The Arctic fox** (*Vulpes lagopus*—blue and white).—Of the Arctic fox we find in Alaska two varieties—one white and the other a bluish gray, commonly called "blue fox" by the traders. The white fox is found along the coast of continental Alaska from the mouth of the Kuskokvim northward to point Barrow and the eastern boundary. Its fur is of a snowy white, especially in the young, and both soft and long, but, owing to the lack of durability, it does not command a high price in the market.

The animal is very numerous northward of Norton sound, and not at all shy. Natives and travelers alike report instances of the fearlessness with which these foxes enter their camps, and even dwellings, in search of food or out of mere curiosity. A large portion of the skins secured by Eskimo and other natives are used by themselves for trimming their garments, and the remainder falls chiefly into the hands of whalers and whisky-smugglers, so that it is impossible to obtain accurate figures as to the annual catch. They may be called omnivorous, and they refuse nothing that will fill their stomachs. I observed one sleek and apparently well-fed specimen which devoured nearly the whole of a large salmon, and afterward worried down with considerable difficulty a thick leather strap with a heavy buckle attached to it. In the depth of winter the natives find it unsafe to leave any article of clothing, dog-harness, or boat material within their reach.

The blue fox exists now on several of the Aleutian islands, where it was found by the first discoverers in 1741. The animal is also found on the Pribylof islands, and here, where it has been possible to protect the species against intermixture with other and inferior foxes, the skins are of the finest quality, commanding a high price in the market. Traders report the existence of the blue fox to a limited extent in the vicinity of Oogashik, on the Aliaska peninsula, and also on the lower Kuskovkim; and it occurs also on the delta between the mouths of the Yukon and the Kuskovkim. Captain Hooper, of the revenue marine, who commanded the United States steamer Corwin during two successive cruises in the Arctic, reports that he saw blue foxes at cape Espenberg, Elephant point, Hotham inlet, point Hope, point Belcher, and point Barrow. The same gentleman also states that he "found the blue fox much more plentiful on the Siberian than on the American coast, and that all the blue foxes in the far north are so inferior to those on the islands of Bering sea as to suggest the possibility of their being a different species". Even on the Arctic coast Captain Hooper saw blue foxes, taken at the same time and place, differing very much in the color and quality of the fur. On the Pribylof islands from 1,000 to 1,500 of the best quality of blue-fox skins are annually shipped, and several hundred of a little inferior quality from Attoo and Atkha islands, but it is impossible to ascertain the quantity obtained along the Arctic coast by whalers and illicit traders.

**The Mink** (*Putorius vison*).—The Alaska mink is distributed almost as widely as the red fox, but does not extend to the islands. It is most plentiful in the vast tundras or mossy marshes of the lower Yukon, Kuskokvim, Togiak, and Nushegak basins. The skin is of very little value; the Russian-American Company did not purchase it at all, and even now the trade in this article is confined chiefly to the natives, who manufacture it into garments or use it for trimming. No more than 10,000 or 15,000 of these small skins are exported annually. The northern limit of the mink is but little south of the Arctic coast, and from thence southward it is found everywhere throughout the continent until its southern and western limits are reached on the Aliaska peninsula on a line between cape Stroganof and Sutkhum island. The only islands on which minks are found to exist are those in Prince William sound and perhaps some of those in the Alexander archipelago. No skins of this kind shipped from any portion of Alaska equal in quality or value those of British Columbia, Washington territory, and Oregon; the traders simply buying them for the sake of accommodating their customers. The region about Togiak river and lakes, which furnishes scarcely any other fur than mink, has for that reason been entirely neglected by traders. Until a year ago no white man had penetrated into the recesses of the tundras, and the inhabitants, having no intercourse with civilized men, are still in their primitive condition of barbarism. The natives living on the Yukon and Kuskokvim deltas are called "mink people" in derision by their neighbors—a term equivalent to beggar.

**The marten** (*Mustela americanus*).—The limits within which the marten is found throughout Alaska are almost identical with those of standing timber. The animal is found occasionally as far north as latitude 68°, and inhabits the valleys of the Yukon, Kuskokvim, and Nushegak rivers from the headwaters down as far as timber exists, on the wooded mountain ranges of Cook's inlet and the Kenai peninsula. On the Chugatch alps, the Copper River range, and the Saint Elias alps martens are plentiful and of the finest quality. Very fine skins of this kind are also purchased by the traders in southeastern Alaska; a portion of these probably being obtained from the British possessions. The Alaskan marten or sable is inferior to the Siberian fur of that name ("sable" is simply a corruption of the Russian word for marten, "sobol", and is by no means a distinct animal). The Russian-American Company considered the Alaska sable of so little value that they did not export it at all from the colonies, but sold the whole catch to officers and employés of the company. The price set upon these skins under those circumstances was small, indeed, being only ten cents each. After the transfer of the territory a demand for them arose, and in a few years of competition raised the price to $4, $5, and even $6, much to the delight of the astonished natives; but the inferiority of the article soon made itself felt, and reaction set in until at the present day the price of marten-skins in northwestern Alaska does not exceed $1 50, though in the southeastern section excessive competition still keeps up a higher figure.

A few more fur-bearing animals existing in Alaska may be mentioned, but they are not of sufficient importance to deserve more than a passing notice. The polar bear is found only on the Arctic coast, where ice in large bodies exists, and with the moving ice-fields he enters and leaves the waters of Bering sea. The number of skins annually secured forms but a very small item in the bulk of trade.

The lynx is found only in the wooded mountains of the interior on the Kenai peninsula and the Saint Elias range of mountains, the skins being used chiefly for carriage robes and trimming, but the fur is not durable.

Wolves, both gray and white, are found, but are rarely killed.

Musk-rats exist all over Alaska, but the skins are at most valueless and but few are shipped away.

Rabbits and marmots are killed only for their flesh, and occasionally the natives use the skins of the latter for the garments of the poor.

Wolverines are rarely exported, as they find a ready market among the inhabitants of the coast region of the Yukon and Kuskokvim divisions, who prefer this shaggy piebald fur to any other trimming for their garments.

### EXPORTS OF FURS FROM ALASKA.

The first authentic list of fur shipments from Russian America was compiled at the beginning of the present century by Lieutenant Vassili Berg, of the Russian navy, who having access to all the archives of Petropavlovsk, Nishnekamchatsk, Bolsheretzk, and Okhotsk, included in his list all the importations from America from 1745 to 1797, with the exception of one cargo, containing nearly 4,000 sea-otter skins (the ship Vladimir, Captain Zaïkof, in 1779). With the year 1797 the systematic operations of the Russian-American Company began, though their charter was not promulgated until a year or two later, and from that time forth official tabulated statements of furs shipped from the colonies were published from time to time. Other tables can be found in the works of various authors and travelers, but it is safe to state that, generally speaking, the totals thus furnished were below the actual yield of furs. These tables, furthermore, do not include the large shipments of sea-otter furs from the Alexander archipelago by American and English traders at the end of the last and the beginning of the present century, aggregating at least 20,000 or 30,000 skins. The transactions of Baranof, the first chief manager of the Russian-American Company, who paid for many ships' cargoes of provisions and trading-goods in fur-seal skins, were also ignored, and no account was kept of losses by the frequent shipwrecks and through carelessness of subordinate employés. Thus, in one instance, the captain of the ship Nadaishda, in 1805, was obliged to throw overboard 30,000 fur-seal and several hundred sea-otter skins, which were found to have reached an advanced stage of putrefaction in the hold of the vessel. The naturalist, Langsdorff, who accompanied Lissiansky in his voyage around the world, learned from the sealers stationed on Saint Paul island that they had killed at least 30,000 fur-seals for their blubber only, the skins having been thrown into the sea for lack of time, hands, and fuel to cure them.

The incompleteness of the official Russian returns is easily demonstrated by comparison. One of these reports, covering the period from 1821 to 1842, gives the total shipments of furs as follows: Of sea-otter 25,416, or an annual average of 1,210; of fur-seal 458,502, or an annual average of 21,833; and of beaver 162,034, or an annual average of 7,716. Another partial report, yet also official, covers seven years of the same period, but shows results quite different. The annual average computed from the latter would be 1,407 of sea-otter, 18,880 fur-seal, and 5,711 beaver. The average annual yield in these furs, as computed from the company's official returns for the next twenty years, from 1842 to 1862, was 1,294 sea-otter, 18,644 fur-seal, and 7,874 beaver.

Large quantities of furs formerly found their way from the lower Yukon river and Norton and Kotzebue sounds to Siberia, through the hands of Chukche and Malemute traders, who obtained trading-goods from Siberian merchants on the Anadyr and Indigirka rivers. These Alaskan furs were, of course, not included in any estimate, nor can I now give the number of skins purchased annually along the Arctic coast by the illegitimate traders who carry rum and breech-loading arms from the Hawaiian islands and spread ruin and destruction along these ice-bound shores. From the persistency with which these men continue to assume the risks of this unlawful traffic it must be concluded that both its volume and profit are large.

From southeastern Alaska, also, large numbers of furs are carried into British Columbia, of which no record can be obtained, both natives and whites being there engaged in smuggling them across the frontier. All this goes to show that all returns of Alaska's yield of furs always have been and necessarily must be below rather than above the reality.

The annexed tabular exhibit of fur shipments from Alaska since its first invasion by Siberian fur-traders has been compiled from records found in the archives of the Russian-American Company, from Russian official reports and other publications, and from the books of the San Francisco custom-house, supplemented by statements furnished by the few firms engaged in the Alaskan trade. This table shows strikingly the extraordinary increase in the number of furs purchased annually since the transfer of Alaska to the United States. This discrepancy may, however, be only apparent to a certain extent, and could probably be much reduced were the means at hand of ascertaining the reliability of Russian returns. The officials of the Russian-American Company were disposed to conceal the actual extent of their transactions, as the company, during the later period of its existence, was constantly striving to obtain a reduction of or relief from the vast expenditure (for administrative and protective purposes) imposed upon it by the imperial charter. Another factor in the deficiency of returns may be found in the dishonesty of subordinate employés of the Russian company, who filled their own pockets at the expense of the shareholders. It was, however, the accepted policy of the managers of the corporation to keep the wants of the natives within the narrowest possible limits, and thereby to reduce as far as practicable the quantity of merchandise required for the colonial trade, which had to be shipped around the world at an enormous expense. Since the transfer of the country, on the other hand, and since the breaking up of the monopoly, the rival traders have vied with each other in dazzling the eyes of fortunate hunters with a lavish display of costly articles of luxury and delicacies for the palate, exciting them to the utmost exertion in the pursuit of fur-bearing animals.

SUMMARY OF FURS SHIPPED FROM RUSSIAN AMERICA AND ALASKA FROM 1745 TO 1880.

| By whom shipped. | Sea-otter. | Fur-seal. | Land-otter. | Beaver. | FOX. | | | | | BEAR. | | Mink. | Marten. | Musk-rat. | Wolverine. | Lynx. | Wolf. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Black. | Cross. | Red. | Arctic. | | Black. | Brown. | | | | | | |
| | | | | | | | | Blue. | White. | | | | | | | | |
| I.—UNDER RUSSIAN RULE. | | | | | | | | | | | | | | | | | |
| Siberian traders, from 1745 to 1797. | 96,047 | 417,758 | 1,679 | ........ | 10,421 | 15,147 | 14,961 | 62,361 | ........ | ...... | ........ | ........ | ........ | ........ | ........ | ........ | .... |
| Shelikhof company, from 1786 to 1797. | 15,647 | 139,266 | 3,360 | 428 | 4,625 | 5,222 | 5,704 | 600 | ........ | ...... | ........ | ........ | 200 | ........ | ........ | ........ | .... |
| Russian-American Company, from 1798 to 1821. | 86,644 | 1,767,340 | 17,768 | 56,001 | 15,112 | 24,535 | 35,456 | 45,904 | 5,130 | ...... | 2,650 | 5,345 | 17,921 | ....... | 1,234 | 1,819 | .... |
| Russian-American Company, from 1821 to 1842. | 25,416 | 458,502 | 29,442 | 162,034 | 17,913 | 26,462 | 45,947 | 55,714 | 13,638 | ...... | 5,355 | 15,481 | 15,666 | 4,491 | 1,564 | 4,253 | 201 |
| Russian-American Company, from 1842 to 1862. | 25,899 | 372,894 | 170,473 | 157,484 | 21,212 | 23,102 | 33,533 | 32,130 | 22,004 | ...... | 1,893 | 12,701 | 13,682 | 6,570 | 10 | 6,927 | 24 |
| Russian-American Company, from 1862 to 1867. | 11,137 | 198,718 | 21,816 | 37,409 | 14,310 | 7,942 | 12,316 | 8,082 | 5,119 | ...... | 590 | 690 | 918 | 3,180 | 78 | 4,012 | 116 |
| Total Russian shipments. | 260,790 | 3,354,478 | 244,538 | 413,356 | 83,593 | 102,410 | 147,917 | 204,791 | 45,891 | ...... | 10,488 | 34,217 | 48,387 | 14,241 | 2,886 | 17,011 | 341 |
| II.—SINCE PURCHASE BY THE UNITED STATES. | | | | | | | | | | | | | | | | | |
| By American traders, from 1867 to 1871. | 12,208 | 338,965 | 6,367 | 17,041 | 2,310 | 6,214 | 31,714 | 4,419 | 4,312 | 121 | 1,910 | 32,100 | 24,311 | 17,908 | ........ | 2,412 | 180 |
| By American traders, from 1871 to 1880. | 40,283 | 938,368 | 18,964 | 41,217 | 6,992 | 19,410 | 82,919 | 7,508 | 11,492 | 819 | 5,207 | 71,213 | 81,609 | 50,322 | ........ | 6,312 | 421 |
| Total American shipments. | 52,491 | 1,277,333 | 25,331 | 58,258 | 9,302 | 25,624 | 114,633 | 11,927 | 15,804 | 940 | 7,117 | 103,313 | 105,920 | 68,230 | ........ | 8,724 | 601 |
| Grand total.......... | 313,281 | 4,631,811 | 269,869 | 471,614 | 92,895 | 128,034 | 262,550 | 216,718 | 61,695 | 940 | 17,605 | 137,530 | 154,307 | 82,471 | 2,886 | 25,735 | 942 |

With the aid of the above table a computation may be made as to the average earnings of the native hunter in disposing of his furs to the traders. The returns from the southeastern division are incomplete and partly inaccessible, and therefore the calculation is confined to the people living west of the one hundred and forty-first meridian.

During the ten years from 1870 to 1880 the purchases of furs by traders from natives aggregated—

| | | |
|---|---|---|
| 40,283 | sea-otter, at $60, worth | $2,416,980 00 |
| 18,964 | land-otter, at $2 50, worth | 47,410 00 |
| 41,217 | beaver, at $2 50, worth | 103,042 50 |
| 6,992 | black fox, at $15, worth | 104,880 00 |
| 19,410 | cross fox, at $2 50, worth | 48,525 00 |
| 82,919 | red fox, at $1, worth | 82,919 00 |
| 7,508 | blue fox, at $2, worth | 15,016 00 |
| 11,492 | white fox, at $1, worth | 11,492 00 |
| 819 | black bear, at $3, worth | 2,457 00 |
| 5,207 | brown bear, at $1 50, worth | 7,810 50 |
| 71,213 | mink, at 20 cents, worth | 14,242 60 |
| 81,609 | marten, at $2, worth | 163,218 00 |
| 50,322 | musk-rat, at 5 cents, worth | 2,516 10 |
| 6,312 | lynx, at $2, worth | 12,624 00 |
| 421 | wolf, at $1 50, worth | 631 50 |
| | Total | 3,033,764 20 |

Average for one year, $303,376 42, which sum divided between 3,000 families would give each an annual income of about $100 from this source. The earnings of the Arctic Innuit are not included in this calculation, their furs not appearing in the above list. Another exception are the inhabitants of the Pribylof or fur-seal islands, who divide over $40,000 every year among less than 100 families. It is also necessary to state that about 400 families divide the proceeds of the whole sea-otter catch, amounting to from $250,000 to $300,000 per annum.

The official report of State Councilor Kostlivtzof, who was appointed in 1861 to investigate the affairs of the Russian-American Company, contains a table exhibiting the purchases of furs from natives of Alaska during a period of nineteen years, from 1842 to 1860, inclusive. This table is arranged by districts and stations, and has been transcribed in full from the Russian original so far as it confines itself to the limits of the present Alaska. The operations of the Russian-American Company embraced also a few localities not included in the transfer of territory from Russia to the United States.

SUMMARY OF FURS PURCHASED BY THE RUSSIAN-AMERICAN COMPANY IN ALASKA FROM 1842 TO 1860.

| Year. | Where purchased—station or district. | Sea-otter. | Fur-seal. | Land-otter. | Beaver. | Fox. | Arctic fox. | Bear. | Mink. | Marten. | Musk-rat. | Lynx. | Wolverine. | Wolf. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1842 | Sitka | 131 | 2 | 162 | 230 | 129 | | 108 | 631 | 182 | 68 | 14 | 11 | 4 |
| | Kadiak | 342 | | 1,018 | 6,198 | 3,175 | | 136 | 37 | | 3,210 | 100 | 35 | 3 |
| | Ounga | | | | | | | | | | | | | |
| | Oonalashka | 333 | | 58 | | 1,691 | | | | | | | | 4 |
| | Atkha | | | | | | | | | | | | | |
| | Attoo | | | | | | | | | | | | | |
| | Saint Paul island | | 7,600 | | | | 505 | | | | | | | |
| | Saint George island | | 2,570 | | | | 1,491 | | | | | | | |
| | Kalmakovsky | | | | | | | | | | | | | |
| | Saint Michael | | | 240 | 2,088 | 532 | 549 | | 73 | 58 | 300 | 36 | | |
| | Total | 806 | 10,172 | 1,478 | 8,522 | 5,527 | 2,545 | 304 | 741 | 240 | 3,578 | 150 | 46 | 11 |
| 1843 | Sitka | 108 | | 241 | 328 | 101 | | 100 | 40 | 120 | 16 | | 9 | 7 |
| | Kadiak | 294 | | 1,028 | 6,592 | 2,022 | | 122 | 60 | 861 | | 111 | | 1 |
| | Ounga | | | | | | | | | | | | | |
| | Oonalashka | 281 | | 65 | | 1,583 | | | 2 | | | | 1 | 3 |
| | Atkha | 281 | 931 | | | | 986 | | | | | | | |
| | Attoo | | | | | | | | | | | | | |
| | Saint Paul island | | 10,236 | | | | 515 | | | | | | | |
| | Saint George island | | 1,004 | | | | 1,377 | | | | | | | |
| | Kalmakovsky | | | | | | | | | | | | | |
| | Saint Michael | | | 274 | 3,004 | 300 | 424 | | | 11 | 64 | 33 | | |
| | Total | 1,054 | 12,171 | 1,608 | 9,924 | 4,006 | 3,302 | 222 | 102 | 992 | 80 | 144 | 10 | 11 |
| 1844 | Sitka | 81 | | 40 | 291 | 3 | 1 | 20 | 2 | 250 | | 3 | 11 | 1 |
| | Kadiak | 191 | | 727 | 5,580 | 1,691 | | 54 | 96 | 346 | 6 | 27 | 56 | 4 |
| | Ounga | | | | | | | | | | | | | |
| | Oonalashka | 267 | | 97 | | 1,147 | | | | | | | | 4 |
| | Atkha | 387 | 756 | | | 237 | 1,109 | | | | | | | |
| | Attoo | | | | | | | | | | | | | |
| | Saint Paul island | | 11,094 | | | | 394 | | | | | | | |
| | Saint George island | | 830 | | | | 1,343 | | | | | | | |
| | Kalmakovsky | | | | | | | | | | | | | |
| | Saint Michael | | | 250 | 3,180 | 278 | 174 | 2 | | 29 | | 5 | | |
| | Total | 926 | 12,680 | 1,214 | 9,051 | 3,356 | 3,021 | 76 | 98 | 625 | 6 | 35 | 67 | 9 |
| 1845 | Sitka | 144 | | 164 | 102 | 80 | | 30 | | 262 | | | 14 | 9 |
| | Kadiak | 343 | | 731 | 4,240 | 1,945 | | 88 | 78 | 574 | 145 | 63 | 57 | 6 |
| | Ounga | | | | | | | | | | | | | |
| | Oonalashka | 335 | | 67 | | 1,134 | | | | | | | | 2 |
| | Atkha | | | | | | | | | | | | | |
| | Attoo | | | | | | | | | | | | | |
| | Saint Paul island | | 12,637 | | | | 365 | | | | | | | |
| | Saint George island | | 1,000 | | | | 1,366 | | | | | | | |
| | Kalmakovsky | | | 76 | 1,646 | 135 | | 3 | | | | 10 | | |
| | Saint Michael | | | 320 | 2,607 | 504 | 138 | 6 | | 149 | | 27 | | |
| | Total | 822 | 13,637 | 1,358 | 8,685 | 3,798 | 1,869 | 127 | 78 | 985 | 145 | 100 | 71 | 17 |
| 1846 | Sitka | 142 | | 158 | 107 | 78 | | 4 | 6 | 192 | | | 10 | 2 |
| | Kadiak | 266 | | 418 | 4,855 | 628 | | 72 | 154 | 1,629 | | 124 | 101 | 6 |
| | Ounga | 64 | | 74 | | 511 | | | | | | | | |
| | Oonalashka | 255 | | 5 | | 1,023 | | | | | | | | |
| | Atkha | 398 | | | | 61 | 1,788 | | | | | | | |
| | Attoo | 91 | | | | | | | | | | | | |
| | Saint Paul island | | 14,053 | | | | 528 | | | | | | | |

SUMMARY OF FURS PURCHASED BY THE RUSSIAN-AMERICAN COMPANY IN ALASKA FROM 1842 TO 1860—Continued.

| Year. | Where purchased—station or district. | Sea-otter. | Fur-seal. | Land-otter. | Beaver. | Fox. | Arctic fox. | Bear. | Mink. | Marten. | Musk-rat. | Lynx. | Wolverine. | Wolf. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1846 | Saint George island |  | 1,017 |  |  |  | 1,418 |  |  |  |  |  |  |  |
|  | Kalmakovsky |  |  | 52 | 2,091 | 79 |  | 10 |  |  |  | 5 |  |  |
|  | Saint Michael |  |  | 227 | 3,623 | 408 | 132 | 3 |  | 47 |  | 33 |  |  |
|  | Total | 1,216 | 15,070 | 934 | 10,676 | 2,788 | 3,866 | 89 | 160 | 1,868 |  | 162 | 111 | 8 |
| 1847 | Sitka | 158 |  | 119 | 58 | 29 |  | 3 |  | 51 |  |  | 11 | 1 |
|  | Kadiak | 251 |  | 361 | 3,601 | 692 |  | 69 | 101 | 1,585 | 152 | 151 | 55 |  |
|  | Ounga | 214 |  | 60 |  | 421 |  |  |  |  |  |  |  |  |
|  | Oonalashka | 186 |  | 5 |  | 1,746 |  |  |  |  |  |  |  |  |
|  | Atkha | 87 |  |  |  | 27 | 235 |  |  |  |  |  |  |  |
|  | Attoo | 84 |  |  |  |  | 284 |  |  |  |  |  |  |  |
|  | Saint Paul island |  | 16,703 |  |  |  | 515 |  |  |  |  |  |  |  |
|  | Saint George island |  | 1,000 |  |  |  | 1,354 |  |  |  |  |  |  |  |
|  | Kalmakovsky |  |  | 100 | 2,395 | 236 |  | 8 |  |  |  | 49 |  | 1 |
|  | Saint Michael |  |  | 179 | 3,404 | 293 | 161 | 5 |  |  |  | 111 |  |  |
|  | Total | 980 | 17,703 | 824 | 9,458 | 3,444 | 2,549 | 85 | 101 | 1,636 | 152 | 311 | 66 | 2 |
| 1848 | Sitka | 95 |  | 114 | 48 | 7 |  | 10 | 54 | 55 |  | 15 | 2 |  |
|  | Kadiak | 397 |  | 300 | 5,544 | 1,215 |  | 109 | 74 | 948 | 60 | 178 | 19 | 4 |
|  | Ounga | 100 |  | 66 |  | 634 |  |  |  | 23 |  |  | 1 |  |
|  | Oonalashka | 230 |  |  |  | 1,180 |  |  |  |  |  |  |  |  |
|  | Atkha | 113 |  |  |  | 19 | 130 |  |  |  |  |  |  |  |
|  | Attoo | 91 |  |  |  |  | 274 |  |  |  |  |  |  |  |
|  | Saint Paul island |  | 13,650 |  |  |  | 461 |  |  |  |  |  |  |  |
|  | Saint George island |  | 1,000 |  |  |  | 1,298 |  |  |  |  |  |  |  |
|  | Kalmakovsky |  |  | 75 | 1,949 | 333 |  | 14 |  |  |  | 20 |  |  |
|  | Saint Michael |  |  | 207 | 2,749 | 469 | 13 | 3 | 20 | 96 | 490 | 110 |  |  |
|  | Total | 1,035 | 14,650 | 762 | 10,290 | 3,857 | 2,176 | 136 | 148 | 1,122 | 550 | 323 | 22 | 4 |
| 1849 | Sitka | 164 |  | 136 | 623 | 33 |  | 4 | 54 | 65 |  | 10 | 6 |  |
|  | Kadiak | 256 | 2 | 490 | 4,335 | 2,151 |  | 60 | 75 | 1,276 | 146 | 269 | 69 | 4 |
|  | Ounga | 185 |  | 74 |  | 358 |  |  |  |  |  |  | 1 |  |
|  | Oonalashka | 195 |  | 7 |  | 423 |  |  |  |  |  |  | 1 |  |
|  | Atkha | 148 |  |  |  |  |  |  |  |  |  |  |  |  |
|  | Attoo | 238 |  |  |  |  | 222 |  |  |  |  |  |  |  |
|  | Saint Paul island |  | 20,450 |  |  |  | 519 |  |  |  |  |  |  |  |
|  | Saint George island |  | 1,000 |  |  |  | 1,069 |  |  |  |  |  |  |  |
|  | Kalmakovsky |  |  | 78 | 1,436 | 298 |  | 8 |  |  |  | 15 |  |  |
|  | Saint Michael |  |  | 269 | 2,543 | 637 | 41 | 2 |  | 175 |  | 124 |  |  |
|  | Total | 1,186 | 21,452 | 1,054 | 8,937 | 3,900 | 1,851 | 74 | 129 | 1,516 | 146 | 418 | 77 | 4 |
| 1850 | Sitka | 260 | 1 | 128 | 430 | 105 |  | 13 | 30 | 200 |  | 9 | 9 |  |
|  | Kadiak | 292 |  | 400 | 4,679 | 2,145 |  | 116 | 69 | 993 | 210 | 284 | 122 | 6 |
|  | Ounga | 236 |  | 64 |  | 439 |  |  |  |  |  |  |  | 1 |
|  | Oonalashka | 239 |  | 1 |  | 680 |  |  |  |  |  |  |  |  |
|  | Atkha | 33 |  |  |  |  |  |  |  |  |  |  |  |  |
|  | Attoo | 298 |  |  |  |  | 170 |  |  |  |  |  |  |  |
|  | Saint Paul island |  | 6,270 |  |  |  | 519 |  |  |  |  |  |  |  |
|  | Saint George island |  | 500 |  |  |  | 1,073 |  |  |  |  |  |  |  |
|  | Kalmakovsky |  |  | 73 | 1,077 | 285 |  | 7 |  |  |  | 28 |  |  |
|  | Saint Michael |  |  | 124 | 2,505 | 793 | 24 | 22 |  | 64 | 686 | 176 |  |  |
|  | Total | 1,358 | 6,771 | 790 | 8,691 | 4,447 | 1,786 | 158 | 99 | 1,257 | 896 | 497 | 131 | 7 |
| 1851 | Sitka | 111 |  | 65 | 462 | 22 |  | 1 | 144 | 189 |  |  | 6 |  |
|  | Kadiak | 416 |  | 253 | 4,442 | 1,047 |  | 99 |  | 173 | 473 | 60 | 93 |  |
|  | Ounga | 200 |  | 39 |  | 514 |  |  | 1 |  |  |  |  |  |
|  | Oonalashka | 270 |  | 2 |  | 913 |  |  |  |  |  |  |  |  |
|  | Atkha | 25 |  |  |  | 90 | 126 |  |  |  |  |  |  |  |
|  | Attoo | 21 |  |  |  | 253 |  |  |  |  |  |  |  |  |
|  | Saint Paul island |  | 6,064 |  |  |  | 517 |  |  |  |  |  |  |  |
|  | Saint George island |  | 500 |  |  |  | 1,263 |  |  |  |  |  |  |  |
|  | Kalmakovsky |  |  | 45 | 1,166 | 339 |  |  |  |  |  | 19 |  |  |
|  | Saint Michael |  |  | 157 | 3,169 | 259 | 12 | 1 | 29 | 67 | 692 | 106 |  |  |
|  | Total | 1,043 | 6,564 | 561 | 9,239 | 3,437 | 1,918 | 101 | 174 | 429 | 1,165 | 185 | 99 |  |
| 1852 | Sitka | 46 |  | 15 | 143 | 2 |  |  |  | 24 |  |  |  |  |
|  | Kadiak | 155 |  | 448 | 3,196 | 1,637 |  | 65 |  | 503 |  | 14 | 80 | 5 |
|  | Ounga | 232 |  | 68 |  | 468 |  |  | 6 |  |  |  |  |  |
|  | Oonalashka | 233 |  | 3 |  | 1,481 |  |  |  |  |  |  |  |  |

SUMMARY OF FURS PURCHASED BY THE RUSSIAN-AMERICAN COMPANY IN ALASKA FROM 1842 TO 1860—Continued.

| Year. | Where purchased—station or district. | Sea-otter. | Fur-seal. | Land-otter. | Beaver. | Fox. | Arctic fox. | Bear. | Mink. | Marten. | Musk-rat. | Lynx. | Wolverine. | Wolf. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1852 | Atkha | 91 | | | | 34 | 243 | | | | | | | |
| | Attoo | 123 | | | | | 294 | | | | | | | |
| | Saint Paul island | | 6, 225 | | | | 645 | | | | | | | |
| | Saint George island | | 500 | | | | 1, 477 | | | | | | | |
| | Kalmakovsky | | | 54 | 1, 732 | 62 | | | | | | 11 | | |
| | Saint Michael | | | 116 | 1, 720 | 630 | 77 | 5 | | 46 | 1, 152 | 24 | | |
| | Total | 880 | 6, 725 | 704 | 6, 791 | 4, 314 | 2, 736 | 70 | 6 | 573 | 1, 152 | 49 | 80 | 5 |
| 1853 | Sitka | 1 | | | 79 | | | 2 | | | | | | |
| | Kadiak | 282 | | 248 | 6, 179 | 589 | | 75 | 51 | 232 | 1, 146 | 5 | 74 | 6 |
| | Ounga | 242 | | 87 | | 517 | | | | | | | | |
| | Oonalashka | 299 | | 3 | | 1, 167 | | | | | | | | |
| | Atkha | 4 | | | | 285 | 185 | | | | | | | |
| | Attoo | 193 | | | | | 388 | | | | | | | |
| | Saint Paul island | | 16, 034 | | | | 641 | | | | | | | |
| | Saint George island | | 2, 001 | | | | 1, 238 | | | | | | | |
| | Kalmakovsky | | | 48 | 2, 640 | 163 | 113 | | | | | | | |
| | Saint Michael | | | 250 | 3, 174 | 454 | 30 | 3 | 70 | 122 | 568 | 15 | | |
| | Total | 1, 021 | 18, 035 | 636 | 12, 072 | 3, 175 | 2, 595 | 80 | 121 | 354 | 1, 714 | 20 | 74 | 6 |
| 1854 | Sitka | 1 | | | 23 | | | | 30 | 21 | | | | |
| | Kadiak | 390 | 1 | 438 | 654 | 1, 534 | | 22 | 8 | 238 | 167 | 3 | 46 | 1 |
| | Ounga | | | | | | | | | | | | | |
| | Oonalashka | 268 | | 1 | | 721 | | | | | | | | |
| | Atkha | 9 | | | | 125 | 193 | | | | | | | |
| | Attoo | 74 | | | | | | | | | | | | |
| | Saint Paul island | | 24, 146 | | | | 624 | | | | | | | |
| | Saint George island | | 2, 000 | | | | 1, 291 | | | | | | | |
| | Kalmakovsky | | | 42 | 1, 472 | 105 | | | | | | 1 | | |
| | Saint Michael | | | 442 | 3, 855 | 288 | 4 | 3 | 1 | 254 | | 10 | | |
| | Total | 742 | 26, 147 | 923 | 6, 004 | 2, 773 | 2, 112 | 25 | 39 | 513 | 167 | 14 | 46 | 1 |
| 1855 | Sitka | 3 | | 2 | 9 | | | | | | | | | |
| | Kadiak | 296 | | 253 | 6, 837 | 735 | | 171 | 165 | 990 | 1, 050 | 43 | 143 | 6 |
| | Ounga | 673 | | 176 | | 646 | | | | | | | 1 | |
| | Oonalashka | 338 | | 2 | | 820 | | | | | | | | |
| | Atkha | 36 | | | | | | | | | | | | |
| | Attoo | | | | | | | | | | | | | |
| | Saint Paul island | | 6, 584 | | | | | | | | | | | |
| | Saint George island | | 2, 001 | | | | 1, 123 | | | | | | | |
| | Kalmakovsky | | | 67 | 965 | 12 | | | | | | 3 | | |
| | Saint Michael | | | 347 | 1, 594 | 470 | 36 | 2 | 33 | 502 | 235 | 4 | | |
| | Total | 1, 346 | 8, 585 | 847 | 9, 405 | 2, 683 | 1, 159 | 173 | 198 | 1, 492 | 1, 285 | 50 | 144 | 6 |
| 1856 | Sitka | | | | 15 | | | | | | | | | |
| | Kadiak | 251 | | 506 | 2, 176 | 1, 015 | | 59 | 3 | 886 | | 76 | 39 | |
| | Ounga | 193 | | 64 | | 138 | | | | | | | | |
| | Oonalashka | 215 | | | | 344 | | | | | | | | |
| | Atkha | 86 | | | | 71 | 159 | | | | | | | |
| | Attoo | 325 | | | | | 280 | | | | | | | |
| | Saint Paul island | | 20, 550 | | | | 514 | | | | | | | |
| | Saint George island | | 3, 000 | | | | 1, 145 | | | | | | | |
| | Kalmakovsky | | | 88 | 1, 161 | 260 | 99 | 16 | | 450 | | 10 | | |
| | Saint Michael | | | 248 | 1, 207 | 673 | 138 | 19 | 104 | 396 | 220 | 26 | | |
| | Total | 1, 070 | 23, 550 | 906 | 4, 559 | 2, 501 | 2, 335 | 94 | 107 | 1, 732 | 220 | 112 | 39 | |
| 1857 | Sitka | | | | | | | | | | | | | |
| | Kadiak | 331 | | 519 | 4, 562 | 1, 056 | | 97 | 101 | 857 | 2, 287 | 174 | 70 | 1 |
| | Ounga | 273 | | 49 | | 290 | | | | | | | | |
| | Oonalashka | 403 | | | | 641 | | | | | | | | |
| | Atkha | 3 | | | | 11 | 33 | | | | | | | |
| | Attoo | 176 | | | | | 180 | | | | | | | |
| | Saint Paul island | | 18, 082 | | | | 1, 417 | | | | | | | |
| | Saint George island | | 3, 000 | | | | 1, 198 | | | | | | | |
| | Kalmakovsky | | | | | | | | | | | | | |
| | Saint Michael | | | 375 | 2, 683 | 1, 059 | 159 | | | 1, 387 | 52 | 33 | 52 | |
| | Total | 1, 186 | 21, 082 | 943 | 7, 245 | 3, 057 | 2, 987 | 97 | 101 | 2, 244 | 2, 339 | 207 | 122 | 1 |

SUMMARY OF FURS PURCHASED BY THE RUSSIAN-AMERICAN COMPANY IN ALASKA FROM 1842 TO 1860—Continued.

| Year. | Where purchased—station or district. | Sea-otter. | Fur-seal. | Land-otter. | Beaver. | Fox. | Arctic fox. | Bear. | Mink. | Marten. | Musk-rat. | Lynx. | Wolver-ine. | Wolf. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1858 | Sitka | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| | Kadiak | 169 | ...... | 442 | 3, 120 | 1, 364 | 17 | 76 | 42 | 1, 002 | 2, 880 | 208 | 73 | 4 |
| | Ounga | 274 | ...... | 51 | ...... | 240 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| | Oonalashka | 418 | ...... | 7 | ...... | 1, 102 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| | Atkha | 32 | ...... | ...... | ...... | 223 | 228 | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| | Attoo | 249 | ...... | ...... | ...... | ...... | 94 | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| | Saint Paul island | ...... | 29, 810 | ...... | ...... | ...... | 558 | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| | Saint George island | ...... | 3, 000 | ...... | ...... | ...... | 1, 555 | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| | Kalmakovsky | ...... | ...... | 95 | 1, 280 | 128 | 8 | 7 | ...... | 352 | ...... | 95 | ...... | ...... |
| | Saint Michael | ...... | ...... | 286 | 1, 449 | 506 | 150 | 24 | ...... | 1, 394 | 69 | 53 | ...... | ...... |
| | Total | 1, 142 | 32, 810 | 881 | 5, 849 | 3, 563 | 2, 610 | 107 | 42 | 2, 748 | 2, 949 | 356 | 73 | 4 |
| 1859 | Sitka | ...... | ...... | ...... | 32 | ...... | ...... | 5 | 22 | ...... | 4 | ...... | ...... | ...... |
| | Kadiak | 491 | ...... | 557 | 3, 178 | 1, 420 | ...... | 81 | 41 | 675 | 1, 197 | 94 | 56 | 1 |
| | Ounga | 359 | ...... | 44 | ...... | 250 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| | Oonalashka | 443 | ...... | ...... | ...... | 1, 005 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| | Atkha | 106 | ...... | ...... | ...... | 195 | 125 | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| | Attoo | 279 | ...... | ...... | ...... | ...... | 5 | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| | Saint Paul island | ...... | 19, 000 | ...... | ...... | ...... | 619 | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| | Saint George island | ...... | 3, 000 | ...... | ...... | ...... | 1, 296 | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| | Kalmakovsky | ...... | ...... | 103 | 1, 717 | 757 | 63 | 10 | ...... | 346 | ...... | 52 | ...... | ...... |
| | Saint Michael | ...... | ...... | 333 | 1, 982 | 995 | 267 | 37 | ...... | 1, 946 | 140 | 32 | 1 | ...... |
| | Total | 1, 678 | 22, 000 | 1, 037 | 6, 909 | 4, 622 | 2, 375 | 133 | 63 | 2, 967 | 1, 341 | 178 | 57 | 1 |
| 1860 | Sitka | ...... | ...... | 3 | 88 | 1 | ...... | 11 | 39 | 7 | 6 | ...... | ...... | ...... |
| | Kadiak | 396 | ...... | 421 | 5, 413 | 1, 988 | 12 | 26 | 20 | 527 | 1, 184 | 36 | 68 | ...... |
| | Ounga | 357 | ...... | 63 | ...... | 305 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| | Oonalashka | 478 | ...... | 6 | ...... | 870 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| | Atkha | 49 | ...... | ...... | ...... | 42 | 245 | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| | Attoo | 259 | ...... | ...... | ...... | ...... | 59 | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| | Saint Paul island | ...... | 18, 590 | ...... | ...... | ...... | 625 | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| | Saint George island | ...... | 3, 000 | ...... | ...... | ...... | 911 | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| | Kalmakovsky | ...... | ...... | 79 | 969 | 398 | 37 | 10 | ...... | 950 | ...... | 9 | ...... | ...... |
| | Saint Michael | ...... | ...... | 313 | 1, 950 | 895 | 54 | 46 | ...... | 1, 536 | ...... | 28 | ...... | ...... |
| | Total | 1, 539 | 21, 590 | 885 | 8, 420 | 4, 499 | 1, 943 | 93 | 59 | 3, 020 | 1, 190 | 73 | 68 | ...... |

RECAPITULATION.

| Years. | Sea-otter. | Fur-seal. | Land-otter. | Beaver. | Fox. | Arctic fox. | Bear. | Mink. | Marten. | Musk-rat. | Lynx. | Wolver-ine. | Wolf. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1842 | 806 | 10, 172 | 1, 478 | 8, 522 | 5, 527 | 2, 545 | 304 | 741 | 240 | 3, 578 | 150 | 46 | 11 |
| 1843 | 1, 054 | 12, 171 | 1, 608 | 9, 924 | 4, 006 | 3, 302 | 222 | 102 | 992 | 80 | 144 | 10 | 11 |
| 1844 | 926 | 12, 680 | 1, 214 | 9, 051 | 3, 356 | 3, 021 | 76 | 98 | 625 | 6 | 35 | 67 | 9 |
| 1845 | 822 | 13, 637 | 1, 358 | 8, 685 | 3, 798 | 1, 869 | 127 | 78 | 985 | 145 | 100 | 71 | 17 |
| 1846 | 1, 216 | 15, 070 | 934 | 10, 676 | 2, 788 | 3, 866 | 89 | 160 | 1, 868 | ...... | 162 | 111 | 8 |
| 1847 | 980 | 17, 703 | 824 | 9, 458 | 3, 444 | 2, 549 | 85 | 101 | 1, 636 | 152 | 311 | 66 | 2 |
| 1848 | 1, 035 | 14, 650 | 762 | 10, 290 | 3, 857 | 2, 176 | 186 | 148 | 1, 122 | 550 | 323 | 22 | 4 |
| 1849 | 1, 186 | 21, 452 | 1, 054 | 8, 937 | 3, 900 | 1, 851 | 74 | 129 | 1, 516 | 146 | 418 | 77 | 4 |
| 1850 | 1, 358 | 6, 771 | 790 | 8, 691 | 4, 447 | 1, 786 | 158 | 99 | 1, 257 | 896 | 497 | 131 | 7 |
| 1851 | 1, 043 | 6, 564 | 561 | 9, 239 | 3, 437 | 1, 918 | 101 | 174 | 429 | 1, 165 | 185 | 99 | ...... |
| 1852 | 880 | 6, 725 | 704 | 6, 791 | 4, 314 | 2, 736 | 70 | 6 | 573 | 1, 152 | 49 | 80 | 5 |
| 1853 | 1, 021 | 18, 035 | 636 | 12, 072 | 3, 175 | 2, 595 | 80 | 121 | 354 | 1, 714 | 20 | 74 | 6 |
| 1854 | 742 | 26, 147 | 923 | 6, 004 | 2, 773 | 2, 112 | 25 | 39 | 513 | 167 | 14 | 46 | 1 |
| 1855 | 1, 346 | 8, 585 | 847 | 9, 405 | 2, 683 | 1, 159 | 173 | 198 | 1, 492 | 1, 285 | 50 | 144 | 6 |
| 1856 | 1, 070 | 23, 550 | 906 | 4, 559 | 2, 501 | 2, 335 | 44 | 107 | 1, 732 | 220 | 112 | 39 | ...... |
| 1857 | 1, 186 | 21, 082 | 943 | 7, 245 | 3, 057 | 2, 987 | 97 | 101 | 2, 244 | 2, 339 | 207 | 122 | 1 |
| 1858 | 1, 142 | 32, 810 | 881 | 5, 849 | 3, 563 | 2, 610 | 107 | 42 | 2, 748 | 2, 949 | 356 | 73 | 4 |
| 1859 | 1, 678 | 22, 000 | 1, 037 | 6, 909 | 4, 622 | 2, 375 | 133 | 63 | 2, 967 | 1, 341 | 178 | 57 | 1 |
| 1860 | 1, 539 | 21, 590 | 885 | 8, 420 | 4, 499 | 1, 943 | 93 | 59 | 3, 020 | 1, 190 | 73 | 68 | ...... |
| Total | 21, 030 | 311, 394 | 18, 345 | 160, 727 | 69, 747 | 45,735 | 2, 244 | 2, 566 | 26, 313 | 19, 075 | 3, 384 | 1, 403 | 97 |

A comparison of the total purchases according to the above table with the total shipments as exhibited for the corresponding period of time in Table I will reveal certain discrepancies that require explanation. For instance, the shipments of land-otter skins from 1842 to 1862 aggregated 170,473, while only 18,345 were purchased of the natives from 1842 to 1860. During this period the Hudson Bay Company rented from the Russian-American Company the strip of mainland lying back of the Alexander archipelago, and, upon mutual agreement, the greater part of the rent was for many years paid in land-otter skins, purchased in various sections of the Hudson Bay Company's domains. These skins were then in great demand for the trimming of officers' coats in the Russian army, hence the large shipments in excess of what Russian America could supply.

Further comparison of the two tables demonstrates the fact that the skins of the marten (Alaskan sable) and of the bear were rarely exported under the Russian management, being disposed of chiefly to employés of the company, and in consequence of the limited demand these animals were not very extensively hunted.

A comparison of the quantity of furs purchased during the nineteen years included in the exhibit of the above table with the incomplete returns of shipments by American traders in thirteen years, from 1867 to 1880, the latter being necessarily below the real figures, is shown below:

OUTPUT OF FURS IN ALASKA.

| Classes of fur. | From 1842 to 1860 (nineteen years). | From 1867 to 1880 (thirteen years). |
|---|---|---|
| Sea-otter | 21, 030 | 52, 491 |
| Fur-seal | 311, 394 | 1, 277, 333 |
| Land-otter | 18, 345 | 25, 331 |
| Beaver | 160, 727 | 58, 258 |
| Fox | 69, 747 | 149, 559 |
| Arctic fox | 45, 735 | 27, 731 |
| Bear | 2, 244 | 8, 057 |
| Mink | 2, 566 | 103, 313 |
| Marten | 26, 313 | 105, 920 |
| Musk-rat | 19, 075 | 68, 230 |
| Lynx | 3, 384 | .............. |
| Wolverine | 1, 403 | .............. |
| Wolf | 97 | .............. |

A contemplation of the above table may furnish food for reflection to United States officials, and might probably be of interest to the Russian government.

The prices paid to natives for their furs have, of course, greatly increased since the admission of unlimited competition to the field of operations. The subjoined comparative table of prices will present this:

| Classes of fur. | Under Russian rule. | At present. |
|---|---|---|
| Sea-otter | $10 00 | $60 00 to $100 00 |
| Land-otter | 60 | 2 50 to 3 00 |
| Black fox | $2 00 to 3.00 | 10 00 to 40 00 |
| Cross fox | 60 | 2 50 to 3 00 |
| Red fox | 60 | 1 00 to 1 50 |
| Arctic fox (blue) | 80 | 3 00 to 4 00 |
| Arctic fox (white) | 20 | 2 00 |
| Beaver | 60 | 2 00 to 3 00 |
| Mink | 5 | 20 |
| Marten (sable) | 10 | 3 00 to 4 00 |

Owing to competition the purchasing power of money has not decreased in Alaska in the same ratio as prices have increased. The natives in all accessible sections of the territory are now enabled to purchase necessaries and luxuries of which they did not dream previous to the abolition of the Russian monopoly. The fur-seals of the Pribylof islands were never purchased of the natives; the latter were paid only for the labor of killing and skinning the animal, as is now done by the present lessees of the islands under the terms of their lease from the United States government.

The market value (London) of the annual yield of furs in western Alaska may be approximately stated as follows:

| Classes of fur. | Number. | Price. | Value. |
|---|---|---|---|
| Sea-otter | 4, 500 | $100 00 | $450, 000 |
| Fur-seal | 100, 000 | 15 00 | 1, 500, 000 |
| Land-otter | 2, 500 | 3 00 | 7, 500 |
| Beaver | 5, 800 | 3 00 | 17, 400 |
| Black fox | 920 | 30 00 | 27, 600 |
| Cross fox | 2, 560 | 3 00 | 7, 680 |
| Red fox | 11, 400 | 1 50 | 17, 100 |
| Arctic fox (blue) | 1, 190 | 4 00 | 4, 760 |
| Arctic fox (white) | 1, 580 | 3 00 | 4, 740 |
| Bear, black | 100 | 5 00 | 500 |
| Bear, brown | 711 | 2 00 | 1, 422 |
| Mink | 10, 300 | 30 | 3, 090 |
| Marten (sable) | 10, 500 | 3 50 | 36, 750 |
| Musk-rat | 6, 800 | 10 | 680 |
| Lynx | 870 | 3 00 | 2, 610 |
| Total | ............ | ............ | 2, 081, 832 |

Adding to this $100,000 for the furs of southeastern Alaska, the greater part of which were sold in British Columbia, and the value of the annual fur-yield of Alaska may be estimated at $2,181,832, which amount may be swelled a little by the Arctic fur trade, of which I have no returns.

This estimate, which is necessarily low, furnishes the best answer to the question whether the purchase of Alaska from Russia, considered from a financial standpoint, was a judicious measure.

## THE FISHERIES.

Mr. Tarleton H. Bean, of the Smithsonian Institution, enumerates seventy-five species of food-fishes existing in Alaskan waters, over sixty of which Mr. Bean claims to be strictly adapted to the use of man, while the remainder come under the heading only as bait for catching the others.

Of the sea-fishes the cod-fish stands foremost in quantity as well as in commercial importance.

Within a short time after the purchase of Alaska by the United States Professor George Davidson, of the United States coast survey, stated that the soundings of Bering sea and of the Arctic ocean north of Bering strait indicated the largest submarine plateau yet known. In the eastern half of Bering sea soundings of less than 50 fathoms are found over an extent of 18,000 square miles. The extent of the banks in the gulf of Alaska, between longitude 130° and 170° and latitude 60° and 54°, has not thus far been estimated, but it is probably equal to that of the banks of Bering sea.

In general terms it may be stated that the cod-fish is found around the whole south shore of Alaska. Its distribution on banks properly begins, however, with the strait of Fuca, though it is found occasionally as far south as the Farrallones. A few schooners fish for cod in British Columbian waters, especially near the Alaskan line. The fish is quite abundant in many of the channels of the Alexander archipelago, and is found in Yakutat bay, off the southern and western shore of Kaiak island, in Prince William sound.

The first large bank after crossing the southern boundary of Alaska is found in Chatham strait, but another and smaller bank lies in Peril strait, between Baranof and Chichagof islands. The next bank of general importance is the Portlock bank, located by the explorer of that name along the southeastern coast of Afognak and Kadiak islands. The soundings of this bank are from 45 to 90 fathoms. Some distance to the southeast of Kadiak, in latitude 56° 13′ and longitude 153° 30′, there is another bank, with soundings of from 22 to 28 fathoms.

More to the southward is found the Simeonof bank, discovered in 1867, between latitude 54° 45′ and 54° 38′, longitude 158° and 158° 30′, with soundings averaging 40 fathoms, and about 20 miles east-northeast of Simeonof island a little higher plateau is reported, with soundings of from 26 to 40 fathoms. The famous Shumagin banks, of which the Simeonof bank, perhaps, is an extension, are located around Nagai, Popof, and Ounga islands, within a short distance of the shore. Most of the shipments of cod-fish from Alaska to San Francisco are made from this vicinity, the banks heretofore named being worked almost exclusively for local consumption.

South of the Shumagins an extensive bank, with soundings averaging 35 fathoms, is known to exist in the vicinity of Sannakh island, between latitude 54° 67′ and 54° 20′, longitude 161° 55′ and 162° 30′, and another large bank is reported off Oonimak pass, in latitude 54°, longitude 166°, with soundings of 40 fathoms. Still farther to the southward, in the vicinity of Akutan pass, a bank with soundings of 50 fathoms was reported in 1869.

A very prolific cod-fish bank exists inside of Captain's harbor, in Oonalashka island, with shallow soundings of from 10 to 20 fathoms. The westernmost cod-fish bank definitely located in the Aleutian chain of islands extends from the south end of Oumnak island into the north Pacific, with soundings of 30 fathoms, in latitude 52° 30′, longitude 168° 50′. Many more such banks exist in the vicinity of the Aleutian islands and the eastern portion of Bering sea, but these rich stores of food-fish will probably remain undisturbed for some time to come. Even the banks enumerated here are merely skimmed, as it were, of their abundant produce, the fishing being done chiefly "inshore", in dories, boats, and canoes, the schooners engaged in the business being employed almost exclusively as carriers of the catch.

The cod-fishery of Alaska may be considered as in its infancy. Since Captain Turner, of the schooner Porpoise, sailed from San Francisco in the spring of 1866, and returned in the same year, after a brief visit to Queen Charlotte islands, Ounga, and the Shumagin group, with a cargo of marketable cod-fish, the industry opened by this pioneer has not developed in such a degree as might have been expected from the almost unlimited supply and the favorable location of the banks.

As has already been stated, no deep-sea fishing, such as is carried on in the north Atlantic, exists in Alaska. In the channels of the Alexander archipelago the fishing for cod has until lately been confined altogether to the natives of the Thlinket tribes, who opposed all attempts of white men to compete with them in this particular industry. The few small sloops engaged in the business in this region depend altogether upon the inclination of these natives to exert themselves in obtaining their cargoes. These fishermen use their own appliances, fishing with bark lines and wooden iron-pointed hooks, and two men in a canoe feel satisfied with a catch of 30 or 40 fish, which they sell at a comparatively high rate to the captains of the sloops; and thus it happens that these crafts are frequently detained for many weeks awaiting a cargo that could easily have been secured within five or six days by white men.

In Prince William sound the cod-fish is only caught by natives for their own consumption at a season when no other fish can be obtained in abundance. The fishing here is from canoes within a short distance of the shore, mostly in well-sheltered bays. Perhaps one-half of the catch is consumed fresh, while the other half is split and hung up to dry in the open air, without salting or smoking. In spite of the damp climate of this region the specimens of dried cod-fish that came under my observation were apparently well cured, quite palatable, and in a better condition than salmon or red-fish treated in the same manner, the disagreeable taint which seems to be inseparable from dried fish of the salmon family being scarcely perceptible in these specimens of dried cod-fish. As the cod-fish of Prince William sound is now confined almost entirely to its northern shore, it is safe to state that the total annual consumption, both fresh and dried, does not exceed 30,000 or 40,000 fish.

In English bay, on the southwestern extremity of the Kenai peninsula, the natives fish for cod occasionally, but only when unfavorable weather prevents them from hunting outside of the limits of the bay. The cod here is all consumed fresh, and the total catch cannot exceed 2,000 or 3,000 fish.

Proceeding from here southward to the islands of Afognak and Kadiak we meet a people partially subsisting upon cod-fish throughout the year. The Portlock bank is within easy reach of all the settlements on the eastern shore of these islands, but only the most enterprising among the people, chiefly the creoles or half-castes, venture out to any distance in sloops built on the islands. The principal fishing is done close inshore in small boats and dories. The old men and the boys of the creole and Innuit families may be seen in their boats or canoes a mile or two from shore on almost any morning throughout the year, except when a furious northeaster keeps them at home. Nearly all this catch is intended for immediate consumption, as the inhabitants of this region do not dry any cod-fish. In the creole settlements of Afognak, Spruce island, and in the vicinity of Kadiak fresh cod-fish, together with potatoes grown in their little garden-patches, form the constant diet of the inhabitants throughout the year. In the harbor of Saint Paul, the central settlement of this group of islands, the cod-fish is also prepared for exportation. The favorite ground for these fishermen is a flat with soundings from 15 to 20 fathoms, and here they average a daily catch of 200 fish per man. The shipments from this point to the California market have been thus far limited to small quantities of boneless fish put up in 30-pound boxes.

The only active cod-fish industry existing in Alaska is located about the Shumagin islands, the firm of McCollam & Co., of San Francisco, having a permanent station at Pirate cove on Popof island. The force of this establishment consists of a foreman and eight fishermen, who go out in their dories during the day and dress their catch on shore in the evening. The fishermen who come up with the schooners from San Francisco generally ply their lines within easy reach of the harbors on Popof and Nagai islands. The average catch per man in this vicinity is also 200 fish, though catches of from 500 to 600 have been recorded.

Since the first opening of this industry on the Shumagin banks the total annual catch has not exceeded 500,000 fish. The best results in dory fishing at Pirate cove are obtained in the month of February. The schooner fishermen meet with good success from late in April until the middle of August, and the fishing on the deep banks of Simeonof island is best in August and September. At the latter place it has been reported that ten men caught 4,000 fish in one day, the average catch being from 1,600 to 1,800.

All the fishermen engaged in the vicinity of Kadiak and on the Shumagin banks agree in the statement that the abundance of cod-fish is as great as ever, occasional fluctuations in the catch being due entirely to migration of the fish.

Careful investigations by Professor Jordan and Dr. T. H. Bean, of the United States Fish Commission, into the quality of the Shumagin cod have shown no essential difference between this species and that of the north Atlantic. The facilities for the pursuit of the industry are greater on the Pacific side than they are on the Atlantic. The journey from San Francisco or Puget sound to the Shumagin banks is comparatively brief and very safe, and the banks are within a few hours' run of numerous commodious harbors. In view of all these circumstances the conclusion is unavoidable that the great want of the Shumagin fisheries is not fish or safety to the fishing-craft, but simply a demand for fish, and that a market such as the New England fishermen enjoy would whiten the vast extent of the Shumagin banks with sails of all descriptions. The yield of cod-fish, so far as it could be obtained from the records of shipments to San Francisco for the last few years, is given in the subjoined table. In connection with this subject it may be mentioned that fully one-half, if not more, of the cod-fish brought to San Francisco is caught in the sea of Okhotsk. The fish of the latter sea is not superior in quality, being caught early in the season and before reaching the best stage, and the quantity does not seem to exceed that caught on the Shumagin banks, while the average weight is somewhat less. The question arises, why do San Francisco fishermen go to the Okhotsk sea at all?—a question which must be left for future investigators to solve.

The shipments of cod-fish from the Shumagin islands to San Francisco in the year 1880 consisted of seven cargoes, aggregating 432,000 fish and weighing 1,728,000 pounds. During the same year 725,000 fish were brought in five cargoes from the Okhotsk sea, having been caught in Russian waters.

The cod-fishing of the north Pacific has been carried on for sixteen years, with the following results:

| Year. | Vessels. | Fish. | Year. | Vessels. | Fish. |
|---|---|---|---|---|---|
| 1865 | 7 | 469, 400 | 1874 | [illegible] | 381, 000 |
| 1866 | 18 | 724, 000 | 1875 | 7 | 504, 000 |
| 1867 | 19 | 943, 400 | 1876 | 10 | 758, 000 |
| 1868 | 10 | 608, 000 | 1877 | 10 | 750, 000 |
| 1869 | 19 | 1, 032, 000 | 1878 | 12 | 1, 190, 000 |
| 1870 | 21 | 1, 265, 500 | 1879 | 13 | 1, 499, 000 |
| 1871 | 11 | 772, 000 | 1880 | 8 | 1, 206, 000 |
| 1872 | 5 | 300, 000 | Total |  | 12, 952, 300 |
| 1873 | 7 | 550, 000 |  |  |  |

Of this three-fifths, or 7,771,380 fish, came from the Okhotsk sea, and the remainder, or 5,180,920, from Alaskan waters.

Salmon shipments aggregated somewhat over 3,000 barrels salted and 8,000 cases canned.

A peculiarity of the Alaska cod-fishing industry is that the fish is not cured in the vicinity of the banks. The cod is only cleaned and pickled on board of the carrying-craft, taken down to San Francisco and there pickled anew, being finally taken out and dried in quantities to suit the demands of the market. Expert fishermen located on the Shumagin islands and at Kadiak claim that the fish could be cured on the spot as well as it is done at cape Ann and other Atlantic cod-fishing stations. It is difficult to understand the reason for the process adopted by these San Francisco firms. The repeated pickling certainly does not serve to enhance the quality of the Shumagin cod-fish, and it is probably owing to this fact that the eastern cod-fish commands a higher price in the markets of the Pacific coast.

Another deep-sea fish of importance in Alaskan waters is the halibut. It exists all along the coast from British Columbia northward and westward, and also in the deep harbors and straits of the Aleutian chain of islands. Among the natives of the Alexander archipelago the halibut is a very important food-staple, being obtainable throughout the year.

The Thlinket fishermen exhibit great patience and skill in catching this huge flat-fish, which often attains a weight of several hundred pounds in these waters. It is consumed in immense quantities, both fresh and smoked, in all the villages and settlements inhabited by Thlinket tribes. Along the coast inhabited by Innuit tribes and about the Aleutian islands the halibut does not exist in the same abundance, and the whole supply is consumed fresh.

The only attempt thus far made in Alaska to preserve halibut for exportation is reported from the Klawak fishing establishment, on Prince of Wales island. It is doubtful whether anywhere in Alaska outside of the southeastern division a sufficient quantity of halibut exists to warrant fishermen in making a special business of their catch.

In order to furnish an adequate idea of the immense-consumption of fish in Alaska it becomes necessary to discuss each division separately in this connection.

First. SOUTHEASTERN ALASKA.—This division has a population of over 7,000 inhabitants, all of whom depend more or less upon fish for subsistence. This population consists almost entirely of natives engaged in catching and curing various kinds of fish throughout nearly the whole year; and even during the hunting season, when fur-bearing animals are in their prime and all the able-bodied male adults are busy in their pursuit, the old men, women, and youths of both sexes remain in the villages situated upon the sea-shore, fishing whenever the weather permits. Though the variety of fish is great in this region, halibut and salmon always form the basis of supply. In the Sitka market may be seen, in addition, at the various seasons several species of rock-fish, trout, cod, and herring, while mussels and clams are also abundant. The halibut is here caught exclusively with bark lines, and hooks of peculiar construction. The hook consists of two pieces of wood fastened together at one end with strips of spruce root, so as to form an acute angle with each other, an arm of the angle being furnished with a bent pointed piece of iron. The wood is generally carved to represent some animal or fish, and the bait, usually herring, is tied on so as to cover not only the hook but also the wooden shaft on which the hook is fastened. The halibut will gulp down the bait, opening its jaws wider and wider, the short arm of the hook being constructed so as to leave only a narrow space between it and the iron point, thus admitting of the motion necessary to fasten the fish while preventing its escape. A halibut thus held with its mouth wide open will soon be drowned and can be easily secured. This Indian style of halibut-hook seems to be more effective than that of civilization. Set-lines, each provided with one hook, a stone sinker, and a buoy consisting of an inflated bladder or the stomach of a seal, with a small signal or flag attached to indicate when the fish is hooked, are in common use, and are generally set in 10 or 20 fathoms of water around the numerous islands of Sitka bay.

In the open bay of Sitka salmon are caught occasionally by trolling and by spearing.

Herring are caught in immense quantities by impaling them on a sharp nail fastened to a long thin strip of wood, and are consumed both fresh and dried, but the larger portion of the catch is converted into oil. The spawn of the herring, which is collected upon spruce boughs placed in shallow water for the purpose, furnishes a favorite article of food in a semi-putrid state. The fish most commonly seen on the drying-frames at Sitka village at all times of the year are halibut; they are cut in strips, dried partially in the open air, and then suspended in the smoke of the dwelling-houses.

At the fishing station of Klawak, on Prince of Wales island, halibut are caught with the same style of hook, and lines of kelp or bark. The principal bait used here is the cuttle-fish, the fishing being done in from 10 to 20 fathoms of water. In fishing for the cannery at this place the Indians average eight or ten halibut to a canoe per day, with two persons, using not more than three or four hooks. The amount canned here per annum has not exceeded 200 or 300 cases, of two dozen 2-pound cans each.

At Klawak, as well as at Old Sitka, salmon has been canned during the season, but the latter establishment has been abandoned. The Klawak cannery has had in its employ during the season as many as 160 Indians and 20 whites, among the former 30 being women and 5 or 6 boys. The shipments of canned salmon aggregated between 7,000 and 8,000 cases of four dozen 1-pound cans each. The once famous rédoute or deep-lake salmon-fishery on Baranof island, which at one time during the Russian rule supplied this whole region, and whence 2,000 barrels of salt salmon were shipped in 1868, now lies idle.

In order to arrive at the quantity of fish consumed by the people of this division it is necessary to take into consideration the fact that fully one-half or more than one-half of the catch is consumed in a dried state, very much reduced in bulk and weight. The waste in the drying process is so great that one person can easily eat at a single meal a fish that weighed 20 or 30 pounds when alive. It is therefore entirely within the bounds of probability that each individual man, woman, or child consumes the equivalent of between 3,000 and 4,000 pounds of fresh fish per year. Among the Innuits of the west the proportion must be much larger, but in the southeastern division game of various kinds is still comparatively abundant. Thus, with a population of 7,000 in round numbers, we may calculate an annual consumption of 24,000,000 pounds of fish; or, striking an average of 5 pounds per fish, between large and small, halibut, salmon, cod-fish, and herring, nearly 5,000,000 fish of all kinds, in a section the inhabitants of which consume less fish than any other coast-people in Alaska.

The eulachan (ulikon), or candle-fish, though consumed by the people of this division, is obtained chiefly in barter from the British possessions, the catch in Alaska being confined to the Stakhin mouth and its immediate vicinity.

Second. PRINCE WILLIAM SOUND.—The people of this section, numbering some 600 in all, inhabiting the coast from Mount Saint Elias westward to the east coast of the Kenai peninsula, though engaged in fishing to some extent at all times of the year, do not depend altogether upon this article of food for subsistence, and consequently the aggregate consumption, or rather destruction, of fish is less than in the southeastern division. Seal-meat at all times of the year, and the flesh of mountain goats during the summer, together with that of bears, marmots, porcupines, and sea-fowls, are consumed in perhaps equal proportions with fish. A limited number of cod-fish, halibut, herrings, and the various species of salmon comprise the catch of this region, two-thirds of which is probably eaten fresh and the remainder dried, no salt fish being prepared for home consumption or for export. An annual consumption of about 60,000 fish of all kinds (but chiefly salmon), representing an aggregate weight of 300,000 pounds, may be safely estimated for the Prince William Sound section of the coast.

Third. COOK'S INLET.—The shores of Cook's inlet are inhabited by about 800 natives and a few families of creoles, who are engaged exclusively in fishing during the whole summer season, from May to September and October. During this time the fur-bearing animals are not in good condition, and consequently the whole population, down to the small boys, turn their attention to fishing. In addition to the native fishermen, white men are engaged in salting salmon at two points in the inlet, at the mouth of the Kenai or Kaknu river and that of the Kassilof. (*a*) The mode of capturing the salmon adopted by the natives for their own purposes is exceedingly primitive and unsatisfactory. The fish being too large to spear with safety a frail staging of poles is erected at right angles with the river bank, extending into the stream. An Indian seats himself at the outward end of this frame, and, holding in the turbid water a large wicker basket with an aperture about 3 or 4 feet in diameter, waits patiently until a salmon enters the basket; but of course this mode of capture is impracticable where the water is clear, and even in the muddiest stream hundreds pass by where one enters.

The king salmon, or chavicha, frequent the streams of the inlet between May 20 and August 20. They are most abundant during the summer neap-tide, but in numbers their proportion to the other and less valuable salmon species is as one to three. This disparity in quantity, however, is equalized somewhat by bulk and quality. The maximum length of the chavicha reported since 1870 was 6 feet, and the maximum weight 97 pounds, the average length being about 4 feet and the average weight 50 pounds. They appear regularly on the 20th of May, running in pairs and not in schools, and hugging the shore. They at all times refuse to take the hook, and prey upon the candle-fish and stickleback, not, however, consuming very many. They are caught by the whites in weirs and nets, the latter being 12 feet deep by 120 feet in length, with about 8- and 8½-inch mesh. The weirs, consisting of poles and a wicker-work of roots and bark, are erected on the mud flats of the river at low tide.

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*a* Last year a cannery on the Kassilof river put up 6,000 cases of two dozen cans each.

After the king-salmon two other varieties, the silver (kisuch) and the red salmon, make their appearance in immense numbers. The mode of capturing the salmon adopted by the white fishermen is essentially the same on the Kenai and the Kassilof rivers. The number of king-salmon captured at the latter place during 1880 was 8,000, weighing 320,000 pounds, while the red and the silver salmon numbered 18,500, of an average weight of 10 pounds each, or 185,000 pounds. At Kenai the number of king-salmon secured was 7,500, weighing about 300,000 pounds.

The native population of Cook's inlet comprises 168 families (averaging about four individuals each). Each of these families prepares at least 750 pounds of dried salmon for winter provision, which would give an aggregate amount of 126,000 pounds of dried salmon put up on the inlet, representing over a million pounds of fresh fish. The creole families distributed over the various settlements number 44; these put up about 6 barrels of salt salmon each, or 264 barrels, weighing 52,800 pounds. Of dried fish these creoles put up 400 pounds to each family, or an aggregate of 17,600 pounds, representing 176,000 pounds of fresh fish. Thus we arrive at the astonishing aggregate of 2,760,000 pounds of fish as the annual consumption by natives and fishermen on Cook's inlet. It must be borne in mind, however, that by far the greater portion of this immense bulk is wasted in the process of drying.

In former times the natives of the lower part of Cook's inlet engaged largely in the capture of beluga, or white grampus, deriving from these monsters the greater part of their subsistence. The belugas seem to be plentiful in the turbid waters of the inlet, and schools of them enter some of the rivers as far as the limits of tide-water, but the practice of hunting them seems to be dying out among the present generation, which finds easier modes of procuring subsistence, and the killing of the beluga is now a rare occurrence.

Large schools of the eulachan, or candle-fish, frequent the larger rivers of the inlet and are highly prized as food, but their presence in the rivers is exceedingly brief, and the catch can scarcely be considered as an item in the domestic economy of this region.

Fourth. THE KADIAK DISTRICT.—The piscatorial wealth of this district has already been referred to in regard to cod-fishery, but at the present time the salmon catch is of greater importance both for home consumption and for export. The consumption of dried salmon within the district by 159 families of creoles and 255 families of natives amounts to 310,500 pounds, representing 3,105,000 pounds of fresh fish. The creole families put up in addition nearly 1,000 barrels of salt salmon, weighing approximately 200,000 pounds. The consumption of fresh salmon, as such, may be estimated at one-half of that of cod-fish throughout the year.

In addition to this immense catch of salmon for home consumption there are on the Karluk river, emptying into Shelikhof strait, on the west coast of Kadiak island, two fishing establishments of considerable magnitude; between 1,600 and 1,800 barrels of salted salmon being secured here by the two firms during the season of 1880. (*a*) Several hundred of these barrels were filled with bellies only, a process that required the killing of 37,500 fish in order to fill 125 barrels. Three hundred thousand pounds of salmon were converted into "yukala" at this station in 1880, yielding 17,500 pounds of dried fish, and it is safe to presume that at the present time three or four times this quantity is salted at Karluk and shipped to San Francisco. The run of salmon in the Karluk river at the height of the season is so great as to interfere seriously with the movement of canoes in crossing the stream, and from 10,000 to 20,000 barrels could be filled here easily during the season. The fishing is done entirely with seines from 20 to 25 fathoms in length, 3 fathoms in depth, with a mesh of 3½ inches. The average weight of the salmon secured at Karluk is 10 pounds. The whole native population is employed in these fisheries during the summer, turning their attention to hunting only during the winter.

Among the creoles of the Kadiak district and the more prosperous of the native families the use of the bidarka or kaiak has been to a great extent superseded by small craft—sloops and plungers, mostly built to order by the skillful carpenters of the creole settlements of Afognak and Yelovoi. A few fishing-schooners ranging from 15 to 20 tons burden have also been constructed at Kadiak and Wood island, but these are employed in fishing comparatively a small portion of the time, being chartered by traders during the hunting season.

The salmon of Karluk is perhaps a little inferior in quality to that of Cook's inlet, but, being possessed of flesh of a deep red color, it meets with ready sale.

Fifth. THE BELKOVSKY DISTRICT.—This district includes the Shumagin islands, which have already been discussed in connection with the cod-fishery. Throughout this section salmon is caught only for home consumption, for which purpose there seems to be an abundant supply; but with cod-fish near at hand in the immediate vicinity of every settlement it is not looked upon as being of great importance. The inhabitants of this district are nearly all successful sea-otter hunters, who are able to purchase large quantities of imported provisions, and consequently the consumption of fish is much less than in some other districts. A calculation could not be made upon the same basis here as in the Kadiak or Kenai districts, but the 167 families inhabiting the settlements of Belkovsky parish consume perhaps from 150,000 to 200,000 pounds of salmon annually, fresh and dried, and an equal quantity of cod-fish.

Sixth. THE OONALASHKA OR ALEUTIAN DISTRICT.—The inhabitants of Oonalashka district engage chiefly in the pursuit of the sea-otter, and fishing is limited by the demand for home consumption. The fishes here are nearly the same as those of the Kadiak and the Belkovsky districts, with the exception of the green-fish or

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[a] Last year one firm shipped from the same place 5,000 cases of canned salmon and 2,100 barrels of 200 pounds each of salt salmon.

rock-cod, which is plentiful in the deep bays of the Aleutian chain of islands; flat-fishes, halibuts, and flounders are very abundant, and are taken in large quantities with spears; the halibut, however, is not as large as that found in other districts of Alaska. As has already been remarked, cod-fish also frequent the harbors and a few banks in Bering sea, and the striped fish, yellow fish, or Atkha mackerel exists here in immense numbers. This fish (described by Pallas as *Labrax monopterygius*, but known at present as *Pleurogrammus monopterygius*) is found about the whole of the Aleutian chain, and also among the Shumagin islands, congregating in large schools. At Attoo it is known as the kelp-fish, on the Shumagins as the yellow or striped fish, and from Oonalashka to Atkha as the Atkha mackerel. The last name appears very appropriate, from the fact that when salted and preserved just as mackerel are treated, it has the same taste as the latter. There can be no doubt that if this striped fish were properly introduced into the markets it would meet with a ready sale, as it is certainly an excellent food-fish either salted or fresh. Traders at Nazan bay, Atkha island, report that 500 to 600 barrels could easily be put up by them in that bay alone. The latest price of this salt fish reported from San Francisco was only $10 a barrel, but it is safe to presume that the same fish put up in a marketable shape in kits would command a better price.

Three or four species of trout and many varieties of salmon frequent the bays and larger streams of this district, existing everywhere in sufficient quantity to supply the inhabitants with winter stores of dried fish or yukala. Captain's harbor, on Oonalashka island, is frequented at certain seasons by immense schools of herrings of a large variety, and exceedingly fat. Occasional shipments in small lots to San Francisco meet with ready sale in that market, especially for pickling.

Here, as in the Belkovsky district, the comparative wealth resulting from the sea-otter trade has caused the natives to neglect their natural food-supplies, such as fish and game, and to purchase imported provisions; consequently the consumption of fish is proportionately much smaller than in less favored districts; but at a rough estimate the annual destruction of fresh fish by the inhabitants of the Oonalashka or Aleutian district, numbering some 1,400, may be put down at 700,000 pounds.

Seventh. THE BRISTOL BAY DISTRICT.—This district comprises the coast of Bering sea, between Krenitzin strait and cape Newenham, with the rivers Oogashik, Igagik, Naknek, Kvichak, Nushegak, Igushek, and Togiak, and their tributaries. The natives of this region, numbering about 4,000, derive a very large proportion of their subsistence from the various kinds of salmon, which frequent the rivers in the greatest abundance. Exports from this section have thus far been limited to from 800 to 1,200 barrels of salted salmon per annum from the Nushegak river.

The inhabitants of a few settlements on the north coast of the Aliaska peninsula and about Bristol bay engage occasionally in the pursuit of the whale and walrus, gaining thereby a very considerable addition to their food-supply, but the consumption of salmon is not thereby perceptibly lessened.

The annual "run" of the salmon family in the rivers of this district begins in the last half of May and continues until the beginning of September. The inferior species of red-fish and "gorbusha" are caught until late in October, and even in November, while the various kinds of salmon-trout and white-fish exist under the ice of streams and lakes throughout the winter. By the middle of September the banks of lakes and rivers, whose waters begin to fall with the first frosts in the mountains, are covered with rows and heaps of dead silver and king salmon two and three feet in height, representing the number of these fish that died from exhaustion and bruises received in struggling with the fierce current, the rocks, and snags in their annual journey of reproduction. The description of one river at this period may serve as a type for all. In the month of September, 1880, I struck the Igushek river where it springs from a beautiful lake surrounded by mountains of considerable height. The gravelly beach of the lakes and every bar and shoal of the river was lined with the decayed and putrefying bodies of the fish, which lay in windrows, as it were, from one to two feet deep; while every overhanging bough and projecting rock was festooned with the rotten bodies. At night a space had to be cleared of this disgusting mass to pitch our tent upon, and the abominable stench affected us to such a degree that, though entirely without provisions, we did not feel the pangs of hunger there.

There can be no doubt that here, as well as in the districts already discussed, a more economical method of preserving the fish would permit of the exportation of large quantities, though the salmon caught annually to feed these 4,000 people cannot be estimated at less than 2,000,000 pounds.

Eighth. THE KUSKOKVIM DISTRICT.—We now turn our attention to another district drained by a great river, and somewhat densely inhabited by an almost purely ichthyophagous population. Salmon in three or four varieties throng the channel and sloughs of the Kuskokvim from May to October; trout and white-fish of various kinds are trapped under the ice throughout the winter, while the backwaters of the tundra, the lakes, and ponds are full of pike and a very toothsome and nutritious small black-fish peculiar to this region and the Yukon delta, which has been named, in honor of Mr. William H. Dall, *Dallia pectoralis*. The fish is so abundant that only old men, boys, and women engage in the catch, while the men hunt reindeer and moose, and pursue the "maklak" (a large seal) for the sake of its luscious blubber. In the estuary of the Kuskokvim and the wide-mouthed tide-creeks of the low delta land the beluga, or white grampus, is still quite plentiful, and furnishes ample stores of blubber and oil, a large proportion of which finds its way to the people living above tide-water, who can only obtain by purchase the oil in which to dip their dried salmon.

The consumption of salmon in this district, thickly populated as it is within a hundred miles of the coast, is exceedingly great, for here not only human beings but dogs also must be fed. The ratio accepted for the other districts of 500 pounds of dried fish for each individual must be increased here by at least one-fifth, representing 6,000 pounds of fresh fish destroyed for the maintenance of one individual and his proportionate share of the family dogs.

Throughout the winter, when snow lies deep through forest and tundra, and hunting is made impossible, the native of the valley of the Kuskokvim depends entirely upon the supply of white-fish (*Coregonus*) in the main river and its tributaries, and every village has its traps set over eddies and shoals as soon as the ice is firmly established. The traps are of nearly the same construction as those used in the summer, but of somewhat smaller dimensions, as they are not intended for the reception of the huge king salmon or the full-grown "nalima". Every morning at dawn, or between 8 or 9 o'clock, the men of the village can be seen making their way to the traps armed with ice-picks, curiously fashioned from walrus-tusks or reindeer-antlers, for each succeeding night a new, solid ice-covering forms over the trap, which must be removed to get at the fish. Sometimes after an extraordinarily cold night it happens that the whole wicker-basket of the trap, including its contents, is frozen solid, an accident involving considerable labor, as the trap must then be taken to pieces and built anew. In spite of all such difficulties the supply of white-fish is generally sufficient for the maintenance of the Kuskokvim people during the winter, with the help of the scanty stores of dried salmon preserved during the summer and the hares and ptarmigans trapped by the boys.

In the lakes, the feeders of all the tributaries of the Kuskokvim, the salmon-trout is quite plentiful throughout the winter, and is secured by the natives with hooks and lines or dip-nets through openings in the ice. Were it not for this unfailing supply of white-fish and trout it would be impossible for these improvident savages to live through the winter. This remark refers only to the inhabitants of the upper river. On the lower river, within the influence of the tremendous tidal action described elsewhere, the river does not sustain a solid covering of ice, and seals are hunted throughout the winter, furnishing ample supplies of luscious oil and blubber; and even the beluga comes up the gulf-like estuary in schools, puffing and snorting like a fleet of tug-boats between the masses of ice floating up and down with the changing tide.

The oil obtained from the beluga and the large seal (maklak) is a very important article of trade between the lowland people and those of the mountains, the latter depending upon it entirely for lighting their semi-subterranean dwellings during the winter and to supplement their scanty stores of food. The oil is manufactured by a very simple process. Huge drift-logs are fashioned into troughs, much in the same manner as the Thlinket tribes make their wooden canoes. Into these troughs filled with water the blubber is thrown in lumps of from two to five pounds in weight; then a large number of smooth cobble-stones are thrown into a fire until they are thoroughly heated, when they are picked up with sticks fashioned for the purpose and deposited in the water, which boils up at once. After a few minutes these stones must be removed and replaced by fresh ones, this laborious process being continued until the oil has been boiled out of the blubber and floats on the surface, when it is removed with flat pieces of bone or roughly-fashioned ladles and decanted into bladders or whole seal-skins.

The densely-populated delta between the mouths of the Kuskokvim and Yukon rivers, with its great net-work of channels, sloughs, rivers, and lakes, offers to its inhabitants scarcely any article of food but such as is drawn from the water, the beluga and the seal furnishing the meat and oil so necessary to sustain life in high latitudes, while the salmon and white-fish abound here as they do on the larger rivers; and in addition to these is found the small black-fish named *Dallia pectoralis.* This fish, not exceeding five or six inches in length, and scarcely known to the scientific world until a few years ago, is of the greatest importance for the inhabitants of this delta. It is found in all the shallower channels and lagoons throughout the country in such quantities as to furnish subsistence for whole settlements in the most desolate regions, where nothing else could be found to sustain life at certain seasons of the year. The black-fish, as it is called by the natives, is exceedingly fat, and a good quality of pellucid oil is obtained from it by the process described above. Its presence is of the greatest advantage to the civilized traveler who may happen to traverse this almost unknown region, as it represents the only palatable article of food to be found there during the winter; and without it he would be obliged to subsist upon dried fish, blubber, and oil in various stages of decomposition. The people inhabiting the region where the black-fish is found are in a better condition physically when spring approaches than any of their neighbors in regions where it does not exist, being almost exempt from the annual period of starvation elsewhere preceding the beginning of the salmon run in the rivers. The 3,000 or 4,000 people inhabiting the delta must be looked upon as fish-eaters only, and the consumption of fish by them in the course of the year must be correspondingly great.

Ninth. THE YUKON RIVER DISTRICT.—It is next to impossible to form an adequate estimate of the consumption of fish on a river of the magnitude of the Yukon from the point where it enters Alaska on the British Columbian boundary until it reaches Bering sea. We know that the run of the various species of salmon is very large, though not extended over a long period, and also that a large proportion of the catch is preserved by the wasteful process of drying only, which reduces a fish weighing as it comes out of the water from 60 to 100 pounds to a flat and shriveled object of from 5 to 10 pounds. The loss on all classes of fish is in a like proportion, and consequently the quantity required for the sustenance of a single individual throughout the seven or eight months of winter must be very great.

As far as the Eskimo race has extended its settlements on the banks of the river, to a distance of from 200 to 300 miles from the sea, the fish-traps already described lie on both banks; but as this mode of fishing affects only such fish as ascend the stream along the banks and eddies, the number of salmon which complete their journey of reproduction without meeting any obstacles must exceed by far the number secured by the natives. In view of the immense width and depth of the river it seems very doubtful whether any of this immense mass of fish could be secured by fishermen, even were they provided with all the appliances now in use on the Columbia river in Oregon and the Sacramento in California.

The Athabaskan tribes inhabiting the upper Yukon region do not, as a rule, make use of traps. The game is still plentiful in their country, and they resort to fishing only with hooks and lines, chiefly in the smaller streams and lakes. For the purpose of securing a small stock of fish for traveling-stores and dog-feed, whole families descend the river in the summer and camp at some favorable spot for a month or two, while others obtain the same supplies in exchange for furs from the natives of the lower river. In addition to man and his dogs we find here another factor in the consumption of fish in the bear (*Ursus Richardsonii*), who is an expert fisher, and consumes immense quantities both of salmon and white-fish. He is accustomed to select a projecting point on the sloping bank of a river, where he stretches himself close to the water's edge and watches the surface of the turbid stream. The ripple caused by the passage of a large fish informs him of the proper time to make a sweep with his huge paw, the claws projecting like so many hooks, and he seldom fails to bring forth one or more fish at a time. These he carries away to some distance from the river bank, where he lies down and strips the bones of all the flesh as neatly as if he intended to preserve the complete skeleton as a specimen. The bones of salmon and white-fish are frequently found at a distance of a mile or two from the streams, where the fish have been carried by bears to feed their young. These animals are plentiful throughout the Yukon region, and subsist upon no other food from the time the salmon begins to run until the berries are ripe, late in August, when the shaggy fish-eaters become strict vegetarians.

For the Yukon River district the annual destruction of fish for the maintenance of each individual cannot be calculated at less than 6,000 pounds.

Tenth. THE ARCTIC DISTRICT.—Of the consumption of fish along the Arctic coast of Alaska to the northward of Bering strait no reliable data are accessible. The people subsist to a greater extent upon seals, walruses, and the meat of whales. The run of salmon in the few larger rivers watering this region is necessarily short, and the fish is much smaller than we find it to the southward; the natives, however, manage to put up during the brief summer a small supply of dried salmon and white-fish. "Fakhnia," a species of tom-cod, is caught during the summer along the lower Arctic coast, and salmon-trout ascends the larger streams. Cod-fish have been caught at a few points along the Arctic coast, but no banks have been located. Of late years, since whaling has been pursued more actively by means of steam-vessels and improved appliances, the Eskimo living upon the coast have lived so largely upon the offal left to them by whalers after cutting up the huge cetaceans that they have been enabled to neglect fishing to a great extent; but unfortunately these same whalers, who temporarily increased one source of subsistence, destroyed by thousands an animal furnishing the staple food of these regions—the walrus—which is rapidly being exterminated for the sake of its ivory. The animals are shot with rifles from ships and boats, and out of ten animals killed but two or three are secured, while seven or eight sink and are lost. This wasteful practice is a question of life or death with the poor Eskimo. At points most exposed to such depredations, like Saint Lawrence island, in Bering sea, two-thirds of the people have already perished by starvation. The evil is increased by the effects of spirituous liquors freely distributed among these natives by whalers and illicit traders, causing the latter to neglect, during periods of wild intoxication, the laying up of stores for winter.

The whaling industry of the north Pacific is now carried on chiefly on the American side of the Arctic, beyond Bering strait, with the exception of some coast-whaling on the California coast and in the channels and passages of Alexander archipelago. The vessels engaged in the business on the Alaskan coast in 1880 were thirty-six sailing-craft and four steamers. Their catch consisted of 35,000 pounds of whalebone, 15,000 pounds of ivory, and 21,000 barrels of oil. The value of the bone alone was $850,000; that of the oil 280,000; while the ivory brought $9,000, making a total of $1,139,000, or an average of $28,475 per vessel—certainly a remarkable showing of the profits accruing from this industry. The 15,000 pounds of ivory represent at least 3,000 walruses, the average weight of a pair of tusks being 5 pounds. The 3,000 walruses whose tusks were secured would indicate that at least 10,000 were killed, seven-tenths of which were lost. In view of such wanton destruction it is easy to foresee the extermination, at no distant date, of the people who depend upon the walrus for subsistence.

The common hair-seal and the sea-lion have decreased in numbers to such an extent along the whole coast-line of Alaska that their pursuit no longer occupies a place among the industries of the country, and they supply a wholly local demand. The sea-lion has almost disappeared from the vicinity of the sea-otter hunting-grounds, compelling the trading firms to import such skins from the coast of lower California and Mexico, in order to furnish their hunters with the material for making their canoes. Sea-lion meat was once a staple article of food with the Aleutian people and among all the Eskimo tribes, but at present it is looked upon as a delicacy not easily obtained.

The supply of fish of various kinds in Alaska is practically inexhaustible, but the stores lavished upon the natives of that country by bountiful nature could not be more wastefully used than they are now. Any development in the fishing industry must necessarily be an improvement, causing a saving in the supply.

The proportion of Alaskan fish brought into the markets of the civilized world, when compared with the consumption of the same articles by the natives, is so very small that it barely deserves the name of an industry of the country. The business, however, shows a decided tendency to increase in magnitude, and within the last few years the shipments of salted salmon in barrels from the Kadiak-Aleutian divisions have been steadily increasing, until they now amount to between 4,000 and 5,000 barrels per annum. These sell readily at $9 per barrel in San Francisco, leaving a handsome profit to the men who have invested capital in the enterprise. The number of cases of canned salmon shipped during the last year was between 8,000 and 9,000, each case containing two dozen 2-pound cans. Cod-fish shipments from the Shumagin islands and Bering sea amount to nearly 600,000 fish of the average weight, when cured, of from 3 to 5 pounds each, bringing from 6 to 7 cents per pound. But few men with a small amount of capital are engaged in this industry in Alaska in the present unsettled condition of the country.

## THE TIMBER OF ALASKA.

The claims of Alaska to the possession of vast tracts of valuable timber have been both exaggerated and disputed.

At the beginning of this chapter we sketched the distribution of forests throughout the whole country. In detail we find that the timber of Alaska consists of evergreen trees principally, the spruce family preponderating to an overwhelming extent. These trees grow to their greatest size in the Sitka or Alexander archipelago. An interval occurs from Cross sound until we pass over the fair-weather ground at the foot of Mount Saint Elias, upon the region of Prince William sound and Cook's inlet, where this timber again occurs, and attains very respectable proportions in many sections of the district, notably at Wood island and portions of Afognak, and at the head of the Kenai peninsula and the two gulfs that environ it. The abundance of this timber and the extensive area clothed by it are readily appreciated by looking at the map, and are rendered still more impressive when we call attention to the fact that the timber extends in good size as far north as the Yukon valley, clothing all the hills within that extensive region and to the north of Cook's inlet and Kenai peninsula, so that the amount of timber found herein is great in the aggregate. The size of this spruce timber at its base will be typified in trees on Prince of Wales island 50 feet and over in height, with a diameter of at least 3 feet. They have not grown as fast as they would have grown in a more congenial latitude to the south, such as Puget sound or Oregon; hence when they are run through the saw-mill the frequent and close proximity of knots mar the quality and depress the sale of the lumber. Spruce boards are not adapted to nice finishing-work in building or in cabinet ware, or, indeed, in anything that requires a finish and upon which paint and varnish may be permanently applied, for under the influence of slight degrees of heat it sweats, exuding minute globules of gum or rosin, which are sticky and difficult to remove.

The other timber trees in southeastern Alaska, Kadiak, and Cook's inlet may be called exceptional. But one very valuable species of yellow cedar (*C. nutkanensis*) is found scattered here and there within the Alexander archipelago and on the 30-mile strip. Here this really valuable tree is found at wide intervals in small clumps, principally along shoal water-courses and fiords, attaining a much greater size than the spruce, as frequently trees are found 100 feet high, with a diameter of 5 and 6 feet. The lumber made from these is exceedingly valuable, of the very finest texture, odor, and endurance, and is highly prized by the cabinet-maker and the ship-builder.

While, therefore, we find a very large supply of timber in Alaska, such as we have described, yet it is instantly apparent that as long as the immense forests of Oregon, Washington territory, and southern British Columbia stand as they exist to-day there will be practically no market for Alaskan lumber.

The accompanying map indicates, as far as it has been ascertained, the distribution of the yellow cedar (*C. nutkanensis*) and the Sitka spruce (*Abies sitkensis*), and also the northern and western limits of the latter tree. The white birch is found throughout the region which supports the spruce—scattered or in small bodies—chiefly along the water-courses. The alder and willow are found on all the low lands, reaching far beyond the northern and western limit of the spruce. A poplar, resembling our cottonwood, attaining great size under favorable circumstances, is also found in nearly all the timbered sections of Alaska south of the Arctic circle.

To the westward of the one hundred and forty-first meridian no timber grows at an altitude higher than 1,000 feet above the level of the sea, and consequently the forests are confined entirely to valleys and plains, all mountains being bare throughout the section indicated. On Kadiak island and on the Aliaska peninsula the change from a vigorous growth of spruce timber to bare hills and grassy plains is very abrupt, and is apparently unexplained by any corresponding change in soil, temperature, or general climatic conditions. A slightly-curved line, beginning at the intersection of the coast-hills of the east shore of Norton sound with the Oonalakleet river, passing across the Yukon and the Kuskokvim rivers, the mouth of the Nushegak, across the Aliaska peninsula, and impinging upon the north Pacific in the vicinity of Orlova bay, on Kadiak island, will serve as the western limit of spruce forest in Alaska.

With reference to quality the Alaska forest trees may be divided as follows:

1. YELLOW CEDAR (*Cupressus nutkanensis*).—This is one of the most valuable woods on the Pacific coast, combining a fine, close texture with great hardness, durability, and a peculiar but pleasant odor. The Russians named it "dushnik" (scented wood) on account of the last-named quality. In the immediate vicinity of Sitka, on Baranof and adjoining islands, this tree was nearly exterminated by the Russians, but on the Kehk archipelago (Koo island) and on Prince of Wales island and a few others of the Alexander archipelago, near the British Columbian frontier, considerable bodies of it can still be found, and beyond the line, in the Nass and Skeena River valleys, it is also abundant.

2. SITKA SPRUCE (*Abies sitkensis*).—This is the universal forest tree of Alaska, and is found of gigantic size on the islands of the Alexander archipelago and on the shores of Prince William sound. Its medium growth it appears to attain in the valleys of the Yukon and the Kuskokvim, while on the east side of Cook's inlet and on the more northern uplands it is quite stunted and dwarfed. The Sitka spruce is most closely connected with the various requirements of all Alaskan natives in their domestic economy, as its timber is used in the construction of nearly every dwelling throughout the country, and even those tribes who inhabit barren coasts far removed from the limits of coniferous trees are supplied with it through means of freshets and ocean currents. The sappy outer portion of the wood furnishes splinters and torches that light up during long months of winter the dark dwellings of interior tribes of Tinneh stock, who know not the oil-lamp of their Innuit neighbors. The same material is also used for sledge-runners on loose but crisp-frozen snow, over which iron or steel would drag with difficulty, as over deep, coarse sand. The Thlinket and the Hyda fashion their buoyant and graceful canoes, both large and small, from spruce logs, and split from them also the huge planks used in the construction of their houses. The lumber manufactured from the Sitka spruce is much less durable than the yellow cedar, very knotty, and consequently not adapted for ship-building.

3. HEMLOCK (*Abies mertensiana*).—Though this tree generally exceeds the spruce in size, it is of rare occurrence, much less valuable as timber, but well adapted for fuel.

4. BALSAM FIR (*Abies canadensis*).—This tree is found only in small, scattered bodies, and is of little value as timber, but the natives use its bark for tanning and for other purposes.

5. SCRUB PINE (*Pinus contorta*).—The scrub pine is found throughout the interior of Alaska in small, scattered bodies up to the highest latitudes, but it is of no value as timber.

Thus it will be seen that the forests of Alaska are altogether coniferous, as the small bodies of birch and the alder and willow thickets on the lower Yukon and Kuskokvim rivers can scarcely be considered to come under this head. Aside from the yellow cedar, which is rare, the timber wealth of Alaska consists of the Sitka spruce, which is not only abundant and large (trees of from three to four feet in diameter being quite common in southeastern Alaska and Prince William sound), but also generally accessible.

To give even an approximate estimate of the area of timbered lands in Alaska is at present impossible, in view of our incomplete knowledge of the extent of mountain ranges, which, though falling within the timber limits, must be deducted from the superficial area of forest-covering.

A few small saw-mills of exceedingly limited capacity have been erected at various points in southeastern Alaska, to supply the local demand of trading-posts and mining-camps, but finished building lumber is still largely imported even into this heavily-timbered region. In all western Alaska but one small saw-mill is known to exist, which is on Wood island, Saint Paul harbor, Kadiak. This mill was first set up to supply saw-dust for packing ice, but since the collapse of that industry its operations have been spasmodic and not worth mentioning. Lumber from Puget sound and British Columbian mills is shipped to nearly all ports in western Alaska for the use of whites and half-breeds, while the natives in their more remote settlements obtain planks and boards by the very laborious process of splitting logs with iron or ivory wedges. On the treeless isles of the Shumagin and Aleutian groups, as well as in the southern settlements of the Aliaska peninsula, even fire-wood is imported from more favored sections of the territory and commands high prices.

The drift-wood washed upon the shores of Bering sea and the Arctic is of very little value as building material and cannot be worked into lumber.

On the map I have also endeavored to show approximately the extent of the tundra, or marshy plains, producing a vigorous growth of mosses, grasses, and even flowers, but resting upon a substratum of frozen soil and ice which does not thaw during the brief summers. The glaciers also have been indicated where they are definitely known to exist, but others could doubtless be found in mountain regions not yet visited.

## MINERALS.

Coal is found, chiefly or wholly of a lignite composition, at a great many points throughout the southern and western coasts of Alaska and the islands thereof; and during the past season a vein was opened in the Arctic, above cape Lisburne, by Captain Hooper, of the revenue marine, who says that he mined it easily and used it with great satisfaction in making steam for his vessel. The oldest coal-mine in the country is that on Cook's inlet, near its mouth, at a place still called on the map Coal harbor. The Russians also took notice of coal at Ounga, on the

Shumagin islands, and several openings were made by them of veins here and there in the Alexander archipelago. Following the Russians our people discovered and attempted to work one or two in the Sitkan archipelago and several to the westward. The quality of all this coal located and worked for a brief experimental period was of so poor a grade that in no case has it been pronounced fit for use on steam-going vessels, being so highly charged with sulphur and other deleterious combinations. The value, however, of Captain Hooper's vein in the Arctic to the opening enterprise of steam-whaling, and for the use of the revenue marine itself, must be of very striking moment. These experiments with Alaskan coal have been exceedingly thorough and patiently wrought out at Ounga, where the most laudable, persistent, and even desperate determination has been manifested by the owners of certain ledges thereon to develop their holdings into mines of wealth. The steamers in the territory bring their own coal with them, or have it sent up by tender from British Columbia sound or California. The traders at the different posts where timber is scarce or entirely wanting use it now as their principal fuel, and it is the sole fuel on the seal islands.

In regard to the reputed findings of large-paying gold-mines and other precious minerals I can only say that, as far as is known, there is nothing of the kind in western Alaska; at least there is nothing located and worked as such, though the prospecting or searching is as active as it has been since the transfer. The surface of the country in southern Alaska being so mountainous and concealed by the timber-cloak everywhere covering it, it is of course a slow and exceedingly difficult undertaking to penetrate any distance back, up, and among the mountain valleys in search of mineral. The color of gold can be washed out of the sands of every little stream emptying into the ocean on the northwest coast, and in many places it can be found by searching in the surf-beaten beaches of the sea-coast itself. But the question immediately arises with the miner, "Will it pay?" and by that he means "Will it yield me from $4 to $10 a day if I work it?" Less return for his labor does not satisfy him, nor will it bring others to the places.

The gold-bearing belt of the Rocky Mountain divide, so familiar to us as it crops out all through our states and territories, reaches undoubtedly to the Arctic sea itself. But it must be borne in mind that with every degree of northern latitude as we ascend we cut off working-days, as the icy grasp of frost checks the flow of water and shuts down the mills, so that when this gold-bearing belt crosses into our Alaskan boundary far back, and concealed from the sea by the towering summits of the coast range, we find it practically barred out from our miners unless they shall find the free gold and a rich quartz in unwonted abundance.

The quartz-mines in the immediate vicinity of Sitka have been abandoned as worthless under present conditions, the output officially reported for the year ending June 30, 1880, being but a trifle over $6,000, with an expenditure of nearly four times that sum. Since 1880, however, much surface-gold has been found in the mountains on Gastineaux channel, between Douglas island and the mainland, chiefly from the decomposed croppings of ledges. These discoveries have attracted several thousand miners and their followers, and a thriving town, now named Juneau City, has sprung up, claiming very bright prospects in spite of the long interval of enforced idleness between December and April. The never-satisfied prospector has already left these diggings behind and pushed on from the head of Lynn canal across the divide separating the headwaters of the Yukon from the north Pacific; but whatever discoveries have been made there are located in British Columbia, and consequently without the pale of this report.

The Cassiar diggings, which have during the last five or six years given quite an impetus to Alaskan travel by fort Wrangell and Sitka, are situated in the territory or dominion of British Columbia, far up the Stakhin river, and away from our limits. They have been failing lately, and the last season's work has been one of sore disappointment and discouragement to the few miners who still hold on.

In Norton sound, within the deep land-locked shoals of Golovin bay, there are reputed to be leads of silver ore and graphite. Cinnabar has also been discovered on the Kuskokvim, and assays made of the ore in San Francisco indicate a very valuable discovery there. Other than these minute circumstances we have no better evidence of the mineral wealth of Alaska to offer at this writing, unless we refer to the old legend and partial corroboration of it in regard to the presence of an extensive deposit of copper *in situ* on the banks of the Atnah or Copper river. There is also a mine opened, but just at present not worked, on Prince of Wales island. This little mine, however. we might say is owned by British Columbians, who say that they are barred out from their legitimate home market on account of the Dominion tariff; hence they are idle.

In connection with the discussion of the mineral resources of Alaska I insert here a translation of the report rendered by Lieutentant Doroshin, who was intrusted by the Russian-American Company with an examination of the gold-bearing deposits on the Kenai peninsula. Doroshin has frequently been accused of suppressing the results of his explorations in order to please the Russian-American Company, but from his report and private letters on the same subject it would seem that such was not the case. He wrote as follows:

> In the year 1850 I was ordered to the gulf of Kenai (Cook's inlet) in order to investigate the indications of gold first discovered by me in 1848, during my first visit to that neighborhood. I left Sitka on the 1st of May and returned on the 4th of October. During this period the laborers under my command were at work only forty-nine days, the remainder of the time being spent in excursions to Nuchek, and Ochek islands, and Voskressensky bay, and also in the laborious ascent of the river Ka-ktnu, and the tedious transportation of provisions and implements on the backs of men.

In 1851 I left Sitka on the 8th of May and returned on the 30th of October, calling at Nuchek and Saint Paul harbor (Kadiak island). The working-days during this summer numbered sixty-six, much time being wasted in the transportation of provisions and tools. The working force during this season was the same as the last—twelve men.

Under these circumstances my prospecting was confined to (1) the valley of the creek Tuslitnu, emptying into the lake Kastudilin, the head of the river Ka-ktnu; (2) the valley of the creek Taslikh-tnu, with its tributary ravines, and (3) the valley of the creek Chunu-ktnu, with several lateral ravines. The streams Taslikh-ktnu and Chunu-ktnu empty into the Skiliankh river, connecting the lakes Skiliamna and Kastudilin.

Nearly everywhere in these localities gold was found, but nowhere in a larger quantity than $\frac{1}{2400000}$ of the dirt, or 16 grains of gold to 1 pood (36 pounds) of dirt.

Though the results of my two years' exploration of the Kenai mountains were thus insignificant, they may be the foundation for more extensive search of the gold-bearing strata. Aside from the valley of the Tsulitnu, where I could not complete my investigations on account of a forest fire, only two other valleys, with their tributary ravines, were examined, and consequently only a small surface of the mountainous Kenai peninsula has been touched, while nothing has been done in the main mountain ranges of which the Kenai chain is only a branch.

In the following year (1852) Doroshin wrote to Professor G. A. Goŝse:

> The small result of my labors has cooled the ardor of the chief manager of the colonies for gold-seeking. I do not cease to hope, however, that later some other engineer will be more fortunate in the path pointed out by me, with better means than were at my disposal; in that case, of course, nobody will think of him who first found gold where there were no ancient diggings—where no grains of gold were found in the crop of a grouse [referring to an incident of gold-discovery in Siberia], and where the natives have not even a name for the precious metal.

In November, 1855, Doroshin wrote to General Helmerson, member of the Imperial Academy:

> Last summer I have passed among the mountains of the Kenai peninsula, where I had discovered traces of gold as early as 1848. In that year I became convinced that the alluvial sands of the site of the Rédoute Saint Nicholas are auriferous. When we find gold in such localities there must be deposits of auriferous ores or sands somewhere. This reasoning and the peculiar combination of clay and diorite on the upper Ka-ktnu induced me to explore its headwaters. We found gold at the outset, and as we advanced up the valley it became evident that coarser particles of gold took the place of the at first barely visible scales.

## AGRICULTURE.

I now pass to the agricultural and pastoral resources of Alaska. So much has been said upon this topic, of frantic declamation on one hand and indignant remonstrance on the other, that I shall be very cautious in my presentation of what I know to be facts.

In the first place, let me preface my remarks with the statement that the cereal crops cannot be grown in Alaska; this has been settled by numberless patient and repeated tests in the most favored localities. Also, that the fruit trees and the small fruits of our gardens here, as we grow them and recognize them (unless it be the strawberry and the cranberry), cannot be cultivated successfully up there. But these people do have in Alaska quite an abundance of indigenous, hardy shrub fruits, such as I have specified elsewhere. The statement made by certain high authority that wild apples are indigenous and perfect their fruit at Sitka is a mere figure of speech, but the other half of the assertion, that wild roses grow there, is true; and for that matter the wild rose blossoms with a rosy flush and the suggestion of perennial flowering up the Yukon, while the violets, the gaily-colored pea, and indeed nearly 200 species of lovely blossoming annuals and perennials are found everywhere on prairie and forest land, on the bare hills of the Aleutian islands, and covering the great moor and tundra of Alaska.

But taking up the subject of the vegetable garden, it is found that there are localities in Alaska where for the last eighty years or even more up to the present date good potatoes have been raised, though I should say perhaps that the raising of these tubers is not a certain success year after year except at one or two points within the Alexander archipelago, namely, at the mouth of the Stakhin river, at fort Wrangell, and on Prince of Wales island. The potato grounds of Alaska, however, can with due care and diligence be made to furnish in the Alexander archipelago, in Cook's inlet, at Kadiak island and islets contiguous, and at Bristol bay a positive source of food-supply to the inhabitants. It is not generally known that on Afognak island there are nearly 100 acres of land dug up in patches here and there which are planted by the inhabitants, and from which they gather an annual harvest of potatoes and turnips; but there are no fields spread out, squared up, and plowed anywhere in Alaska. The little openings in the forest or the cleared sides of a gently-sloping declivity in sheltered situations are taken up by the people, who turn out with rude spades of their own manufacture, principally, for the purpose of subjugating and overturning the sod. Many of the gardens, noticeably those at the Kadiak village, are close by the settlement, while others are at some distance.

The potato crop at Kadiak in 1880 was a total failure; and this happens at intervals of from four to six years. The winter preceding the planting in 1880 was an unusually cold and protracted one, and the season, short at the best, was cut off by unwonted early frosts during September and the latter part of August. The usual growing season, however, opens early in June, from the 1st to the 10th; and the potatoes are planted in May, coming up and growing freely until October, when they are harvested. This growth of potatoes, fairly established and well defined, presents the only firm and tangible evidence of agricultural capacity within the limits of Alaska. The turnip grows and flourishes wherever the potato succeeds.

On Wood island, Kadiak harbor, during a number of years past, horses have been kept to perform certain labor in connection with a mysterious ice company, and for the use of these horses a field of 12 acres of oats is regularly sown; growing up, frequently heading out, but never ripening. This, however, is a secondary object with the planters, who cut the green crop for haying purposes.

There have been repeated attempts to raise stock cattle, sheep, and hogs in large herds within the borders of Alaska. The subject is one in which the Russians first naturally took a deep interest, for they were fond of good living, and were as desirous as any people could be to have the best of beef or mutton and the sweetest pork on their tables. They brought over hardy selections from the Siberian stock, placing the cattle at almost every point of importance for trial. The result after years of patient and persistent attention was that the herds on Kadiak island throve the best and became of real service in assisting to maintain the settlement. Here there is a very fine ranging-ground for pasture, and in the summer there is the greatest abundance of nutritious grasses, but when the storms of October, freighted with snow, accompanied by cold and piercing gales, arrive and hold their own until the following May, the sleek, fat herd of September becomes very much worn and emaciated in June. It has given its owner an undue amount of trouble to shelter and feed; hay, however, suitable for cattle, or at least to keep cattle alive, can be cut in almost any quantities desired for that purpose, but the stress of weather alone, even with abundance of this feed, depresses as it were and enfeebles the vitality of the stock so that the herds on Kadiak island have never increased to anything approximating a stock-grower's drove, rarely exceeding 15 or 20 head at the most. Notable examples of small flocks of sheep which have been brought up since the transfer and turned out at Oonalashka, Ounga, and elsewhere have done well. The mutton of the Alaskan sheep when it is rolling in its own fat, as it were, is pronounced by epicures to be very fine. But the severe winters, which are not so cold as protracted, when the weather is so violent that the animals have to huddle for weeks in some dark low shelter, cause a sweating or heating of their wool, which is detached and falls off, greatly enfeebling and emaciating them by spring. The practice of the traders at some places now is to bring beef cattle up in the spring from San Francisco, turn them out into the grazing-grounds on the Aleutian islands, Kadiak, and even to the north, where they speedily round out and flesh up into the very finest beeves by the middle or end of October, when they are slaughtered. Some ludicrous instances occur in this connection when Texas cattle are disembarked in these unwonted nooks, where they charge from the gangway of the vessel up through the native settlements as though possessed of an evil spirit, while the natives dive into their barabaras with remarkable celerity and activity, peeping thence at intervals in anticipation of some fearful crisis. The animals at once repair to the solitudes of the mountain recesses of the interior, away from the settlements, where they remain undisturbed until they are hunted and shot by the traders.

The Russians familiarized some of these natives with horses as well as cattle; but a great sensation remained in store for these people after the transfer of the territory, when mules were taken up there by the soldiers under the mistaken notion that they were going to be used in going about and over the country. These animals were a source of profound astonishment to the natives, and the mules manifested toward them an exceedingly vindictive and aggressive disposition, always charging, with ears laid back, and threatened uprising of the heels, upon the luckless savages chancing to cross their feeding-grounds, the warriors turning in swift, tumultuous flight from the advance of the unknown quadrupeds when they would have faced any number of bears without moving a muscle of their countenances.

Mules and horses, however, have no economic value here, there being no service for them on land. A little work is done with profit on the seal islands by mule teams, and these, perhaps, are the only draught or saddle animals that serve any useful purpose in the territory, with the exception of those at Wood island, before mentioned.

With regard to the raising of hogs, the propensity of these creatures to devour carrion on the sea-beach bars them of much interest, and they are not encouraged anywhere. The same difficulties as specified above, however, occur in feeding and caring for them during the winter.

I feel fully warranted in saying that the extended coast islands and mainland of Alaska will not support any considerable number of our people as agriculturists, but it is also equally apparent that the existence of those who are living and who will always live in the territory can be softened in many of its asperities by better attention to the development of the resources which are latent in the soil at many favored localities, notably at Bristol bay, Kadiak, Cook's inlet, and the Sitkan archipelago. There is a singular indifference, with a growing disinclination of the people themselves to labor in this direction. In the times of the old Russian rule there were regular orders and regular squads of soldiery assigned to this purpose every year, and the old retired and patient colonial citizens were obliged by the terms of their indenture with the company to devote themselves wholly to agriculture. Now of course they are free to choose between the profits of hunting and the smaller gains of farming, and they naturally drop the latter and rally to the former. It will thus be seen that the subject of agricultural resources in Alaska is not a new agitation, and the result of American thought and industry; and it will be found that those points located by the Russians eighty years ago as most suitable for their potatoes and other garden relishes, such as radishes and turnips, are the best to-day.

## BUSINESS STATISTICS.

Owing to peculiar local circumstances, and the nature of the traffic carried on in Alaska to obtain furs and fish, it is exceedingly difficult to arrive at an even approximately correct estimate of the volume of importations of provisions and dry goods. As an example of this I may cite the discrepancy existing between the sums obtained from the custom-house of San Francisco and those furnished by firms engaged in business in the country. At the San Francisco custom-house the books indicate shipments of provisions to Alaska from that port in the following quantities: Flour, 801,508 pounds, or not much over 3,000 barrels; hard bread, 3,403 cases; tea, 823 chests of 52 pounds each; sugar, 782 barrels and 2,463 half-barrels; and for the same period the books of two San Francisco firms trading in Alaska show shipments of over 5,000 barrels of flour and other provisions in proportion. At some points the consumption of imported provisions, such as flour, hard bread, tea, and sugar, is extraordinarily large, and this is especially the case in regions inhabited by the prosperous sea-otter hunters and on the Pribylof islands, where the native sealers have large incomes, and the consumption of flour amounts to a barrel per annum for each man, woman, and child, more than the average in civilized communities. It is reported by traders that the demand for flour and hard bread increases annually, even among the savage tribes of the interior. The demand for tea, also, is steadily gaining, and the consumption of sugar is universal wherever it can be carried by the traders, but is especially large in those sections of Alaska—especially in the southeastern division—where the creoles and natives understand the manufacture of alcohol from sugar and molasses. Including the southeastern division, which is supplied chiefly from Portland, Oregon, and British Columbia, the annual shipment of flour to Alaska may be estimated at not less than 10,000 barrels, or a barrel for every three individuals of its population. If to this are added 5,000 or 6,000 cases of hard bread, 1,200 chests of tea, and 2,500 barrels of sugar, it is seen that the trade with Alaska in these staples alone is assuming considerable proportions. The shipments of tobacco aggregated from 15,000 to 20,000 pounds. Of the value of the dry goods it is impossible to make an estimate, but it is safe to assume that it does not equal that of groceries or provisions.

From the above it would appear that Alaska, with its savage population of over 30,000, represents a larger volume of trade than any other portion of the United States inhabited by uncivilized tribes, even without reference to such mineral wealth as has been or may yet be developed within its limits, or to the net revenue derived by the government above all its expenditure for Alaska from the lease of the fur-seal reservation on the Pribylof islands.

The statistics relating to Alaska contained in the reports on commerce and navigation furnished by the treasury department are of a very unsatisfactory character, as a few extracts from these documents will serve to demonstrate. During the last year of Russian rule in Alaska we find the imports from Russian America to the United States for the year ending June 30, 1866, valued at $39,544, while the exports to Russian America were $104,315, of which $81,609 covered domestic produce. In the year ending June 30, 1868, the first year of American occupation, the total shipments to Alaska were valued at $56,067. This represents the period covering the first rush of business men into the newly-acquired country. During the years following this period both imports and exports apparently increased in volume, reaching the figures of $180,000 and $200,000 in value; but looking at the itemized list of shipments it is easily discovered that this trade is in transit from British Columbia, through the American port of Wrangell, to the Cassiar mines in British Columbia, the items showing large shipments of grain, mules, cattle, flour, hard bread, and groceries among the exports of Alaska, articles which should, of course, have been placed under the head of transit trade. All these successive reports evidently refer only to the shipments to and from Alaska through the nearest custom-houses of Port Townsend, Washington territory, and Portland, Oregon, the vast trade of San Francisco with all western Alaska not being considered at all. The statistics of immigration contained in the same treasury reports may mislead, as they simply record the transit of miners and traders through Alaska from one point in British Columbia to mining-camps in another section of that country. By far the largest portion of Alaska is removed from all communication with Sitka.

The shipping statistics derived from the same reports represent chiefly the shipping of the southeastern division. One reason for this state of affairs lies in the fact that the returns from the western ports of entry at Kadiak and Oonalashka can be forwarded to the collector at Sitka only by the sailing-vessels of fishermen and traders via San Francisco, and it often happens that these documents are delayed for months and even years.

As an instance of the deficiency of the shipping statistics I may mention that while the report of 1880 gives the number of sailing-vessels registered as seven, aggregating 133 tons, in the same year there were registered at the port of Kadiak alone eleven sailing-vessels, aggregating 175 tons in capacity.

# CHAPTER III.—GEOGRAPHY AND TOPOGRAPHY.

## THE MAP OF ALASKA.

The fact that the new map of Alaska published with this report differs essentially in many of its features from all the maps which have previously been published necessitates a few words explanatory of the methods adopted in compiling, of the reasons for the selection of authorities, and for changing the outlines of certain portions of the coast.

The southeastern section of Alaska, from the southern boundary to cape Spencer, comprising the islands of the Alexander archipelago, has been represented in accordance with the survey under the auspices of the British admiralty, corrected to date by Commanders Beardslee and Glass, United States navy, and assistant William H. Dall, United States coast survey. In the topography of the section of the mainland forming the water-shed between the Chilkhat and Yukon rivers, or rather between the Pacific and Bering Sea drainage systems, the late discoveries of the explorer Krause, of the Bremen Geographical Society, have been inserted, and the route to the eastern and western Kussoa lakes (the real heads of the Yukon) has been indicated.

The changes in Lynn canal, or Chilkhat inlet, and to the north of Cross sound are quite remarkable. The waters of Glacier bay extend far to the northward, where heretofore a compact peninsula appeared on the maps and charts, while the positions of Sitka and a few other important points have also been corrected.

The intricate character of the deep-sea channels which form a net-work throughout this section leads us to the conclusion that future actual and connected surveys will probably result in essential changes of outline and in the location of hundreds of islands as yet not indicated on the map.

The boundary-line between this portion of Alaska and the British possessions has been laid down as near as possible at the uniform distance of ten marine leagues from the shore-line of the mainland from the head of Portland canal to the intersection of this line with the one hundred and forty-first meridian. The clause in the Anglo-Russian treaty of 1825, which was adopted in our treaty with Russia in 1867 as defining this boundary, states that this boundary shall be a line commencing from the southernmost point of the island called Prince of Wales island, which point lies in the parallel of 54° 40′ north latitude, and between the one hundred and thirty-first and one hundred and thirty-third degrees of west longitude.

> The said line shall ascend to the north, along the channel called Portland channel, as far as the point of the continent where it strikes the fifty-sixth degree of north latitude. From this last-mentioned point the line of demarcation shall follow the summit of the mountains situated parallel to the coast as far as the point of intersection of the one hundred and forty-first degree of west longitude, and finally from the said point of intersection the said meridian line of the one hundred and forty-first degree in its prolongation as far as the Frozen ocean; with reference to the line laid down in this article it is understood, first, that the island called Prince of Wales island shall belong to Russia [now by cession to the United States]; second, that whenever the summit of the mountains which extend in a direction parallel to the coast from the fifty-sixth degree of north latitude to the point of intersection of the one hundred and forty-first degree of west longitude shall prove to be at the distance of more than ten marine leagues from the ocean limit between the British possessions and the line of coast which is to belong to Russia, as above mentioned [to the United States by cession], shall be formed by a line parallel to the winding of the coast, and which shall never exceed the distance of ten marine leagues therefrom.

We have absolutely no data for locating the summits of the chain of mountains "running parallel with the coast"; it is not even certain that there is such a connected chain, and, consequently, it has been thought best for the purposes of this map to run the boundary in conformity with the last paragraph in the clause of the treaty mentioned, at a distance of "ten marine leagues from the sea-shore of the mainland", in expectation of a future settlement of this altogether too indefinite line by treaty or convention between the United States and the British government.

A survey with a view of locating the boundary in accordance with the obtuse wording of the treaty would be altogether too costly, but a straight line between certain easily-defined points agreed upon by mutual consent would solve a difficulty which promises to arise in the near future, owing to the discovery of valuable mineral deposits on the very ground placed in dispute or doubt by the old treaty.

It may be stated here that a line from the point above mentioned, on the fifty-sixth parallel, to the intersection of the sixty-fifth parallel with the one hundred and forty-first meridian would nearly follow the present line in southeastern Alaska, while it would give to the United States one of the head branches of the Yukon river—the main artery of trade of the continental portion of Alaska—which is now crossed by the boundary at a point considerably below the head of steam navigation.

The coast-line from cape Spencer northward to Mount Saint Elias has been drawn in accordance with the coast-survey chart of the Mount Saint Elias alpine region from observations and triangulations of assistant William H. Dall, who discovered important errors in the vicinity of Dry bay and at other points. Minute descriptions of natives, confirmed by observations of Mr. Dall, induced me to change the contour of Icy bay. From cape Yaktag to the mouth of Copper river the old outline, based upon Tebenkof's Russian atlas, has been retained, but the mouth of Copper river, which has heretofore been represented as a wide estuary, I found to be filled with low islands intersected by narrow, winding channels. These islands were located by magnetic bearings only. In Prince William sound the only change made consists in the relative position of the three headlands of Montague island, in accordance with my repeated personal observations. The coast-line of the sound is the same as on the coast-survey charts of this section, which are based upon the surveys of Spanish, English, and Russian explorers.

In the Kenai peninsula, the island of Kadiak, and Cook's inlet no change has been made with the exception of the location of villages or settlements in accordance with personal notes of the compiler.

The outlines of the Aliaska peninsula are essentially the same as in all earlier maps based upon the surveys of Lütke, Sarychef, and others, with the exception of a few corrections in the Shumagin group of islands, which were furnished by the United States coast and geodetic survey.

In the interior of the peninsula my observations enabled me to insert a few alterations along one of the chief portage routes from Bristol bay to Shelikhof strait by way of the Naknek river and Walker lake.

The Aleutian islands are represented on this map in accordance with the charts of Sarychef and Tebenkof, with corrections to date by assistant William H. Dall and party, of the coast and geodetic survey.

The coast-line from Bristol bay to cape Newenham is essentially the same as that found on the coast-survey map of 1869, which latter is identical with that in Tebenkof's atlas.

In the interior of this section some details showing portage routes and settlements have been inserted from personal notes of the compiler.

The course of the Kuskokvim river has been retained as represented on the coast-survey map of 1869, with the exception of a portion of its headwaters corrected from Indian maps and the descriptions of traders.

The delta between the Kuskokvim and the Yukon mouths presents several striking and entirely new features, for which I am indebted to the discoveries of Mr. E. W. Nelson, United States signal service. Some years ago I was informed that the two deep indentations heretofore represented on all maps of Alaska to the north and south of cape Vancouver do not in reality exist, and happily Mr. Nelson was in a position to confirm this report, and to furnish the real outline of the coast as laid down by magnetic bearings and close estimate of distances from points known and established. That gentleman, during a sledge journey performed in the winter of 1878–'79, struck the coast of Bering sea at a point a little to the southward of cape Rumiantzof, and, taking his departure from that well-established point, followed the coast to cape Vancouver, another known point, and thence along the shore into the mouth of the Kuskokvim, finally cutting across the center of the delta to the banks of the Yukon. This journey resulted in the important discovery that cape Vancouver is located on an island formed by two wide channels uniting in a large inlet far inland. This island was named after the discoverer, while the name of Baird was bestowed upon the inlet above referred to and that of Hazen upon the bay to the north of Nelson island. (*a*)

Another important point confirmed by Mr. Nelson during his journey is that the central portion of this delta, where the compiler of the coast-survey map of 1869 located a chain of mountains, consists in reality of a vast system of lakes connected by shallow and intricate channels.

The course of the Yukon is laid down on this map in accordance with the survey of Captain Charles W. Raymond, United States engineers, who ascended the river to ascertain the position of fort Yukon, which he found to be considerably to the westward of its location on the maps heretofore published.

For the course of the river between fort Yukon and the British boundary I am indebted to magnetic bearings furnished by traders traveling on the steamer which ascends the Yukon to fort Reliance, an American trading-station. These bearings, confirmed by Indian maps and the descriptions of various intelligent individuals, when brought into connection with the change in the position of fort Yukon bring fort Reliance within our possessions, though heretofore it was supposed to be on British territory, owing to deductions made from the erroneous location of fort Yukon.

The course of the Tennanah river and that of the portage routes connecting this little-known stream with the Yukon on the east and the Kuskokvim on the west are represented in accordance with Indian maps and a careful comparison of statements of many traders and intelligent natives; and a change has been made in the course of the Innoko, another tributary of the Yukon, in accordance with notes of a reconnaissance made by Mr. E. W. Nelson.

The positions of Saint Michael and Stuart islands, in Norton sound have been corrected in accordance with observations of Lieutenant Hand, United States revenue marine, and Lieutenant Danenhower, United States navy, of the Jeannette expedition, who determined the same to be considerably more to the westward. A slight difference exists between the observations of these two officers, but as the naval officer seems to have had better instruments, more leisure, and more favorable atmospheric conditions, I have accepted his location of Saint Michael.

In comparing the authorities for the eastern coast of Norton sound it was discovered that the charts of the United States hydrographic office contained an important error. A draughtsman at that office in first laying down this coast-line had made use of chart No. 2 of Tebenkof's atlas, on which the meridian lines were drawn at the half degree, a mistake which remained undiscovered by the hydrographic office, and the error resulting has been perpetuated in each succeeding issue of its charts of Bering sea.

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*a* In honor of Professor Spencer F. Baird and General William B. Hazen, under whose auspices Mr. Nelson performed his labors.

In the coast-line of northern Alaska from Norton sound to Bering strait and along the Arctic shore the charts of the British admiralty and the United States hydrographic office in their latest issues have been closely followed, with the addition of some details furnished by Captain C. L. Hooper, United States revenue marine, and E. W. Nelson, United States signal service.

In running the boundary between the Alaskan and Siberian coasts a slight variation from charts heretofore published was made necessary, in accordance with the wording of the treaty, at a point where this line passes between Saint Lawrence island and cape Chukotsk.

Wrangell island is represented in accordance with the sketch of Lieutenant Berry, United States navy, published with the latest chart of that region issued by the United States hydrographic office. The point where Captain C. L. Hooper, of the revenue marine, landed and took possession in the name of the United States was named "Hooper's cairn" on Lieutenant Berry's sketch, but the name had been omitted by the draughtsmen of the hydrographic office. As an act of justice to the first man who set foot on this Arctic island I have restored it. The latest hydrographic charts of the Arctic adopt Professor Nordenskiöld's coast-line of Siberia to East cape, but with the assistance of the observations made by Captain Hooper during the summer of 1881 I have been enabled to make important corrections between cape Serdze Kamen and cape North. Professor Nordenskiöld passed along this section of the coast late in the season with thick and unfavorable weather, while Captain Hooper was favored with the finest atmospheric conditions and double observations of both midday and midnight sun.

The contour of East cape of Siberia has been changed in accordance with a careful sketch furnished by the brothers Krause, of the Bremen Geographical Society, together with other details, the result of a boat journey along the east coast of the Chukche peninsula. This change in contour, though radical, is based solely upon the discovery that what has been heretofore represented as an island on the north side of the "neck" of East cape is really a sand-spit separating a lake containing many islands from the sea. In this connection it may be stated that many of the names of villages collected by the brothers Krause are identical with those of a list furnished by a Cossack explorer at the end of the seventeenth century.

A careful comparison of all the accessible authorities during the slow process of compilation naturally led to the discovery of errors in many of the maps and charts consulted, but throughout this work it has been the experience of the compiler that the Russian atlas of Tebenkof, and to a certain extent the charts of Sarychef, furnish the most reliable material—in fact they are the basis of all maps of this vast territory. Wherever a point or coast-line has been laid down as definitely known by Tebenkof, it may be relied upon as true in contour and latitudinal position. A curious instance confirming this assertion presents itself in the case of the southernmost outlet of the great Yukon river—the Kashunok—indicated as a broad arm on "chart 2" of Tebenkof's atlas. Mr. William H. Dall, in compiling his map for the United states coast survey in 1869, omitted this feature, but examination proved the Russian geographer to be correct. The outlet exists, but is less broad than indicated by Tebenkof.

The large numbers of new names of settlements inserted in this map lie chiefly along the line of my personal exploration.

In the absence of all connected surveys of Alaska absolute correctness cannot be claimed for any map of that country, but in presenting the result of my labors to the public I look upon this map as embodying new information and as an additional guide for future labors in the same direction.

## THE GEOGRAPHY AND TOPOGRAPHY OF ALASKA.

The coast of Alaska commences in the south, at latitude 54° 40′, and sweeps in a long curve to the northward and westward for 550 miles to Prince William sound, and thence southward and westward over 700 miles to the extremity of the Aliaska peninsula, whence the Aleutian chain of islands stretches toward the coast of Asia in another long curve, with its convexity to the south. The highest latitude of that great bend of the main coast-line north of Sitka is 60° 30′, while the southern point of the Aliaska peninsula is in latitude 55°. From the strait of Issanakh, which separates the peninsula from the island of Oonimak with its great volcanic peaks covered with eternal snow, the Aleutian islands sweep in a grand curve to the southward and westward for 750 miles, reaching a latitude of 51° 30′ in the meridian of Greenwich, and thence northward and westward 125 miles to Attoo, the western extremity of the United States. The Aleutian islands are certainly the summits of a continuation of the main Alaskan range of mountains which sweeps along the Alaskan coast from the boundary around the head of Prince William sound and Cook's inlet and down the Aliaska peninsula. The whole chain, at least that part of it west of Mount Saint Elias, is marked by many volcanic peaks, several of them still active. The mountains of the mainland between Cross sound, the northern line of the Alexander archipelago, and the east shore of the Kenai peninsula are very high, Mount Saint Elias measuring over 18,000 feet, Mounts Crillon and Fairweather being but little less in height. The peaks of the Chugatch alps encircling the north side of Prince William sound loom up grandly under their covering of eternal snow; and on the west side of Cook's inlet are found mountains reaching an elevation of from 10,000 to 12,000 feet. From the Ilyamna volcano down the peninsula the peaks gradually decrease in height: Shishaldin, on Oonimak island, measuring nearly 9,000 feet; the Makushin, on Oonalashka, over 5,000; and the remaining mountains of the chain to the westward varying from 3,000 to 6,000 feet in height. The north side of the Aliaska peninsula presents a low and sandy shore. The great extent of water lying within the curve of the coast between the southern boundary and the southern end of the Kadiak archipelago has been named by the United States coast survey the gulf of Alaska. North of the Aliaska peninsula the coast has a general northerly and westerly direction to Bering strait, indented by three large bays or sounds—Bristol bay, the Kuskokvim estuary, and Norton sound. In the Arctic the coast of Alaska turns eastward with the sole interruption of Kotzebue sound, in latitude 66° north. The island of Nunivak, the Pribylof group, and Saint Lawrence and Saint Matthew islands are situated off the coast of Bering sea.

From Dixon sound and Portland canal, in latitude 54° 40′, to the Chilkhat inlet and Cross sound, in latitude 59° 40′, the mainland is shielded from the sea by a vast archipelago of islands, large and small, most of them being mountainous throughout, and all covered with a dense growth of spruce, hemlock, and cedar. The dimensions of this great accumulation of islands average about 75 miles east and west and 260 miles northwest and southeast, divided by hundreds of navigable passages. The number of these islands is given as 1,100, divided as follows: Prince of Wales island and those closely surrounding it number 135; from Portland canal to cape Caamaño there are 134; from cape Caamaño to the middle of the Stakhin, 77; between Chatham, Frederick, and Stakhin straits, 350; Admiralty island and those surrounding it number 118; Baranof and adjacent islands, 138; Chatham strait north of Admiralty island contains 29; and Chichagof and islands adjacent to Cross sound, 109. The fiords of Norway and the "scheres" of Finland sink into insignificance before the great dimensions of these straits and sounds. Among the larger passages dividing this archipelago Chatham strait, named by Vancouver, is the most important, stretching in a straight line 195 miles in a northerly direction from cape Ommaney, in latitude 56° 10′, to the mouth of Chilkhat inlet, in latitude 59° 40′, with an average width of seven or eight miles and a great depth of water. Several large passages connect this water-way with other straits to the eastward and also with the sea north of Sitka. Of the latter, one called "Peril" or "Destruction" strait leads directly to Sitka, while the other consists of Cross sound or Icy strait, about 75 miles north of Sitka. The Alexander archipelago embraces a shore-line of nearly 8,000 statute miles.

The outline of this section of Alaska is naturally a very irregular one on account of the numerous straits, bays, and islands. The south coast, facing upon Dixon sound and Portland canal and extending 80 miles from the latter westward to cape Kaigan, exhibits numerous headlands and broken shore, steep hills, and mountains covered with dense forest to their summits. The mountains attain an elevation of from 2,000 to 3,000 feet, with scarcely a valley between them.

The extensive eastern arm of Dixon sound, called Portland canal by Vancouver, forms the southeastern dividing line between British Columbia and Alaska. It begins in latitude 54° 41′, and its northern head is in latitude 55° 45′ and longitude 149° 54′. The inlet is but a little over a mile in width.

On the island of Tongass, situated a little to the westward of the mouth of Portland canal, a military post was established soon after the transfer of Alaska to the United States, but it has since been abandoned; a few of the buildings, however, still remain, surrounded by the easternmost native villages of all Alaska. Cape Fox, the southerly extremity of the mainland within the American territory, is situated in latitude 54° 45′ 30″. From the north side of Dixon sound several large passages extend to the northward: the Revilla Gigedo channel, or Tongass narrows, between cape Fox and cape Northumberland; Clarence strait, between cape Northumberland and cape Kaigan; and Cordova bay or strait, between cape Chacon and cape Kaigan, having connection with Bucarelli sound. The largest of these passages, Clarence sound, runs in a northwesterly direction for 120 miles, with an average width of from 15 to 20 miles, and finally mingles its waters with those of Chatham strait, its western shore being formed by Prince of Wales island. Strange to say, this large island, which has been known to the maritime nations of the globe for over a hundred years, still remains unsurveyed, and has been variously named an island and an archipelago, and accounts of natives report numerous navigable passages cutting through it here and there. From the eastern side of Clarence strait great arms penetrate in a general northeasterly direction until they reach the base of the coast mountains; their waters are navigable, the shores bold and covered with timber, and the whole forms an intricacy of inland navigation difficult to describe in detail, and a chart affords but a faint idea of its perplexing grandeur. There seems to be no harbor on the mainland in this vicinity. The port of Wrangell is located on an island of the same name a short distance from the mouth of the Stakhin river, in latitude 56° 31′ and longitude 132° 23′. The Russians had a small stockaded station here called Rédoute Saint Dionys, which was subsequently leased to the Hudson Bay Company.

After the acquisition of the country by the United States a military post was established here, but was finally abandoned in 1877. The Stakhin is the largest river of southeastern Alaska, but lies within our boundaries for a distance of only 30 miles in an air-line from its mouth. The Dominion government claims a boundary even nearer to the sea-coast, including the spot where British ocean steamers land cargoes and passengers, and the advent of the British here has destroyed the once large transit trade of Wrangell. The interior of the country adjoining this river is broken into a succession of sharply-defined mountain ranges separated by narrow, deep valleys similar to those between the islands of the coast.

The topography of the Alexander archipelago is the type of that of the interior within our boundaries. Beyond, on the upper river, within the British possessions, there is a large rolling plateau stretching between the coast range in the west and the prolongation of the Rocky mountains in the east. Like all Alaskan rivers the Stakhin takes its head from a succession of great lakes. A number of glaciers descend from the snow-covered peaks on both sides of the river down to its banks. The largest of these is situated on the right or west bank with its face on the river 4 or 5 miles in width, and its length is said to be over 60 miles. The Indians relate that in ancient times this glacier extended across the river, forming an icy arch over the stream, but in course of time the spring freshets washed away the obstruction. Some officers of the Russian navy attempted to explore this huge glacier to its head, but they probably fell into one of the numerous chasms, as they were never heard from again.

One wide passage from the mouth of the Stakhin to the ocean, called Stakhin strait, runs westward between Prince of Wales island on the south and the Kehk archipelago on the north, reaching the sea between cape Ommaney on Baranof island and Coronation island on the south. Another passage, Prince Frederick sound, runs from the mouth of the Stakhin northward along the coast of the mainland, and then westward between Admiralty island and the Kehk archipelago until it empties into Chatham strait. A branch of this channel, Stephens passage, runs northward between the mainland and Admiralty island until it mingles its waters with those of Chilkhat inlet. At about the middle of its course Takoo inlet opens on the east, and a little beyond this Douglas island divides the strait into two channels. This is the locality where the most promising discoveries of gold placer and quartz mines have thus far been made. Juneau City, or Harrisburg, a mining town of recent growth, is situated on the mainland opposite Douglas island. From the junction of Stephens passage, Chilkhat inlet, and Chatham strait a wide channel, called Cross sound, or Icy strait (by the Russians), opens between the mainland in the north and Chichagof or Hoonia island on the south. A large bay, not heretofore represented on any chart, was definitely located last year on the northern side of Cross sound by the officers of the United States sloops of war Jamestown and Wachuset. Glacier bay extends in a northwesterly direction from the north shore of Cross sound, between Lynn canal or Chilkhat inlet and the Pacific, for a distance of about 40 miles. About 20 miles from its mouth there is an island 5 or 6 miles in length named Willoughby island, and around the shores of the bay are five immense glaciers. The first, in the vicinity of Willoughby island, is about half a mile wide and 150 feet high; the next is about three-quarters of a mile wide and 200 feet high; the third, known among the Indians as the "great glacier", is situated at the head of the bay, and is about half a mile wide and from 200 to 300 feet high; the fourth, on the northern shore of the bay, is about half a mile wide and 150 feet high; and the fifth and smallest is about half a mile wide and 50 feet high. Nearly all the ice floating in this bay and Cross sound comes from these glaciers; the sea washes under them, honeycombs the ice by its incessant lapping, and pieces are broken off constantly. Professor John Muir, an eminent geologist of the Pacific coast, describes another huge glacier located here, as follows:

> On the northern shore of Glacier bay, north of Willoughby island, there is a large inlet, from 3 to 4 miles wide at its mouth. It runs to the northward and westward 5 miles, and at its head there is an immense glacier which extends across the head of the inlet for a distance of 3 miles; 10 miles back from its face it is 10 miles wide, and near this, its greatest width, sixteen branches of the first class unite to form one immense glacier; four of the sixteen branches are each over 2 miles wide, while nearly all have tributaries; the distance from the face of the glacier to its farthest removed fountain is about 40 miles.

The port of Sitka is situated on the west coast of Baranof island, in latitude 57° 02′ 52″, and longitude 135° 17′ 45″.

Westward of Cross sound the coast-mountain range attains an elevation of about 18,000 or 19,000 feet, covered far down with perpetual snow, the highest peaks (Mounts Saint Elias, Fairweather, and Crillon) looming up in silent grandeur above them, visible in clear weather a distance of 150 miles at sea. From Lituya or Port des Français westward the immediate sea-coast is comparatively low, wooded ground, but closely backed by icy declivities that come down from the high mountain ranges, and at the head of Yakutat bay reach the coast land. This narrow strip of low coast, interrupted only in the vicinity of Icy bay by a succession of precipitous glaciers fronting the sea for 15 or 20 miles, extends to the mouth of Copper river. Here the sediment carried down from the mountains has been deposited for thousands of years, until a vast low delta has been formed, through which the waters of the river find their way to the sea in innumerable channels. In many places the swift current has carved large basins and lagoons out of this soft material, the whole presenting the spectacle of a perfect labyrinth of lakes and streams. The mountains rise up abruptly from the northern edge of this flat to a height of 8,000 or 9,000 feet.

Vistas of the far interior are afforded here and there by the gradually-sloping masses of glacier ice. West of the Copper river the foot of the Chugatch alps is bathed by the sea without any intervening low land, with only two or three exceptions, and these have been utilized for the location of settlements. The mountains on the northern side of Prince William sound must reach a height of 10,000 or 12,000 feet, all densely wooded up to about a height of 1,000 feet, and covered with eternal snow from their summits to within 3,000 or 4,000 feet of the sea-level. The interior of Prince William sound on the gulf of Chugatch forms a basin almost entirely land-locked, being sheltered from the south by the islands of Nuchek and Montague; but although thus surrounded on all sides by land it is by no means a calm and pleasant sheet of water to navigate, as furious gales and "woollies" sweep down the mountain sides without a moment's warning, compelling the luckless traveler in a small craft or canoe to seek the lee of one of the hundreds of islands and capes studding the coast. Immense glaciers on the northern shore are constantly descending into the sea and shedding fragments of ice, both large and small, that are carried off by the tide in compact fields or loose masses, still more endangering navigation. The western shore of the sound, the northeast coast of the Kenai peninsula, is very much cut up into deep bays and fiords, and everywhere mountains can be seen looming up in the background with snowy peaks and ridges. The deepest indentation in this section of the coast of the peninsula is Resurrection bay, which was long years ago utilized by the Russians as a ship-yard. This bay affords the only harbor in the vicinity, though its entrance is beset with islands and the approach made difficult to sailing-vessels. From Resurrection bay in a southwesterly direction the coast is one succession of deep fiords, but, exposed as it is to the fierce easterly gales prevailing here at nearly all times of the year, it is shunned by navigators, especially because even the deepest and most extensive bays do not afford a single anchorage, so that vessels entering them to find refuge from storms would still be at the mercy of the tides.

The entrance to Cook's inlet, or the gulf of Kenai of the Russians, lies between cape Elizabeth on the southwestern extremity of the Kenai peninsula and cape Douglas, a bold promontory jutting out from the Aliaska peninsula. Nearly half way between the two is a group of bleak, naked rocks, called the Barren islands, which, placed as they are in mid-channel of the tide rushing into Cook's inlet from the ocean, cause violent and irregular tidal currents very dangerous and perplexing to the navigator. During calm weather the so-called "tide-rip" will toss a craft about more violently than any sea stirred up by wind; and a sailing-vessel caught within a few miles of the Barren islands in the "tide-rip" without wind is irresistibly drawn to destruction upon the rocks.

Just above its mouth the waters of Cook's inlet widen out into the gulf of Kamyshak on the west and Kuchekmak bay (called "Chugachik" on the coast-survey maps) on the east. On the east shore the mountains are not high, and contain extensive coal-veins of an inferior quality, but on the west the main Alaskan chain of mountains rears up several volcanic peaks to a considerable height, rising abruptly from the sea-coast with a narrow belt of shelving woodland intervening. North of the indentations mentioned the shores of Cook's inlet again approach each other to a distance of not over 30 miles between Anchor point on the east and Mount Isaac on the west. From this point northward and eastward the eastern shore is low and flat, with an elevation of from 50 to 100 feet above the sea. High ridges of mountains traverse the interior and eastern side of the Kenai peninsula, but between them and the coast there is a strip of marshy tundra, wooded along the river-courses and varying from 40 to 50 miles in width. As the inlet contracts still farther, especially between the promontories of East and West Foreland, the tides increase in velocity and violence of action until they attain a speed of 8 or 9 knots with an average vertical rise and fall of 24 to 26 feet. The northeastern extremity of this vast inlet or gulf which Cook entered with the expectation of finding a northwest passage, and, being disappointed, applied to it the name of "Turnagain", equals in tidal phenomena the bay of Fundy. The flood comes in in a huge "bore", with thundering noise and astonishing rapidity, and a traveler advancing with it in a canoe experiences the peculiar sensation of seeing one high bank of clay and gravel after another apparently sinking before him as he is lifted up and carried over by the inpouring tide. From the mountains surrounding this branch of the inlet innumerable avalanches sweep down their rocky and wooded slopes, demolishing large sections of forest and piling up rocky débris to such an extent as to cause frequent and total changes in the aspect of the country, while the outlines of the coast undergo equally perceptible modifications from the action of the tides.

What the country north of Cook's inlet is like no civilized man can tell, as in all the years of occupation of the coast by the Caucasian race it has remained a sealed book. The Indians tell us that the rivers lead into lakes and that the lakes are connected by rivers with other lakes again, until finally the waters flow into the basins of the Tennanah and the Yukon; but conflicting with this intermingling of the waters are stories of mountains of immense altitude visible for hundreds of miles. The natives living north of this *terra incognita* give, however, a similar description, which may be accepted until reliable explorers are enabled to penetrate this region.

On the western side of Cook's inlet the main Alaskan chain of mountains, called by Dall the Chigmit range, rises abruptly from the sea in steep ridges and peaks, the highest of the latter being the Rédoute and the Ilyamna mountains, both volcanic and emitting smoke. Only at two points along this coast within the inlet does low land intervene between the mountains and the shores, at Toyonok and at Kustatan, both of which localities have been utilized by the natives for establishing settlements. Up to the height of about 1,000 feet all these mountains are densely wooded. From Kamyshak gulf, situated between Mount Isaac and cape Douglas, a portage is made over a slight depression in the ridge to the basin of the great lake Ilyamna, but on the southwestern shore of the bay the mountains rise again to a considerable height, culminating in the four peaks to the westward of cape Douglas. The last-named cape is one of the most prominent and boldest in shape of the many Alaskan promontories, jutting out as it does at a right angle for a distance of several miles into the sea, with a sudden descent of over 1,000 feet into the waves of Cook's inlet.

The same chain of mountains extends down the south coast of the peninsula, varying in height between 5,000 and 8,000 feet, with peaks much eroded by glacial and meteorological action. The numerous glaciers existing throughout the upper regions of this mountain chain do not anywhere approach the sea-coast, as is the case with Mount Saint Elias and the Chugatch alps, these formations being found only at high altitudes, generally facing westward and southward.

Two distinct and continuous lines of "water-mark" can be observed along the whole of this chain, one at an altitude of 1,000 feet, the other perhaps 500 or 600 feet above. Both of these lines show the effects of the wash of the ocean for ages, together with many petrifactions of mollusks and other marine life. The natural conclusion forced upon the observer is that the whole peninsula of Alaska has undergone two successive periods of elevation from volcanic action, and that this region would afford a highly interesting field of research to geologists. It is a significant fact that no glacial action is observable below the upper sea-level.

The immediate sea-coast here is cut up into innumerable fiords and coves, and lined with rocky islets.

The term "mountain chain" applied above to the elevated portion of the peninsula does not, perhaps, quite describe a very peculiar formation. The mountains or mountain groups are interrupted from time to time by depressions, but these do not at all bear the character of mountain passes, as they consist of low, marshy plains, extending entirely across the peninsula, varying very much in width. A similar formation can be found on the coast of Prince William sound, where outlying spurs of the main chain are frequently divided in the same way. The impression created in the mind of the beholder is not that of a continuous alpine chain, but rather of a series of islands, such as the Aleutians, raised by successive volcanic action until the straits between them are left dry. These depressions serve as the portage routes across the peninsula. A careful observer could easily recognize distinct islands in the mountain groups of Morshovia and of Belkovsky, connected with each other and with the Pavlosk volcanic group only by low, swampy isthmuses. Again, the mountain groups opposite the Shumagin islands, containing the Veniaminof and other volcanoes, loom up, entirely isolated by similar depressions, north and south. Between Moller and Zakharof bays the portage is made in half an hour from the waters of the north Pacific to those of Bering sea.

Other swampy passages lead through from the bays Chigmik and Kishulik to the north coast of the peninsula. Nearly all these isolated mountain sections bear a peculiar resemblance to the outward shape of the island of Oonimak, the first of the Aleutian chain that is actually separated from the peninsula, though only by a strait too shallow to be navigable. That an elevation of this region has taken place is confirmed by abundant evidence, and altogether it does not seem at all improbable that what now resembles from a distance a long mountain range was once a chain of islands.

At cape Atushagwik the coast of the peninsula approaches nearest to that of Kadiak island, the width of the strait here being only a little over eighteen miles.

In the vicinity of Katmai both coal and petroleum have been found, but not abundant in quantity or excelling in quality.

The volcanic group of the Pavlosk mountains stands, as already mentioned, entirely isolated with its two craters, of which one is still active, while the other is reported to have been extinct since the year 1786. From this region also samples of coal of inferior quality have been procured. South of Pavlof bay another volcano rears its jagged crown, separated both north and south from the mountains.

In the neighborhood of Belkovsky and Morshovia several volcanic peaks can be observed, but they have not been active within historic times.

On rounding the southern extremity of the peninsula and turning northward and eastward a total change in the aspect of the coast can be observed. Low, sandy reaches and slightly elevated moorlands cover the wide interval between the mountains and the shores of Bering sea, interrupted here and there by lake-fed streams and rivers. In the vicinity of Ougachik the volcanic character of the country disappears entirely, the rock formation being altogether of granite and quartz, and pumice-stone and chalk are only washed up by the sea. All along the coast from here we encounter gray granite, hornblende, serpentine, porphyry, and sandstone, but all along, at an altitude of about 300 feet above sea-level, parallel strata containing fossil bivalves appear on the faces of bluffs. As we advance northward the interval between mountains and sea-coast widens, until in the vicinity of lakes Walker and Ilyamna swampy plateaus nearly 100 miles in width are found, dotted with many lakes.

Proceeding northward along the coast of the mainland the first deep indentation of the shore-line is Bristol bay, into which the waters of lake Ilyamna flow through the Kvichak river. From the southern extremity of the Aliaska peninsula to this point Port Moller affords the only harbor for shipping, though three rivers, the Sulina, the Igagik, and the Naknek, flow into Bering sea from the mountains in the east. In the vicinity of the mouths of the last two streams the shore is high and rocky, but only few traces of volcanic action can be discovered. North of lake Ilyamna high mountains of the main Alaskan range protrude between that sheet of water and the Nushegak river, its spurs approaching nearest the coast immediately behind the Nushegak post and settlement. Other spurs of the same range of mountains and isolated groups of hills appear at long distances from each other on the coast of Bering sea, the intervals being filled up apparently with alluvial, swampy soil, not altogether level, but gently rolling. The earliest intelligent observer of this region, the Russian missionary Veniaminof, described the conformation of this section of the country as follows:

> Slight elevations can be found along the whole extent of the American coast of Bering sea; they are in nearly all cases connected with the mountains in the interior. If the observer ascends to a height the country appears to him like a heaving ocean suddenly become stationary, with its waves transformed into sand and mud; these waves are now covered with vegetation, but their outlines are still very striking. In the midst of this dry sea we find occasionally high, rocky islands entirely separated from the neighboring hills.

To the westward of Nushegak the mountains first reach the coast on both sides of the bay of Kulluk. The summits of this range as seen from the lakes forming the portage between the bays of Kulluk and Nushegak are very jagged in outline, rising abruptly in almost perpendicular blocks and peaks too steep to afford lodgment for the snow. The capes and headlands jutting out from this range into the sea are frequently composed of sandstone worn into fantastic shapes by the action of the tides and changes of temperature. The next great elevated headland is cape Newenham, which forms the terminal point of a rather low range of hills running parallel with the left bank of the Kuskokvim, west of the Tuluksah river. At cape Newenham these hills culminate in two towering peaks between 2,000 and 3,000 feet in height. Between this point and cape Vancouver in the north the country on both sides of the wide estuary of the Kuskokvim is evidently of an alluvial formation, low and swampy. Both at cape Vancouver and on the island lava is found, in addition to many other evidences of volcanic origin; and the same is true of the islands farther off the coast—Saint Matthew and Saint Lawrence. At cape Rumiantzof, in latitude 61° 47′, is another aggregation of volcanic hills rising like mountainous islands from the tundra.

The delta of the great Yukon is of course entirely alluvial, with the exception, perhaps, of the isolated hills of Kusilvak, which give indications of volcanic origin. From the northern mouth of the Yukon eastward the south coast of Norton sound consists of low, rocky hills of lava and basalt. Between the small streams of Pastolik and Pastalak are high bluffs of basalt, and the sandstone cape of Vsachaghik looms up between 400 and 500 feet from the sea-level. The islands of Saint Michael and Stuart are comparatively recent lava formations, and contain several extinct craters. The traditions of the natives here speak of the island of Saint Michael as having risen from the ocean, and old people living in Tebenkof's time related to him that twice within their recollection the whole island was covered by the sea. From Saint Michael northward the chain of low hills composed of lava and basalt runs parallel with the coast, averaging in height from 200 to 300 feet, but at a distance of about 30 miles inland a few peaks attain a height of between 1,000 and 1,500 feet. At cape Denbigh a granite formation appears, jutting out into the sea at a right angle with the volcanic range of hills. The shores of Norton bay are low and all the alluvial deposits contain bones, tusks, and skeletons of the mammoth and mastodon. In the north coast of Norton sound we find the deep indentation of Golovin bay between two high points, cape Derby and Stony cape. The interior at the head of Golovin bay is low, and a portage route extends thence by means of lakes and rivers to Grantley harbor. From Stony cape to cape Rodney the shore is low and level, but in the interior a few high mountains are visible, covered with snow.

Off the coast, not far to the eastward of cape Rodney, there is the small island of Aziak or Sledge island. It has a circumference of only 12 miles, and is covered with large blocks of granite and basalt. The island contains a small village and is the favorite trading mart of the Innuit tribes of both continents. Still farther to the north, opposite to the entrance of Port Clarence, lies King's island, a precipitous mass of rocks some 700 or 800 feet in height, inhabited by about 100 Innuits who have carved their dwelling-places into the almost perpendicular sides of the cliffs at a height of over 50 feet from the sea-level. Only one or two narrow paths lead up from the water's edge to this northern Gibraltar, which also bears traces of volcanic origin.

Port Clarence consists of two capacious basins, the outer one sheltered from the sea by a long semi-circular tongue of land of alluvial formation. The inner basin, Grantley harbor, is surrounded by deep cliffs of slate; and from its head or eastern extremity the portage route leads to Golovin bay, as mentioned above. A chain of hills from 2,000 to 3,000 feet in height extends from Port Clarence on the coast north-northwest, terminating in cape Prince of Wales. The formation of this cape appears to be basaltic, its almost perpendicular lines being frequently interrupted by steep, narrow gulches through which small streams find their way to the sea from the swampy table-land above. In about midchannel between cape Prince of Wales and East cape lies the Diomede group, consisting of three small islands, of which two are within the United States boundary. They all rise abruptly from the sea to a height of a few hundred feet, but are level on top.

From cape Prince of Wales eastward and northward the coast is low and swampy until we reach the vicinity of Kotzebue sound and Choris peninsula, where ridges of slate and chalk appear on the coast, generally running parallel with it. The inner shores of the great estuary of Kotzebue sound are generally low, the gravelly soil resting upon a foundation of blue clay. Occasionally this blue clay rises into bluffs of a few hundred feet in height, and the whole formation contains numerous fossil remains of the mammoth and mastodon. The few small islands within the inlet are isolated masses of granite covered in sheltered localities only with a thin coating of sphagnous vegetation.

Kotzebue sound is by far the best harbor in this section of the Arctic ocean, and is much frequented by whalers and illicit traders in liquors and arms. Proceeding hence northward we find several chains of saddle-shaped hills interrupted here and there by wide depressions, a few pyramidal peaks, and steep, isolated rocks. The general formation of these is said to be slate and clay. At cape Lisburne the cliffs rise abruptly to a height of 850 feet above sea-level. Here also slate and chalk seem to predominate, but a short distance to the eastward carboniferous veins of considerable width appear in horizontal layers along the sandstone cliffs overhanging the sea-shore. The same formation continues from here eastward to point Barrow and the eastern boundary of Alaska, receding occasionally to a distance of 10 or 15 miles from the sea-shore, and then advancing again, forming steep but low capes and headlands, the most prominent of which is point Barrow, in latitude 71° 22′.

To complete the description of the topographical and geographical features of continental Alaska it is necessary to follow up the basins of the Yukon and Kuskokvim rivers. The Yukon delta, as already stated above, is altogether alluvial, but between Oonalakleet, on the east shore of Norton sound, and the Yukon river there is a chain of hills consisting of granite and slate forming the water-shed between the Oonalakleet river and the Anvik, a northern tributary of the Yukon. East of the Anvik the mountains increase in height until in the vicinity of Ikogmute, where on the right bank of the river a few peaks rise to a height of 2,500 feet.

The best description extant of the topography of this river is that of Captain C. W. Raymond, United States army, which covers the distance between fort Yukon and the Russian mission at Ikogmute, just mentioned. Captain Raymond states that fort Yukon is situated in latitude 66° 33′ 47″ and longitude 145° 17′ 47″, at a point where the Yukon receives the waters of the Rat or Porcupine river, a large tributary emptying on the right bank and flowing from its headwaters in a general direction a little south of west. From fort Yukon to the mouth of the Chetaut river, a distance of about 200 miles, the river has a general direction about west-southwest; the country on both sides of the stream being low and level, usually consisting of sand or gravel. The average width of that portion of the river is about three-quarters of a mile, but in some places, measured across its numerous islands, it widens out to 5 or 6 miles. The current through all its passages is extremely rapid, and in many places the deepest channel does not carry more than 3 feet of water. Vegetation on the banks and islands is principally small willow and poplar, with occasional groves of spruce and birch. The principal tributaries in all this section of the river flow from the north, but none of them seem to be of much importance, and no native villages are known to exist.

From the mouth of the Chetaut river, however, the Yukon rapidly changes its character; the islands disappear, the banks rise into hills, and the stream gradually narrows into one channel, deep and rapid, until it finally rushes with great velocity through the Rampart range of hills. The bluffs composing this range rise abruptly from the water's edge, and are composed principally of a hard, greenish rock, though slate is occasionally observed, and at the principal rapids a ledge of granite crosses the river. Most of the hills are covered with groves of spruce and birch, but the trees are all small, and in many places they lie for some distance scattered in every direction, showing the small depth to which their roots descend in the frozen ground and the great force of the prevailing winds. From the Chetaut river to the Rampart rapids, a distance of some 60 miles, the Yukon flows in a direction nearly northwest, and averages about two-thirds of a mile in width, which decreases at the rapids to about 150 yards. The tributaries emptying into this section are also chiefly from the north and small in volume. The first native village met after descending from fort Yukon is situated just below the rapids. From here to Nulato, a distance of some 240 miles, the river has a general direction about west by south. There are, however, many bends, although they are less sudden and numerous than in other portions of the river. After leaving the Rampart range the river widens again and diminishes in velocity. The right bank is generally hilly and abrupt, and on the left, though the shore is generally low or flat, the hills and bluffs occasionally approach the water's edge. The average width of the channel is about three-quarters of a mile, but occasionally groups of low islands cause a widening of the river. About 50 miles below the Nuklukaiet station a range of mountains appears on the right bank. This is a succession of well-defined peaks and ridges, describing a beautiful curve of many miles, with its concavity toward the river and its flanks resting upon the water's edge. All this bank is well timbered with spruce, poplar, and birch. The principal tributaries emptying into this section of the river are as follows: From the north, the Tozikakat, the Novikakat, the Melozikakat, and the Koyukuk, and from the south the Tennanah and a few smaller streams. The most important among these tributaries in size and beauty—in fact, chief among all the tributaries of the Yukon—is the Tennanah, the river of the mountains. It empties into the Yukon about 30 miles below the Ramparts, and its turbid waters increase the current of the main river for a long distance. It flows apparently in a generally northwestern direction, its headwaters approaching the upper Yukon within five or six days' "Indian" travel. The mountains overhanging its upper course are said to be steep and to contain auriferous deposits or veins; and samples of surface-gold from this section have been exhibited. At the mouth of the Tennanah is the great trading-ground called Nuklukaiet, where the Indians inhabiting the banks of this tributary are accustomed to congregate in the spring and meet the white traders and the few scattered bands of natives roaming over the hunting-grounds between the Yukon and the Kuskokvim. Not far east of Nulato the Koyukuk empties into the Yukon from the north, forming a route of traffic between the river and Kotzebue sound. From Nulato, situated some 50 miles south of the mission, to Andreievsky, the distance is about 350 miles, and the river has the following approximate directions: From Nulato to Anvik, south-southwest; from Anvik to the upper entrance of Chageluk slough, south-southeast; from the upper entrance of the slough to the great bend, southwest; from the great bend to Andreievsky, west by south. It is difficult to convey an idea of this portion of the river, as its numerous windings, its hundreds of islands, its bars and shoals, ever changing and shifting, baffle the traveler in his search for a navigable channel. Generally speaking, the right bank is high, exhibiting many bluffs of sand and rock much eroded by the ice torrents of the spring. The ice sometimes undermines the high banks to a distance of 20 or 30 feet, and the trees standing on the projecting tops of the banks are loosened by the action of frost and water and precipitated into the stream beneath, and thus the river goes on widening and shoaling, and floating immense quantities of drift-wood down to the sea. Sometimes the right bank rises into high hills, but the left bank is generally low and level; here and there, however, a few isolated hills are seen standing back a mile or two from the water, and for nearly the whole distance a range of distant mountains parallel to the left shore is visible. In these mountains lie the upper branches of the great river Kuskokvim.

Sandstone and slate continue throughout this portion of the Yukon valley, but on the lower part a dark volcanic rock makes its appearance. Between a point near Andreievsky and the sea no rocks can be found anywhere along the river. The hills on the right bank are generally well covered with spruce and poplar, occasionally intermingled with a little birch, but owing to the coldness of the winter these trees seldom grow to great size. The left bank, on the other hand, is generally covered with a low thicket of willow and alder. This section of the river has few tributaries of importance, but there are many small streams, entering usually from the north. The principal streams are the Takaiak, which empties into the Yukon about 50 miles below Nulato, and the Anvik, debouching from the north about 160 miles below that point. The latter has its source in the mountain ranges which run parallel with the sea-coast; its banks are high and steep, and the very shallow waters run with great velocity. Two rivers empty into the Yukon in this vicinity from the south: the Kaiukak river, about 40 miles below Nulato, and the Chageluk. About 130 miles below Nulato the Yukon separates into two branches, the main stream pursuing a southerly course, while the lesser branch, running at first a little south of east, makes finally a great bend to the south and west and enters the main river again about 60 miles below the point of separation. This lesser branch is called Chageluk slough, and into it, a few miles from its entrance, empties the Chageluk or Innoko river. A little below Andreievsky the Yukon bends abruptly to the north and runs about north by west from this point to the sea. The three principal outlets of the great river are the Ap-hun or upper, the Kvikhpak or middle, and the Kusilvak, or lower mouth. The Ap-hun outlet is about 40 miles in length and has an average width of perhaps one-third of a mile.

Of the upper portion of the Kuskokvim river I have no authentic reports, but the natives relate that along its several branches the country is a level plain encircled on all sides by tremendous mountains. All through its upper course the current is said to be exceedingly sluggish, but at some point east of the last known settlement of Napaimute there must be a break through some natural barrier, causing a rapid descent and corresponding increase of velocity of the river. From this point to the great bend in the vicinity of Kaltkhagamute the Kuskokvim runs nearly due west.

The mountains eastward of the Rédoute Kalmakovsky are high, heavily timbered around the base, and give ample evidence of the presence of mineral deposits; veins of quartz, cinnabar, and other ores being easily traced wherever the slopes and bluffs are exposed to view. Throughout the whole valley of the river the observer is struck with the wide difference existing between this formation and that of the Yukon. The bed is hard and gravelly throughout, and the vegetation on its banks more profuse and of greater variety than we find it on the larger river. About 200 miles from its mouth the Kuskokvim makes a bend to the southward, and from this point the hills disappear gradually, and at the same time the forests of alder and spruce recede from the banks until for the last 150 miles of the river course endless marshy plains extend on both sides as far as the eye can see. Between the Yukon and the Kuskokvim, west of the general portage route, there is a vast system of lakes connected by streams with both rivers, but of this region very little is known beyond the fact that it is thickly settled by people holding little intercourse with their neighbors inhabiting the river basins.

Turning now to the islands of western Alaska we begin with the Kadiak group, consisting, in addition to the large island from which it takes its name, of the islands of Shuiak, Afognak, Malina, Marmot, Spruce, Ougak, Satkhlidak, Nazikak, Sitkhinak, Tugidak, and Ouganik, beside a number of others too small to mention by name. All of these islands are covered with mountains and hills, a few of them looming up between 2,000 and 3,000 feet into the regions of eternal snow. From the northern extremity of Shuiak to a line from the head of Ougak bay or Eagle harbor to Ouganik bay on the west coast the islands are heavily timbered with spruce, attaining in some localities a large size. This timber-line is quite sharply defined, though along the water-courses throughout the group a stunted growth of creeping willow exists, and a heavy carpet of grasses and moss covers the hills and mountains to the very summits. The geological formation consists chiefly of slate, porphyry, and basalt.

The bays indenting this group of islands are numerous and deep, affording the greatest facility for small fishing and trading craft. The most important at the present day is that of Saint Paul harbor, on the northern side of the gulf of Chiniak, protected from the sea by Long and Wood islands. A short distance south of Chiniak bay is Eagle harbor or Ougak bay connected by a series of lakes with another deep fiord still farther south, the bay of Killuda. This harbor is again connected, by a sheltered passage between the islands of Kadiak and Satkhlidak, with the harbor or bay of Three Saints, where the first permanent settlement of the Russians on Kadiak was located. Next in order is the bay of Kaguiak, a capacious basin sheltered from all but north winds. Passing around the southern end of Kadiak island we come to the large bay of Alitak, whence westward and northward a long reach of rocky coast extends without indentation or harbor of any kind until we pass the great fishing-station of Karluk river and enter the bay of Ooiak, the deepest fiord on the island, divided from the bay of Killuda on the eastern side by only a narrow range of hills. To the northward of this bay there is one other indentation on Kadiak island, the bay of Ouganik, divided into two arms by the island of the same name, and one large bay on the west side of Afognak island, named Paramonof bay. With the exception of Spruce and Wood islands the smaller islands of this group are uninhabited, and serve only as hunting-grounds for the inhabitants of Kadiak and Afognak.

Southward from the Kadiak archipelago are the Semidi group and the island of Ookanok (also called Chirikof island). They are hilly and evidently of volcanic origin, earthquake shocks being still of frequent occurrence. In the autumn of the year 1880, when the inhabitants of Sitka, 600 miles to the eastward, were startled by a violent earthquake, similar phenomena were observed on these islands, while no subterranean movement was felt at Kadiak and the adjoining islands.

The next large group of islands is the Shumagin, consisting of the islands of Ounga (the most important of the group), Popof, Korovin, Andromika, Nagai, Great Koniusha, Little Koniusha, Simeonof, Nuniak, and a number of small rocky islets. This group, which received its name from Bering during his second voyage, bears indications of volcanic origin, great changes in the elevation of points and headlands having taken place within historic times. In geological formation they are nearly all alike, consisting of slate and porphyry, but on Ounga island are extensive veins of bituminous coal. The product of these veins has, however, been declared unfit for steaming or manufacturing purposes, and, after expensive experiments continued through a long series of years, the mines have been finally abandoned. The most important cod-fish banks now utilized by San Francisco fishermen in Alaska are located in the immediate vicinity of the Shumagin group. Between the Shumagin islands and Ounimak, the first of the Aleutian group, the sea is dotted with a multitude of islands, reefs, and rocks of volcanic origin too numerous to describe in detail; they form the most important sea-otter hunting-ground of all Alaska, extending from Peregrebnoi island in the north to Sannakh in the south.

The island of Oonimak is about 60 miles in length, extending from northeast to southwest, closely resembling in its general formation the Aliaska peninsula, from which it is separated only by a shallow strait. The most prominent features of this island are its two volcanic peaks, the Shishaldin, rising in one elegant pyramid to a height of between 8,000 and 9,000 feet, and the Pogromny, between 5,000 and 6,000 feet in height. The whole island has been described as the vault of a subterranean smelting-furnace with many chimneys, through which flames, sparks, and ashes ascend from the molten masses beneath. It has been and is still the theater of the most constant volcanic action in all Alaska. In the earliest times since the discovery of the island by the Russians whole ridges of mountain peaks have been observed to split open and emit huge flames, torrents of lava, and clouds of ashes. These manifestations were always accompanied by the most violent earthquakes, tidal waves, and floods, the latter caused by the sudden melting of masses of ice and snow on the mountain tops. The greatest activity on record occurred in 1796, 1824, and 1825, and as late as 1827 burning lava was observed descending from the craters. Oonimak has also from time immemorial been the Aleutians' great storehouse, from which they obtain sulphur and obsidian, the latter being employed in the manufacture of knives, spears, and arrow-heads. The Russian missionary Veniaminof, who witnessed one of these eruptions in the year 1825, describes the event as follows:

> On the 10th of March, 1825, after a prolonged subterranean noise, resembling a heavy cannonade which was plainly heard on the islands of Oonalashka, Akoon, and the southern end of the Aliaska peninsula, a low ridge on the northeast end of Ounimak opened in five places with violent emissions of flames and great masses of black ashes, covering the country for miles around. The ice and snow on the mountain tops melted and descended in a terrific torrent 5 to 10 miles in width on the eastern side of the island. Until late in the autumn the sea on that coast was turbid after this eruption. The Shishaldin crater, which up to that time had also emitted flames, continued to smoke only, while about midway between summit and base a new crater was formed, which was still smoking in the year 1831. On the 11th of October, 1826, a small peak in the interior of the island opened under violent explosion of fire and a rain of ashes, which covered not only the southern end of Aliaska peninsula, but Sannakh and Ounga and other adjoining islands. Since that time smoke comes out of many places among the loose masses of rocks on the mountain side, and all the streams and ponds in the vicinity are hot enough to emit steam in midsummer.

Between Oonimak and Oonalashka there is a group of islands which was formerly named the Krenitzin group. The most important of this group are Avatanok, Tigalda, Ougamak, Akoon, Akutan, and Ounalga. The latter island has no high mountains, but is very rocky, and its coast consists of steep, almost inaccessible cliffs. The island of Akutan is nearly circular in form, and has a group of mountains culminating in a volcanic peak 3,300 feet in height. Smoke still issues occasionally from the crater, the inner side of which is lined with deposits of sulphur of great purity, and many hot springs emerge from the fissures and crevices, in one of which the temperature is sufficiently high to boil meat and fish. The island of Akoon is comparatively low, but smoke can be seen to ascend from one of its peaks. The natives report deposits of coal in the southeast side of the island, and Tigalda, high and rocky at its south end and level in the north, also exhibits a carboniferous formation.

The great island of Oonalashka, the most important of the Aleutian chain, is about 120 miles long and 40 miles wide. Three separate groups of mountains occupy the coast and interior: The Makushin group, consisting of two parallel chains running northwest and southeast, between the bay of Makushin and Captain's harbor, with the volcanic peak Makushin 4,000 or 5,000 feet in height; the Bobrovoi or Otter mountain, extending from northeast to southwest, between Captain's harbor and Beaver bay; and the Koshigin mountains, extending through the southern portion of the island from northeast to southwest. The snow never leaves the summits of these mountains.

The volcano of Makushin lies about 20 miles north of the anchorage in Captain's harbor, and is an almost perfect cone in shape, blunted a little at its apex, where the crater is located. No flames or lava have been emitted by this volcano in the memory of several generations; but smoke still issues at brief intervals, and earthquakes and subterranean noises are of frequent occurrence. Russian naval officers who visited the island at long intervals in the early part of this century assert most positively that many of the points and ridges changed entirely in outline owing to this volcanic action. A lake near Vessleovsky cape, at the west entrance to Captain's harbor, was by Veniaminof described as a lagoon connected with the sea, but at the present day it is separated from the latter by quite a wide strip of rocky land.

The geological formation of Oonalashka consists chiefly of granite, basalt, porphyry, and slate in alternate layers, and a few hot springs are found at various points on the island.

Three vast bays indent the shores of Oonalashka island. One opening to the northward—Captain's harbor—is divided into two branches by the island of Amaknak, and is the site of the principal settlement of Iliuliuk. Another bay, the largest in size on the island, opens into the Pacific in a northeastern direction; this is Bobrovoi or Sea-otter bay, nearly 30 miles in length. A narrow isthmus separates this gulf from the bay of Makushin, opening westward into Bering sea. The whole south coast of the island is cut up into deep fiords, but as they are open to all southerly and easterly winds they afford no anchorage for shipping, with the exception perhaps of the small bay of Kiliuliuk, whence a portage route leads across to the bay of Kashiga, debouching into Oumnak strait. An excellent harbor opening into the same passage is the bay of Chernovsky, near the southwestern extremity of the island.

Separated from Oonalashka by a pass only 5 miles in width is the island of Oumnak, nearly 60 miles in length but not over 10 miles wide at any point. The southern extremity of this island is low, rolling prairie-land, rising gradually into a chain of mountains crowned with snow-covered summits, two of which are active volcanoes. The southernmost of these is situated a short distance northward of the present settlement. The larger and more important is the Vsevidof, which rears its head nearly in the middle of the island, just south of Inanudakh bay. Another extinct crater is located near the north end of Oumnak island, and bears the name of Tulik. Earthquakes and rumbling noises are of frequent occurrence here, and as late as the year 1878 a new crater, emitting steam and boiling mud, after a brief eruption of flames and ashes, appeared in the sloping plain between the southern volcano and the settlement. The whole coast of the island is beset with rocks to such an extent that it is shunned by the navigators. The eruptions of ashes and rocks from the active craters frequently fill up the creeks and mountain streams and seriously interfere with the periodical runs of salmon and other fish. These disturbances also affect the neighboring coast of Oonalashka; and at the present day only one out of eleven populous villages noted by the earlier visitors is in existence. On the northeastern side of the Vsevidof crater a geyser has been observed, in which the water rises every fifteen minutes to a height of about two feet, the temperature being sufficient to boil meat or fish; but the stream rises out of a gravel deposit and disappears without leaving any trace of opening or funnel behind. The natives report a large number of hot springs in various portions of the island. The general formation of the mountain seems to be porphyry and granite, intersected with large masses of obsidian.

To the northward of Oumnak, at a distance of between 10 and 12 miles, lies the small rocky island of Bogoslov (Saint John the Theologian). This island or crater appeared above the waters of Bering sea within historic times. On the 18th of May, 1796, a Russian trader named Krukof found himself on the north end of Oumnak island; the weather was thick and stormy, and there were many indications of volcanic disturbance, but on the following morning the atmosphere cleared and a column of smoke became visible some distance at sea. Toward evening a black object appeared under the smoke, and during the night large flames of such brilliancy rose up from the same point that on the island night was converted into day, and at the same time an earthquake with thundering noises shook the whole island, while rocks were occasionally thrown across the sea from the new crater. With sunrise of the third day the earthquake ceased, the flames went down, and the newly-created island loomed up in the shape of a cone. A month later Krukof found the peak considerably higher, still emitting fire and ashes; later, however, the flames ceased altogether, and volcanic action was confined to the emission of steam and smoke. Four years later, in 1800, the smoke had ceased, and when eight years had elapsed since the first appearance of the island some hunters visited its shore, and at that time the sea immediately surrounding it was still warm, and the rock too hot to permit of landing, but a few years later the cliffs of Bogoslov had cooled sufficiently to attract a large number of sea-lions. From the time of its first appearance until 1823 successive visitors reported an increase of both height and circumference, but from that date no further elevation seems to have taken place.

The next group of islands to the westward bears the common name of Four Peaks islands, and consists of Ouliaga, Kigalgin, Kagamil, Chuginadak, and Unaska, and a few smaller rocky islets. On nearly all these islets we find craters which are or have been active within historic times, and smoke still issues from those on Unaska, Kagamil, and Amukhta. Earthquakes are frequent, and deposits of lava, ashes, obsidian, and other volcanic products abound everywhere. But one of the islands, Chuginadak, affords an anchorage for shipping, and consequently the group is rarely visited except by sea-otter hunters. In former years many villages existed here, and in cavities of the island of Kagamil a large collection of mummies in a very good state of preservation has been discovered.

The Andreianovsky group of islands, named after its discoverer, the Russian trader Andreian Tolstykh, consists of 14 or 15 large islands and a number of small ones. The easternmost of these is Siguam, nearly circular in shape, mountainous throughout, with several smoking craters, without harbors, and uninhabited. Southwest of Siguam lies the island of Amlia, extending from east to west about 30 miles but only 2 or 3 miles in width. A long chain of conical peaks traverses the whole length of the island, but no active craters are known to exist. A few streams empty into the Pacific in the south and into Bering sea in the north, but only one small anchorage exists on the south coast. At the time of its first discovery Amlia contained several villages, but they have long since been abandoned.

The largest of this group is the island of Atkha. It resembles Oonalashka in shape, but its indentations are less deep and not so easily accessible. Near the north point of the island there is a volcano called the Korovinsky, nearly 5,000 feet in height, and a few miles to the south another rises to almost the same elevation. The Kliutcheva (or Springs volcano), and the third, somewhat less in height, though also covered with eternal snow, is situated near the northeastern extremity of the island, and was named Sarychef. A few smaller volcanoes are scattered along the gradually-descending mountain range forming the backbone of the island. The northernmost only of these craters is active at the present day, emitting smoke and ashes, but earthquakes and subterranean noises are felt and heard all over the island. The largest indentation of Atkha is on the west side, in the bay of Korovinsky, on the shores of which the principal settlement was formerly located. The old establishment was removed, however, to Nazan bay, nearly opposite, on the east coast of the island. In neither of these bays was the anchorage very desirable, one being exposed to westerly, the other to easterly winds. About midway on the west coast is a sheltered harbor, Banner bay, extending some 5 or 6 miles inland, and separated from a corresponding opening on the eastern coast by a low, narrow isthmus. The mountains in the northern part of Atkha exhibit the only glacial formation known to exist on these islands west of Oonimak. Hot springs are plentiful throughout the interior, and at two or three points the natives report mud craters throwing up liquid masses varying in color from red to green, blue, and a brilliant yellow.

Of the small islands adjoining Atkha in the west but little is known beyond the fact that they are mountainous, uninhabited, and evidently of volcanic origin. The nearest large island is that of Sitkhin, which is round in shape and mountainous, culminating in a snow-covered peak 5,000 feet in height, which was reported by Sarychef as emitting flames in the year 1792, but at present no volcanic action is observed beyond hot springs emerging from the rocks in many places.

To the westward of Sitkhin rises the large island of Adakh, covered with mountains and indented with several bays, of which, however, only two, Kiliuliuk bay on the west and Shagakh on the east, afford anchorage to vessels. One grand peak rising up nearly in the center of the island was called the "white crater" by the Russians, but at present it seems to be extinct; hot springs abound, however, throughout the mountains and valleys of the island.

The islands of Kanaga and Tanaga, in the vicinity of Adakh in the west, also exhibit a succession of volcanic peaks rising abruptly from the sea, a few of them still smoking and grumbling. Only on Tanaga island is there an anchorage on its western shore, in the bay of Slava Rossia.

The small island of Anangussikh, or Goreloi, is situated due west of Tanaga, and consists of one immense peak rising abruptly from the sea, with a circumference of about 18 miles. Several of the Russian explorers estimated the height of this peak greater than that of Shishaldin, or more than 9,000 feet, but no recent measurements to confirm this statement have been made.

Throughout the whole group of the Andreianovsky islands Atkha contains the only settlement; all the other islands, though once populous, now serving only as temporary hunting-grounds.

The next group of islands to the westward, named by the Russians the Rat islands, consist of a mass of small volcanic peaks, with the exception of two of somewhat larger dimensions—the islands of Amchitka and Kyshka. Hot springs are found on nearly every island of the group, but smoking craters exist only on Semiseisopochnoi, of Seven Peak islands, and on Sitkhin; the latter being probably the westernmost active volcano of the Aleutian chain The only anchorages to be found in this whole group are on the west coasts of Kyshka and Amchitka respectively.

The last subdivision of the Aleutian chain was classed by the Russians as a separate group (the Near islands), and consists of the islands of Attoo and Agatoo, the latter situated a short distance southeast of the former. The formation of these two islands seems to be very similar to those to the eastward, but no volcanic phenomena have been observed here within historic times. On the northeastern coast of Attoo the only settlement is situated on the small sheltered bay of Chichagof, but another anchorage, called Massacre bay, exists on the south coast. The island of Agatoo has long since been abandoned by its inhabitants, and affords no shelter to sailing-craft.

## THE VOLCANIC REGION OF ALASKA.

As the best authority extant on the volcanic manifestations in Alaska I use a translation of Dr. C. Grewingk's *Treatise on the volcanic character of certain regions of the Russian possessions*, published in the year 1850, in the Proceedings of the Mineralogical Society in St. Petersburg. Grewingk writes as follows:

> We know of no more extensive theater of volcanic activity than the Aleutian islands, the Aliaska peninsula, and the west coast of Cook's inlet. Here we have confined within the limits of a single century all the known phemonena of this kind: the elevation of mountain chains and islands, the sinking of extensive tracts of the earth's surface, earthquakes, eruptions of lava, ashes, and mud, the

hot springs, and exhalations of steam and sulphuric gases. Not only does the geological formation of most of the islands and a portion of the continent point to volcanic origin or elevation, but we have definite information of volcanic activity on twenty-five of the Aleutian islands. On these islands forty-eight craters have been enumerated by Veniaminof and other conscientious observers, and in addition to these we have on the Aliaska peninsula four volcanoes, two on Cook's inlet, one on Prince William sound, one on Copper river, and one in the vicinity of Sitka (Mount Edgecombé); three other peaks situated between Edgecombe and the Copper river have not been definitely ascertained to be volcanic. The distance from the Wrangell volcano, in the vicinity of Copper river, to the Sitkhan island is 1,505 nautical miles. We have every reason to believe that the Near islands (the westernmost of the Aleutian group) are also extinct craters; and thus we find one continuous chain of volcanoes from Wrangell to the near Commander islands (Bering and Copper), pointing to the existence of a subterranean channel of lava finding its outlet or breathing-hole through the craters of this region. The nearest volcanoes to the south of this line are Mount Baker on the American continent, in latitude 48° 48′, and the craters of the Kurile chain of islands on the coast of Asia. That a subterranean connection exists between this long line of craters is indicated by the fact that whenever volcanic activity grows slack in one section of the chain it increases in violence at some other point, an observation which has been confirmed by all observers. From all information on the subject at our disposal it appears that the craters of Mounts Fairweather, Cryllon, and Edgecombe, and Mount Calder (Prince of Wales island), have not been active since the middle of the last century, and as the universal law of volcanic activity seems to place the frequency of eruptions in an inverse ratio to the height of the volcanoes, we might reasonably expect that the season of rest for these craters will be a prolonged one; but how terrible and devastating must be the awakening of the sleeping furnaces when it occurs! With regard to Mount Saint Elias, we have many authentic data as to its volcanic nature. Belcher and Wrangell consider that the black ridges descending from the summits of the mountains, and the fact that the glaciers on Copper river exhibit a covering of vegetation, as proof of the volcanic character of the mountain. The first phenomena may rest entirely upon an optic delusion, as it is not at all certain that the black streaks consist of lava or ashes, while the appearance of vegetation on the surface of glaciers on Copper river is very probably due to the fall of volcanic ashes; the latter phenomenon may be traced as easily and with far more probability to the Wrangell volcano.

With a feeling of relief we abandon this field of speculation and enter upon a review of the volcanic phenomena of these regions in geographical as well as chronological order. All the editions upon which our list is founded came from the reports of the accidental visits of European travelers and explorers. Owing to the low grade of civilization of the natives and even of the colonists it has been exceedingly difficult to collect the necessary information from inhabitants of the country, but such as it is I have made use of all material accessible to me. We first review the volcanic manifestations as far as known in geographical order.

On Prince of Wales island, Mount Calder, located in latitude 56° 15′ and longitude 133° 30′, was active (?) in the year 1775, according to Don Antonio Maurelle; not active in 1793, according to Vancouver, and reported in the same condition by all later observers. On Baranof island we have hot springs, situated in latitude 56° 51′ and longitude 135° 19′, which were reported flowing by Baranof in 1779, and have remained in the same condition. On the mainland we have Mount Cryllon, in latitude 58° 45′ and longitude 137°, reported not active by Cook in 1778. Mount Fairweather, in latitude 59°, longitude 137° 30′, reported not active by La Pérouse in the years 1786 to 1788; Mount Saint Elias, in latitude 60° 17′, longitude 140° 51′, reported not active by Vancouver in 1794, and continued in the same condition. The coast crater on Prince William sound (?), in latitude 60° 54′, reported in eruption by Don Fidalgo; Mount Wrangell, in latitude 62° and longitude 142°, discovered in 1819, and reported active by Kliwosky and Wrangell. The high peak or Rédoute mountain, latitude 60° 30′, longitude 152° 145′ (west coast of Cook's inlet), reported smoking since 1819 by Wrangell and others. Mount Ilyamna, latitude 60°, longitude 153° 15′, reported not active by Bering in 1741 (?) and active by Cook in 1778; also by Don Artsaga in 1779; also in 1768 by Portlock and Dixon; and in 1793 by Vancouver, and also by all later observers, and still continues the same. On the Aliaska peninsula the Veniaminof crater, latitude 56°, longitude 158°, reported smoking by Veniaminof from 1830 to 1840; hot springs, in the same vicinity, reported flowing by Veniaminof at the same time, and continue in the same condition; Pavlovsky crater, in latitude 55° 24′ and longitude 161° 48′, reported active from 1762 to 1768 by the promyshleniks; according to Chamisso one of its craters became extinct in 1786, reported active by Sarychef in 1790, also by all later observers, and is still smoking. The craters of Medvednikof and Morshova, in latitude 55° and longitude 162° 37′, reported not active in 1768 and 1769 by Krenitzin, but active in 1790 by Sarychef, now smoking occasionally; hot springs at the entrance of Morshova bay, in latitude 54° 34′ and longitude 152° 25′, were reported flowing in 1832 by Lütke. Hot springs, on the peninsula, in latitude 55°, longitude 163° 10′, were reported by Veniaminof as flowing in 1838; hot springs, on Moller bay, latitude 55° 45′, longitude 160° 30′, were reported flowing in 1828 by Lütke and in 1840 by Veniaminof, and still continue in the same condition. The volcanic island of Amnak, latitude 55° 26′, longitude 163° 15′, was active during the last century, but not active since 1804, according to Krusenstern. On Oonimak island the volcano Khaginak, in latitude (?), has not been active within historic times, though Veniaminof, from native accounts, computed that its crater was formed in the year 1690.

Of the two other volcanoes on this island, Shishaldin, in latitude 54° 45′, longitude 164°, and Pogromny, latitude 54° 30′ and longitude 164° 45′, we have the following data:

In the years 1775 to 1778 the Shishaldin was reported as occasionally active by Zaïkof; in 1778 Shishaldin was reported smoking by Cook, and in 1790 by Sauer; it was also reported smoking in 1824 by Veniaminof, and as in full eruption in 1825; in 1826 a new eruption was reported by Veniaminof and also increased activity from 1827 to 1829, and from 1830 to 1831. Pogromny had its greatest activity in the year 1795, and another violent eruption in 1827, and in the autumn of 1830; both are still smoking.

In the island of Akoon a crater, situated in latitude 54° 17′, longitude 165° 33′, was reported by the promyshleniks as not active between 1765 and 1770; in the year 1828 Veniaminof reported it smoking. Hot springs were reported flowing in 1828, and still continue in the same condition. The crater on Akutan island, latitude 50°, longitude 165° 54′, was reported not active in 1778 by Cook, and also by Shelikhof in 1785; it was reported smoking by Sauer and Sarychef in 1790; also by Veniaminof and later observers. On Oonalashka island the Makushin crater, in latitude 53° 52′, longitude 166° 48′, was reported active by Krenitzin in 1768, not active by Cook in 1778, extinct by Sauer in 1790 and 1792, smoking by Sarychef in the same year. In 1802 an eruption, accompanied with earthquake, was reported by Langsdorff; in 1816 and 1817 Eschholz reported it as not active; in 1880 Veniaminof reports earthquakes, and in 1826 an eruption; later observers reported it still smoking. On Oumnak island the promyshleniks reported no volcanic phenomena between 1765 and 1770; in 1784 the Vsevidof crater was still smoking; in 1790 it was reported smoking by Sarychef. From 1817 to 1820 violent eruptions and earthquakes took place throughout the whole Oumnak range. In 1824 and in 1830 other eruptions were reported by Lütke and Postels. The volcanic island of Bogoslov rose from the sea in 1796 with earthquake and eruptions; reported as not smoking in 1800 by Kotzebue; also in 1802 by Langsdorff; reported smoking in 1804 by Kotzebue; in eruption in 1806 by Langsdorff; throwing up stones in 1814 by Baranof; decreasing in height in 1815, also by Baranof; not active in 1816 and 1817, according to Eschholz, and smoking again in 1820, according to Dr. Stein; reported by Veniaminof as no longer smoking since 1823. The volcano on Kagamil island, in latitude 52° 53′, longitude 169° 30′, was reported to have been active by Lütke and Postels. In 1828 Veniaminof reported only hot springs, an exhalation of gases, and subterranean noises. On the island of Tanaga, in latitude 53°, longitude 169° 45′, the volcano is reported not active by Bragin in 1774; in 1828 Lütke reported it active, with many hot springs at its base. The volcanoes of Ouliagan and Chegulakh, in latitude 52° 53′ and longitude 169° 40′, and latitude 53° 08′, longitude 169° 24′, respectively, have not been active since the end of the eighteenth century. The volcano of Unaska, latitude 52° 40′, longitude 170° 28′, was reported smoking in April, 1817, by Choris; in eruption in 1824 by Lütke, and in 1830 by Veniaminof. The volcano of Amukhta, in latitude 52° 30′, longitude 171° 04′, reported in full eruption in June, 1786, by Shelikhof and in 1790 by Sarychef; in 1830 it was reported not active by Lütke, but smoking by later observers. The volcano of Siguam, in latitude 52° 20′, longitude 172° 12′, with mud craters and hot springs, was reported active by Sarychef in 1790, and smoking by Lütke in 1827; also by later observers. The five craters on the island of Atkha were reported active from time to time since 1760 by Zaïkof, Tolstykh, Lütke, and others. The Sarychef crater was considered extinct since 1792, but broke out again in 1812, according to Vassiler. The Korovinsky crater was in eruption and smoking in 1829 and 1830. The Konik peak was reported smoking in 1827 by Lütke; in 1829 by Ingenström; also by later observers.

The volcano on Sitkhan island, latitude 52° 04′, longitude 167° 02′, was reported not active by Tolstykh in 1760, in eruption by Sarychef in 1792, covered with snow and smoking by Ingenström in 1829, also by later observers. The White volcano, on Adakh, in latitude 52° 45′, longitude 176° 30′, was reported active in 1760 by Tolstykh; also in 1784 by Shelikhof; and in 1790 and 1791 by Sauer and Sarychef. The volcano of Kanaga, latitude 52°, longitude 176° 50′, was reported active, with many hot springs at its base, by Tolstykh in 1763, also by Shelikhof in 1768; smoking in 1790 and 1791 by Sarychef, and in 1827 by Lütke, and by later observers. The crater on Tanaga, in latitude 52°, longitude 178°, was reported active from 1763 to 1770 by promyshleniks, and smoking by Sauer in 1791, and by later observers. The volcano on Goreloi, latitude 51° 43′, longitude 78° 45′, was reported active in 1760 by Zaïkof, in eruption by Sarychef in 1792, smoking by Ingenström in 1829. The volcano of Semiseisopochnoi, latitude 52°, longitude 180° 15′, reported smoking in 1772 by Bragin; also by Sarychef in 1790 and 1792; by Lütke in 1830, and by later observers. The volcano of Sitignak, latitude 51° 39′, longitude 181° 33′, was reported active by Bragin in 1776; and finally the crater of Sitkhan, in latitude 52° and longitude 181° 30′, reported smoking by Lütke in 1828.

## CHRONOLOGICAL REVIEW OF VOLCANIC PHENOMENA ON THE ALEUTIAN ISLANDS AND THE NORTHWEST COAST OF AMERICA FROM THE YEAR 1690.

Formation of the crater on the highest peak of Oonimak island east of the Shishaldin, probably the Khaginak.

1700 to 1710.—Volcanic activity on the Ouliagan, Chegulakh, and Amnak.

1741.—Iyiamna mountain not active. (?)

1760.—Adakh, Goreloi, Chechina, and Atkha smoking; Koniushy island rising.

1762.—Pavlovsky volcano, on Aliaska peninsula active.

1763.—Volcano on Tanaga active (until 1770).

1768.—The Makushin and another volcano on Oonalashka active; also the Medvednikof and Morshova on the peninsula.

1770.—Amukhton, active.

1772.—Semiseisopochnoi smoking.

1774.—The volcano on Tannakh-Angunakh active.

1775.—Mount Calder and other peaks on Prince of Wales island active; also one crater on Oonimak island intermittent.

1776.—The volcano on Sitignak in eruption.

1778.—Ilyamna volcano active, and Shishaldin smoking.

1784.—Vsevidof, on Oumnak island, smoking; also the Chechina.

1786.—The volcano on Kanaga in eruption; Pavlovsky crater active; Siguam and Amukhta active, the former until 1790, the latter until 1791.

1788.—No volcanic phenomena reported, but on the 27th of July a flood submerged the islands of Sannakh and Ounga and a portion of the peninsula (evidently a tidal wave owing to earthquake).

1790.—Akutan peak smoking; also Vsevidof, on Oumnak, the Kanaga, and Semiseisopochnoi. The Makushin, on Oonalashka, active from 1790 to 1792; and the Shishaldin from 1790 to 1825 (intermittent). Eruption reported on Prince William sound in latitude 60° 54′. (?)

1791.—The peaks of Tanaga and Kanaga, smoking.

1792.—The peaks of Sitkhin and Goreloi in eruption in May; Semiseisopochnoi smoking in June.

1795.—Eruptions in southwest end of Oonimak, while a crater on the north side becomes extinct.

1796.—Appearance of Bogoslov island; Edgecombe active. (?)

1796 to 1800.—Craters on the Four Peak islands active; also Amnak island.

1800 to 1815.—Bogoslov rising, but not smoking.

1802.—Makushin in violent eruption—earthquakes. Bogoslov not active.

1812.—Sarychef peak, on Atkha, very active after a long repose.

1817.—An eruption on the north end of Oumnak with a flow of ashes and earthquake; Unaska smoking.

1818.—Makushin, on Oonalashka, shaking; subterranean disturbances on Amnak.

1819.—Mount Wrangell in eruption; the Rédoute volcano smoking.

1820.—Bogoslov smoking.

1824.—Shishaldin in violent eruption from 1824 to 1825; Unaska in violent eruption after a long repose.

1825.—Eruptions on the northeast side of Oonimak.

1826.—Eruptions and fall of ashes on the south end of Oonimak; the Makushin, on Oonalashka, smoking and shaking.

1827.—The Shishaldin and the Pogromny, on Oonimak, in eruption from 1827 to 1829. The peaks on Koniushy and Kanaga smoking. In June, earthquake on Copper island.

1828.—The peaks of Sitkhin, Akoon, Akutan, Tannakh-Angunakh, Atkha, Koniushy, Goreloi, on Oonimak, smoking.

1829.—Shishaldin smoking; also Sitkhin, Goreloi, Tanaga, Kanaga, and Atkha smoking.

1830 to 1831.—Shishaldin in violent eruption; also an eruption on southwest end of Oumnak and on Unaska; the Korovinsky, on Atkha island, smoking.

1836.—Earthquake on islands of Saint Paul and Saint George.

1838.—Shishaldin in eruption, and three other peaks on Oonimak island smoking; the Tannakh-Augunakh, the Makushin, on Oonalashka, the Akutan, the Pavlovsky crater, and another peak on Aliaska peninsula, smoking.

1844.—The Korovinsky crater, on Atkha, and the Makushin smoking.

From this review, however incomplete, it would appear that the volcanic activity of the Aleutian islands and the Aliaska peninsula has been decreasing since the discovery of those regions by the Russians. When we consider the three classes of manifestations of volcanic activity, that is, eruption, the reduction of sulphuric deposits, and total inactivity, and apply them to the islands mentioned, we find that in the year 1830 twelve of the islands produced sulphuric deposits, eight islands were in a state of total inactivity, and five (Unaska, Tannakh-Angunakh, Oumnak, Oonalashka, and Oonimak) were in a state of perceptible, though not always violent, uninterrupted activity.

It is also clear to the observer that certain relations exist between the alternate repose and activity at various points along the northern volcanic belt now under consideration. According to the earliest accounts of Tolstykh, Bragin, Zaïkhof, Shelikhof, Cook, Sauer, Vancouver, and others, the islands of Sitignak, Kanaga, Amukhta, Kigamil, Bogoslov, Oonalashka, Oonimak, and the volcanoes of the peninsula and the Ilyamna were from the middle to the end of the last century in a state of alternate but generally decreasing activity, while the center of volcanic action apparently advanced from west to east. On Kamchatka, where from 1727 to 1731 the Kluchev was in constant eruption, and in 1737 and 1739 violent eruptions took place from the Avatcha and another volcanic peak, we find only two violent eruptions during the second half of the eighteenth century (of the Kluchev in 1762 and 1767, and of the Avatcha in 1773 and 1796). In 1820 the furnaces of Unaska, Oumnak, and Oonimak evinced renewed activity, while at the same time Mount Wrangell was in eruption. When, however, after this period, the volcanic manifestations on these islands began to decrease, the Kamchatka peaks once more opened their craters with increased violence in the years 1827 and 1829. Of late (1849) we have received no reports of volcanic phenomena on the Aleutian islands, but the Kamchatka craters are once more in eruption since 1848.

These data, vague as they are, do not furnish proof positive of a connection between these subterranean channels, but the fact that within a more limited area, as on the islands of Oumnak, Oonalashka, and Oonimak, the activity of one crater ceased when another was in eruption, points in the same direction.

The Aleutian chain of islands connects the American continent and the Alaska peninsula in the east and the Commander islands in the west as with a knotted cable that has sunk under its own weight and caused its supports or end-posts to converge on both the Kamchatkan and American coasts. Several ranges of mountains run at right angles with this chain or dam. When we look at the outward shape of the islands we find those in the west spreading and flattening toward the north and northwest, and those in the east spreading to the west and south; consequently the lifting force must have been strongest in the direction from southwest to northeast, and this has been the direction of nearly all the earthquakes within historic times.

It seems that three kinds of volcanoes are represented in the Aleutian chain: eruptive, or true volcanoes; intermittent, or partially eruptive volcanoes; and volcanoes that have risen and acquired elevation without an outbreak through the surface. All the volcanoes, with the exception of Shishaldin, have their summits covered with eternal snow. The location of craters on these peaks is as follows: On Shishaldin the crater is located on the summit of the cone; that of Khaginak is on the summit; that of Akoon is also on the summit; on Akutan volcano the old crater was at the summit, and another of later date is situated on the north slope of the peak; the crater of Makushin is located at the summit of the blunted cone; the crater of Vsevidof, on Oonimak island, is on its comb-like summit; the crater of Chegulakh is at the summit of the cone; and that of Unaska is also on the summit of the blunted cone; the Korovinsky volcano has its crater in a depression between two peaks; the volcanoes of Kanaga and Tanaga have their craters at the summit, while that of Sitkhin is located on one side of the conical peak.

A majority of the volcanoes mentioned have their craters at the summit, and should consequently be true volcanoes, but we are by no means sure that all the apertures from which smoke issues are actual craters affording constant communication between the entrails of the earth and the external atmosphere. On many of the island volcanoes the appearance of smoke is due to hot springs or steam arising from cracks or clefts differing very essentially from actual volcanic craters. Where the smoking or steaming is periodical, and increasing in volume during the autumn of the year, we may presume that the constant communication with the volcanic earth beneath exists, since the voluminous atmospheric precipitation at that season of the year would penetrate to the heated strata of the earth and rise as steam from the furnace or crater.

The eruptions reported by the various observers must also be accepted with due caution; in many instances they consisted probably of ignited gases only, as several such eruptions have been described as taking place for prolonged periods on the summits covered with eternal snow. Occasionally the appearance of fire may be traced to the mere reflection of the glow of molten lava in the interior of the crater on the clouds and vaporous atmosphere above. It is true that lava, obsidian, and pumice-stone are found at various points of the Aleutian islands, but we have no description of streams of burning lava, a phenomenon which could not have failed to impress itself upon the mind of even the most careless observer. A few eruptions that have occurred within historic times consisted of ashes, stones, and liquid mud, and they seldom took place in the main craters, being apparently of a subordinate and spasmodic character. We know that sulphur is gathered from many of the craters, but the crystallization of sulphuric gas is among the weakest manifestations of volcanic activity. A majority of the Aleutian volcanoes belong to this class of sulphur-producing clefts and craters.

The falling in of mountains rising on the east coast of Bering sea, the apparent swelling and bursting of whole sections of islands—all these are indications pointing to a constant process of formation of peaks, craters, and crevices by elevation. A gradual rising is still observable on Oonimak island and the north coast of Aliaska peninsula. Bering sea at its western end has a uniform depth of a hundred fathoms or more, while the eastern half is very shallow. Another point in favor of the theory that this region owes its origin more to gradual elevation than to violent eruption lies in the fact that the island of Bogoslov was not the result of eruption and piling up of débris or lava, as the island rose very slowly, and its crater was active but a very brief period of time; the elevation continued long years after all other volcanic manifestations had ceased. The only islands actually formed by accumulations of lava during eruptions in Bering sea are Saint Matthew, Saint Michael, and Stuart islands, the Pribylof group, and perhaps Amnak island.

## CHAPTER IV.—HISTORICAL SKETCH OF ALASKA.

A report upon a country so little known to us as Alaska is at the present day would scarcely be considered complete without a brief historical sketch of its first discovery and subsequent development until its final fusion into the union of states and territories. For this purpose it is unnecessary to go back beyond the second voyage of discovery undertaken by Vitus Bering, who in the course of his first explorations, some years previously, had discovered the strait named after him, and proved to the world the separation of the continents of Asia and America. The so-called second northern naval expedition, fitted out in the year 1733 by order of the empress Anna, though unfortunate in nearly all its details and fatal to its commander, served to show the Russian navigators the way to unknown regions of North America and adjoining islands. The information brought back by members of the expedition, however vague and unsatisfactory, acquainted the Russians with some islands the existence of which had been exceedingly doubtful. The labors of this expedition resulted in the discovery of the North American coast in the vicinity of latitude 58°, and of the several islands of the Aleutian chain, as well as of the greater portion of the Kurile islands. A few of the latter had been reported as early as the end of the sixteenth century, but for more definite information as to these localities the world was indebted to the Russian traders and hunters or other adventurers, who, upon a mere rumor of the existence of valuable furs, set out in such craft as they could lay their hands upon and made their way from island to island until the whole region was discovered.

Up to the year 1743 we have no account of any expedition in search of furs in this direction, but from that time for a period of nearly sixty years merchants and other individuals fitted out vessels and even squadrons of small craft, either individually or in company with others, for hunting and trading on the Aleutian and Kurile islands. Much of the information and reports brought back by these adventurers is supported by documents still in existence. These enterprises were exceedingly numerous, but for our purpose it is necessary only to mention briefly those that accomplished any new discoveries in the direction of the American coast.

The first to engage in this traffic was a sergeant of the Cossacks of lower Kamchatka, Emelian Bassof, who sailed in a small vessel of his own construction to the islands of Bering and Copper in four consecutive voyages in the years 1743, 1745, 1747, and 1749. The next adventurer to imitate Bassof's example was a sailor named Nevodchikof, who had served under Bering, and who sailed as commander of a vessel fitted out by the merchants Chuprof & Co., in the year 1745, reaching the islands of Attoo and Agatoo. In the year 1749 a small vessel, built and fitted out by the merchant Trapeznikof, succeeded in reaching the island of Atkha and a few of the smaller surrounding islands. In the year 1759 the trader Glottof, with a ship belonging to the merchant Nikiforof, advanced as far as the island of Oumnak, and subsequently discovered the whole group of islands, including Oonalashka, which was subsequently named the Fox islands. The discovery of this group has also been ascribed to a navigator of another expedition, Bashmakof, but as Bashmakof accomplished his voyage nearly ten years earlier, and as there is positive proof that no fox-skins were shipped to Kamchatka from the Aleutian islands previous to the year 1762, his claim to the honor of this discovery becomes very doubtful. The inhabitants of the islands also preserve a tradition that Glottof was the first Russian who came among them, and that he baptized many of the natives. Glottof was also the first to furnish a map of that region to his government, which map contained eight large islands situated east of Oonalashka.

In the year 1760 the merchant Andreian Tolstykh landed upon the island of Adakh, and in the course of a sojourn of three years accomplished a thorough exploration of that island and seven others surrounding it, and made a detailed report to the government, stating that he had subjected the people to the Russian crown. These islands were named, after him, the "Andreian islands". The result of his reports to the Russian government may be gleaned from the following ukase of the empress Catherine II to the governor of Siberia, Chicherin, dated March 2, 1766:

> DENIS IVANOVICH:
>
> Your information concerning the discovery and subjection of six Aleutian islands heretofore unknown, as well as the copy of the report of the Cossack Vassiutin, I have read with the greatest satisfaction. These enterprises are exceedingly pleasing to me. I am only sorry that there is no detailed description of the country and the people.
>
> Your action in promising rewards to the merchant Tolstykh, and special privileges for any future undertakings of the same kind, under condition that a tribute of a tenth part of the result be paid to the crown, I fully approve; and you may tell him that he may proceed in accordance with this proposition. Him, as well as the Cossacks Vasseutin and Lazarev, you will promote into the class of Siberian nobles.
>
> God grant that the proposed voyage may be a fortunate one, and crowned with success. I should like very much to learn whether any information can be gleaned from the natives of those islands of any previous visit of Europeans to their country, and if there has been no wreck of vessels of any other nation. You must urge upon these promyshleniks to treat the natives with kindness and to avoid all oppression or ill treatment of their new brothers.

To this ukase was affixed the empress' own signature.

In the year 1761 a ship of the merchant Bechevin made the coast of the Aliaska peninsula. Up to this time the relations between the natives of the islands and the Russian invaders had been altogether of a friendly character, the former submitting patiently to the demands of the new-comers, but the promyshleniks, encouraged by their easy conquests, proceeded from bad to worse, committing outrages of every kind, reducing the people to a state of servitude verging upon absolute slavery, and continued to act in this manner until the patience of even this timid race was exhausted.

The first Russians to feel the effect of a change in the attitude of the natives were the members of an expedition under command of the merchant Drushinnin, who arrived at Oonalashka in 1762. Upon a given signal the people of all the villages on the island rose and slaughtered their oppressors, until of a complement of over 150 men only four individuals, who happened to be absent from their vessels, survived; these were subsequently saved through the good offices of a charitable Aleut, who kept them in concealment in the interior of the island until it was possible to communicate with the members of another expedition.

In the meantime the governor of Siberia, in answer to his instructions to furnish more detailed information concerning the new discovery, represented to the empress that it was impossible to accomplish this as long as the new discoveries were visited only by ignorant traders, incapable of making any astronomical observations or scientific inquiries. The governor requested that some naval officers be detailed to make the desired explorations. The empress referred the matter to the admiralty college, and after some correspondence two captains of the navy, Krenitzin and Levashef, were selected to execute the will of the empress. After many mishaps these two officers succeeded in sailing from Kamchatka in two government vessels in the year 1768. Krenitzin, who was senior in command, advanced as far as the strait between the Aliaska peninsula and the island of Oonimak, and went into winter quarters, while his companion, Levashef, established himself with his crew in Captain's harbor, Oonalashka island. Krenitzin had some difficulties with the natives, resulting in several skirmishes, and both commands suffered terribly from the scurvy during the whole winter, disease and other misfortunes preventing them from doing much in the way of scientific observation, and in the following year they returned to Siberia with only one-third of the crew, the remainder having fallen victims to the scurvy or been killed by the warlike natives of the mainland.

The first visit to the island of Kadiak, made by Glottof, was also attended with disaster. He reached that island in the autumn of 1762, and went into winter quarters with his crew at the southeastern extremity of the island, in the neighborhood of the present settlement of Kaguiak. After several hostile attacks, which were repulsed by the Russians, the natives kept aloof, refusing to trade; but when, in the course of the winter, scurvy appeared among the invaders, reducing their strength to less than one-third, the savages again made attempts to complete the work of the dread disease by killing the survivors, and it was only with the greatest difficulty that Glottof succeeded, late in the following spring, in launching his vessel and making his escape to Oumnak.

The history of the Russian discoveries for the next twenty years is a continuous story of outrages committed by the numerous trading expeditions and of internal quarrels between themselves. The success of the earliest adventurers had been so great that every Siberian merchant who had a few thousand rubles at his command sought to associate himself with a few others, in order to fit out a miserable craft or two and engage in the same business, and over sixty distinct enterprises of the kind can be traced. They all carried on their operations on the same basis; that is, the owner or owners of the vessel engaged a crew on shares, the cargo of furs brought back by each vessel being divided into two equal shares; one of these was claimed by the owners who had furnished the means, and the other half was divided in such a manner as to give each member of the crew one share, and to the navigator and commander two each. After the division had been made each participant was obliged to give one-tenth of his share to the government. These so-called traders had managed to do their business with an exceedingly small stock of goods. Where no opposition was offered by the natives the invaders did not even pretend to buy skins of them, but forced them to go out and hunt and turn over their booty to the promyshleniks, without payment beyond a few beads and a leaf or two of tobacco given as a gratuity in consideration of good behavior; and the unfortunate natives were given to understand that as subjects of the Russian empire it was their duty to render such services in behalf of the crown.

The beginning of the eighth decade of the eighteenth century forms an epoch in the history of the Russian fur-trade on the islands of Bering sea. For several years previous to this period the most prominent merchant in Siberia engaged in this trade was Grigor Ivanovitch Shelikhof, a citizen of the town of Rylsk, who had come to Siberia, together with Ivan Larionovich Golikof, a merchant of the city of Kursk. For some time Shelikhof was engaged in business, in company with the latter and a few other Siberian traders, fitting out hunting expeditions to the Kurile and Aleutian islands, the results of which forced upon him the conviction that the yield of furs was growing less from year to year. The evident decrease in furs, together with the hostile attitude of the natives, provoked altogether by the inhuman treatment received at the hands of their visitors, called for some fundamental reform in the manner of doing business and the mode of treatment of the natives, in order to achieve a revival of trade. Fully aware of the necessity that the new discoveries should be connected with the mother country by closer ties, Shelikhof made up his mind to visit in person the distant regions, in order to discover the best means for the accomplishment of his ends, and for this purpose he persuaded his partner Golikof, together with another Golikof, Mikhail Sergeievich, who was called a captain, to form a new company for a period of ten years. The paid-up capital of the new firm was limited to 70,000 rubles, divided into 120 shares, and with this capital it was proposed to construct two or three ships and dispatch them on a sea voyage under the personal supervision of Shelikhof; or, according to the wording of the mutual agreement by the partners, "to sail for Aliaska land, called America, and for known and unknown islands, to carry on the fur-trade and explorations, and to establish friendly intercourse with the natives."

Having fitted out at Okhotsk three galliots, named respectively the Three Saints, the Archangel Michael, and the Simeon the Friend of God and Anna the Prophetess, Shelikhof sailed with them on the 16th of August, 1783, taking passage with his wife on the first of these vessels. Bad weather and contrary winds caused the vessels of the expedition to separate, and after losing sight of the second named vessel the commander concluded to winter on Bering island. After visiting during the following year the island of Oonalashka, and repairing his vessels as far as possible, Shelikhof sailed with interpreters and ten Aleutians, who voluntarily joined his expedition, for the island of Kadiak, leaving orders for the commander of the missing vessel to follow him to the same place. On the 3d of August, 1784, the two vessels reached the island and entered a harbor, which they named after the ship Three Saints.

Several bidarkas were sent out to discover whether the island was inhabited, and in the course of the day they brought back one of the natives, whom Shelikhof treated with great kindness, making him presents, and sent him home the next day. It was evident that the savage liked the reception given him by the Russians, as he reappeared the following day and refused to leave Shelikhof again until his final departure from the island. He not only accompanied him and served him in all his voyages about the island, but he frequently warned him of the hostile intentions of his countrymen. This hostile disposition soon became apparent. A party of men sent out in boats to hunt and to explore the island discovered a multitude of natives assembled on a precipitous, rocky island a short distance from the coast. Shelikhof gives the number of these as 4,000, an evident exaggeration. Thinking that such an assemblage could not be without some special object Shelikhof resolved to send to the island a deputation to invite the natives to trade with the Russians and to live at peace with them, but the only answer made by the savages was a threatening demand that the navigators should immediately leave the island and never dare to approach it again. Upon this reply Shelikhof himself proceeded to the spot and endeavored to persuade the savages to assume friendly relations with himself and his men, declaring that he had come with no hostile intention, but was actuated by a sincere wish to benefit the people of the country. His words, as they were explained to the natives by the interpreters, had no visible effect, and a few arrows were discharged from the multitude, causing the boats to retreat to the ships. Measures were taken at once for defense in case of sudden attack. A few days later, in the middle of the night, the savages approached the harbor unobserved and threw themselves upon the Russians. The battle lasted until daylight with great slaughter on both sides, for the necessity of self preservation caused the promyshleniks to fight with extraordinary bravery, and at last the enemy, though vastly superior in numbers, was put to flight. This first victory did not by any means avert all danger, as it was reported by one of the natives who had come over to the side of the Russians that the savages were only waiting for considerable reenforcements from a neighboring tribe, and were fully resolved to renew the attack upon the intruders and to exterminate them to the last man. Under such circumstances Shelikhof resolved at once to attack the main stronghold of the enemy on the rocky island. With a picked crew of promyshleniks he attacked the savages in a position deemed by them impregnable, and after a few discharges from his iron 2-pounders stormed the place with such impetuosity that the enemy became completely demoralized, jumping over the precipices into the sea, and surrendering in large numbers to the Russians. This victory was achieved at great sacrifice in killed and wounded on the part of the Russians. The prisoners taken were located at a distance of fifty versts from the harbor and furnished by Shelikhof with provisions and hunting-gear. In order to secure their allegiance twenty children of the most prominent among the captives were taken as hostages on board the ships. Occasional attacks were made after this upon hunting parties at a great distance from Shelikhof's headquarters, but the invaders had attained such a moral supremacy over the people that no further combined or organized opposition was offered.

As soon as Shelikhof found himself relieved from anxiety concerning the safety of his small command he began the organization of his colony and a systematic exploration of the surrounding regions. He dispatched one expedition in four large bidars, carrying fifty-two Russians and eleven natives of the Aleutian islands, and accompanied by 110 natives of Kadiak, each in his own canoe. The command proceeded along the northern side of Kadiak island, and crossing the strait dividing the island from the Aliaska peninsula (subsequently named after Shelikhof) explored the coast of the mainland to the northward as far as the mountainous coast of Cook's inlet, inhabited by a different race. The expedition met with no opposition, which was probably due to its numerical strength more than to an actual liking of the natives for their visitors. A few hostages were brought back to Shelikhof's headquarters, but the trade carried on in the course of this exploration was of insignificant proportions. This large party on its return was located at Karluk, on the western side of Kadiak, and from here the hunters ranged north and south throughout the winter in active pursuit of the sea-otter. The promyshleniks remaining under Shelikhof's immediate command also made explorations of the island in various directions, taking hostages from every village and establishing trade among the natives. One small party advanced as far as Shuiak, the northernmost island of the Kadiak archipelago, where friendly relations were established with the native chief; the latter succeeded in gaining the fullest confidence of the Russian leader, and was furnished with quite a large quantity of goods for trade, with the understanding that he was to act as Shelikhof's agent. The selection was an unfortunate one, as the chief not only retained the goods for his own use, but killed the men who were sent to look after the business, and then formed an alliance with the Kenaitze, on Cook's inlet, who sent him a force of nearly a thousand men to join in a combined attack on Shelikhof's fortifications. When this news was received at Three Saints bay, at the beginning of the year 1786, Shelikhof at once dispatched two parties to meet the enemy, one consisting of promyshleniks alone, and the other of friendly natives of Kadiak and Aleutians. They were instructed to disperse the approaching enemy and to establish a fortification on the island of Afognak, adjoining Kadiak. At the end of the season reports arrived from the north to the effect that the objects of the expedition had been accomplished, and that a lodgment had been effected, not only on Afognak, but on the coast of Cook's inlet, after severe chastisement of the hostile Kenaitze inhabiting that region.

Another exploring party was sent to Prince William sound, with orders to proceed as far as cape Saint Elias, located by Bering in his second voyage, now known to be the southern end of the island of Kaiak. As a business venture this last enterprise was not very successful, the inhabitants of Prince William sound and the Copper River delta showing decided aversion to intercourse with the Russians; and apparently the only result of the enterprise was the erection of crosses and various other signs at different points of the islands and sea-coast for the purpose of notifying explorers of other nations that the coast had been taken possession of by the Russians. Both Spanish and English vessels had been in the same vicinity many years previous, and had taken formal possession, leaving the usual marks of notification. All these were carefully removed by the Russians before planting their own. The same geographical farce was enacted again at the time of Vancouver's cruise in the waters of Prince William sound, when, on several occasions, the English discoverer took formal possession of one side of an island while the Spaniard erected his crosses on the other side, and at the same time the Russians, already permanently established, moved quickly about from place to place in their light, skin-covered boats, removing the marks of possession as fast as planted, and substituting their own.

At his headquarters in Three Saints bay Shelikhof labored faithfully to enlighten his captives and hostages and to convert them to the Greek Catholic faith. His arguments were of a practical nature; he showed them the advantages of living according to the customs of Christianity and civilization, and the poor miserable savages were only too glad to be allowed to partake of such rude comforts as the Russian traders could boast, and in return for these advantages were always willing to go through any ceremony Shelikhof chose to perform. Nearly all the captives and many of the visitors from the neighboring tribes and villages were baptized and duly counted as members of the orthodox church, and at the same time a school was established for children and adults, in which the pupils were instructed in a few rudiments of education.

Shelikhof, according to his own account, took particular care to tell these people the most marvelous stories concerning the goodness, power, and benevolence of the empress of Russia, representing it as the highest privilege to be one of her subjects. He had with him some wretched portraits of the imperial family, and as these were the first examples of the painter's art ever beheld by the natives, they made considerable impression upon their minds. Shelikhof's wife also did her part in the work of civilization, instructing the girls and the women in needlework and such household arts as could be of any use to the savages.

In the month of May, 1786, the ship Three Saints had been repaired and fitted for the return voyage, and having convinced himself that all that could be effected in establishing and fortifying his headquarters in the newly-discovered district had been done, Shelikhof resolved to take his departure, in order to obtain more private means as well as government assistance and sanction for his enterprise. He sailed on the 22d of May, and just as his ship was leaving the coast the long-lost sister ship Saint Michael appeared in the distance. It appeared from the commander's report that this unfortunate vessel had been nearly three years making her passage from Kamchatka to Kadiak, a distance of about a thousand miles. After promptly relieving the incapable commander Shelikhof ordered the ship to assist in an organized exploration of the coast in company with the remaining vessel of the fleet; one of the vessels to visit the northern coast of the peninsula and proceed thence northward as far as Bering strait, while the other was to survey the coast from Kadiak eastward.

Shelikhof himself arrived at Kamchatka on the 8th of August and proceeded at once to Okhotsk, reaching that port in January, 1787. He had taken from the islands 30 natives, who subsequently accompanied him to Irkutsk. He at once submitted to the governor-general of eastern Siberia a detailed report of his discoveries, with charts of the islands and plans of the fortifications and stations established, asking for instructions for the future conduct of the enterprise; and he made the bold statement that by his labors 50,000 subjects had been added to the Russian empire, ready to do homage to the empress and to accept the Christian faith. If he had divided this number by ten he would have been nearer the truth. He stated to the governor-general that without the approval of the empress his labor would be in vain, as he had acted with the sole purpose of doing his humble share in the extension and aggrandizement of his country and in securing the discoveries made by Russians against the encroachments of other powers, and upon his urgent representations Jacobi, the governor-general, forwarded his reports and charts to St. Petersburg.

In the meantime Golikof, Shelikhof's partner, had paid a visit to his home in the city of Kursk. The empress happening to pass through the place on one of her voyages through the empire, Golikof seized the opportunity to present himself before her and to display the maps and charts of his partner. The empress was at once interested, inquired into the doings of the firm in all its details, and gave orders that Shelikhof present himself in person at the palace as soon as he came to St. Petersburg. Immediately after the return of the empress to the capital two expeditions were organized for the exploration of the new discoveries in the far east. One of these was to proceed by sea from the Baltic, with Kamchatka as the objective point, and the command of the enterprise was given to Admiral Mulovsky. The other expedition was to be fitted out at Okhotsk, under command of the English Captain Billings, who was to give special attention to the American coast. The first expedition did not sail, on account of a declaration of war between Sweden and Russia at that time, while the second was delayed until the year 1790.

The governor-general of eastern Siberia was at once instructed to report the best means of fostering the commercial enterprises in the Pacific ocean, and of maintaining Russian supremacy over the new discoveries; and he was also to report a system of management of the native tribes, in order to extend to them the benefits of Christianity and civilization, and to improve their mode of life.

In order to secure Russia's possession of her new discoveries Jacobi considered it sufficient to send at once 30 large copper plates with the Russian coat-of arms, and as many wooden crosses with the inscription, "Land in Russian possession." The greater part of these were to be turned over to the agents of Shelikhof and Golikof, who were already acquainted with the best localities for planting such tokens. With regard to the amelioration of the condition of the natives the governor proposed that the tribute theretofore levied by Cossacks accompanying the traders, or by the latter themselves, should be changed to a voluntary tax, left to the determination of the native chiefs. At the same time Jacobi expressed the opinion that as long as every Siberian trader was allowed to roam at will over the islands and coasts of the Pacific ocean the natives would always be at the mercy of these men, who carried with them crews composed of the worst elements to be found among Siberian convicts and desperadoes. He called attention to the humane and patriotic manner in which Shelikhof had conducted his enterprises and explorations, and to the fact that he had baptized many of the pagan natives and had done his utmost to instruct both children and adults, always proclaiming that everything he did was done in the name and for the glory of her majesty the empress; if, therefore, the regions incorporated with the empire through the efforts of these men were left under their control, the interests of both the crown and the new subjects would always be duly considered, while the lawless horde of Siberian promyshleniks and convicts would be driven from the country, and thereby the most fruitful cause of strife with the natives removed forever. Jacobi was very eloquent in urging the empress to confer exclusive privileges upon the company represented by Shelikhof and his partners; but his ardor in the matter was to a certain extent explained by the subsequent appearance of his name among the shareholders of the company.

Upon the receipt of Jacobi's report and propositions, and the petition of Shelikhof and Golikof concerning their proposed further extension of trading operations over the islands of the Pacific and the coast of America, the empress at once instructed the department of commerce, through its president, Count Chernyshev, to make a thorough examination of all subjects pertaining to the condition and trade of those localities, and of the means of extending Russian commerce in the Pacific ocean. The committee on commerce presented, in March, 1788, the following opinion:

> The important results obtained through the organized exertions of the Shelikhof company deserve not only the approval of the government of the continuance and extension of those operations, but also the most active assistance, especially taking into consideration the great expenditure incurred by the company who has already invested 250,000 rubles without any prospect of speedy return, and whose expenses in the immediate future cannot be estimated at less than 200,000. The prosecution of Shelikhof's enterprise is of the highest importance at the present time, on account of the interruption of our trade with China, which latter circumstance involves great loss to the whole of Siberia and has a pernicious influence on all Russian commerce. The goods and manufactured articles intended by the Russian merchants for the Chinese trade are now blocking up warehouses without bringing any returns, and no profit can be realized upon the capital thus invested. The articles which Russia has carried to China in order to obtain tea and nankeen are partially obtained from other powers, and a loss in this direction involves a rise in the price of exchange. Finally, the high prices of all stores and provisions needed for fitting out expeditions to the islands of the Pacific and American coast would alone justify the company to ask for some assistance from the government, without which the operations would be necessarily limited. In consideration of the facts stated the committee takes the liberty to represent to her majesty that it would be well, in accordance with the request of Shelikhof and Golikof, to place to their credit from the public treasury the sum of 200,000 rubles for twenty years, without interest, the capital to be returned in instalments at convenient intervals; the sum should also be exempt from taxation. This favor would enable the company to resume their enterprise in the most vigorous manner and thereby to revive trade and traffic throughout the eastern portion of her majesty's dominions. The government would always be in a position to reimburse the treasury by levying a duty of 10 per cent. on goods and furs crossing the border.
>
> The committee recommends action upon the propositions of Governor-General Jacobi in accordance with his plans, but to him should be left the appointment of commanders of fortifications established in the new regions.

An addition was made to this report on recommendation of the committee in behalf of Shelikhof and Golikof, which resulted in the following imperial ukase, issued September 28, 1787:

> In consideration of the services rendered by the merchants Shelikhof and Golikof to the advantage of the imperial government in the discovery and settlement of unknown countries, and the establishment of commercial intercourse with native tribes, we most graciously present to each of them a sword, and a gold medal to be worn around the neck, with our portrait upon one side and a legend on the other, stating the reason for which the decoration was conferred. The usual letters of transmittal and commendation to accompany these awards.
>
> Signed by us and countersigned by the president of the senate.

On his return to Irkutsk Shelikhof at once ordered the equipment of two vessels for the voyage of discovery—one being destined for the Kurile islands and the other for the American coast and the Aleutian islands, with the intention of establishing a settlement as far south on the coast of the mainland as possible. In the year 1787 he dispatched another vessel from Okhotsk with supplies for the stations of his company already established on the islands. In 1788 the ship Three Saints sailed under instructions issued by Delarof, a Greek, who had been to Kadiak as manager of the Shelikhof colony. Two experienced sailors, Ismaïlof and Bochorof, were in command of this expedition. In the month of May the ship arrived in the gulf of Chugatch, or Prince William sound, where quite a trade was carried on with the natives of that vicinity; and as the price paid for a sea-otter skin at that time consisted of eight or nine needles and three or four small beads, the traffic must have been profitable. The two explorers entered the bay of Nuchek and remained at anchor for some time in one of its many coves, which they named after Saints Constantine and Helena. All the chiefs of the neighborhood who came to visit the Russians were duly decorated with copper and bronze medals in accordance with instructions from Jacobi, but it was found impracticable to place the copper tablets claiming possession for the Russian empire in any prominent position, on account of the thieving propensities of the natives, who would seize immediately upon any scrap of metal within their reach.

From Nuchek the ship proceeded to Yakutat, or Bering bay. Here the head chief also received a medal and, at his earnest request, a portrait of the prince heir, the grand duke Paul Petrovich. According to Bochorof's account the chief was exceedingly proud of this piece of art, but when another explorer visited the vicinity, only a year later, not a vestige of the portrait could be found, and the natives stated that immediately upon the departure of the Three Saints the grand duke's image had been burned with great festivities and rejoicings. This expedition also entered Lituya bay, which had two years previously been visited by La Pérouse, and named Port des Français, the French explorer being ignorant of its earlier discovery by the Russians. Though the Russians most certainly had learned from the natives the disaster which overtook at that place two of the boats of La Pérouse, not a word of this or any other particular concerning the French visitors was mentioned in the official reports of Shelikhof's company, the ignorant traders imagining that they could keep the fact of La Pérouse's movements from their own government. In the following year Ismaïlof alone explored most thoroughly the gulf of Kenai, or Cook's inlet. In the meantime an additional discovery had been made which increased the anxiety of Shelikhof and his partners to obtain from the government the exclusive right of trade on the American coast.

The skipper Gerassim Pribylof had succeeded, after several vain attempts, in finding the summer resort of the fur-seals, first on the island of Saint George, and in the following year on Saint Paul. Small numbers of these seals had been killed annually during their passage up or down between the islands of the Aleutian chain, and the skins had found a ready market on the Chinese border; but when Pribylof and his companions returned with the marvelous tale of millions of these animals congregating on two small islands, easy of access, this branch of the trade became at once of the highest importance. To secure the overland trade with China was a question of life and death with the Siberian merchants, but as they could not compete with the staples and manufactured articles introduced into the celestial empire by England and Holland by sea, the trade had been declining and languishing for years. This new discovery, however, caused a sudden change in the aspect of commercial affairs on the Chinese border. The celestials prized the skin of the fur-seal above any other. They had known this kind of peltry from time immemorial—probably through shipments made from the coast of Japan—and had long since discovered a process of removing the hair and dyeing the fur in various colors. With an almost unlimited supply of this article at their command the Russian merchants could have their choice of Chinese staples most salable in the marts of their own empire.

During the few years of the existence of the Shelikhof company, with partial protection of the empress and the exclusive privileges in the discoveries made by their own navigators, nearly all the smaller companies had gradually gone to the wall. It was not always the power conferred upon a great firm by its larger capital that gained the day in a spirited contest for a valuable trade; it frequently occurring that the employés of one company resorted to force of arms in order to obtain advantages over the others, and then, of course, the strongest company was sure to win. The only rival of Shelikhof and his company during this last period of free trade was the company named, after two of its principal shareholders, the Lebedev-Lastochkin company. The stations of this company were located on both islands and mainland, often in close vicinity of those of their rivals, and even Captain Pribylof was in their employ when he made his important discovery; but the shrewd Shelikhof had long since bought up under various names a large number of shares in the rival company, and thereby succeeded in reaping the benefits of the discovery for himself and his own company. At home in Siberia there existed apparently the best understanding between the leading spirits of the two companies, but in their field of operations on the coasts and islands of America a bitter strife was kept up between their respective agents. This state of affairs appears all the more strange when we consider that Shelikhof was by no means the only one who held shares in both concerns; as, among others, Lebedev was almost equally interested in both companies. In spite of these circumstances the quarrels and hostile encounters between the traders increased from year to year, until on Cook's inlet the depredations committed and the raids made by one party of hunters upon the other acquired such dimensions as almost to deserve the name of warlike operations. A native Siberian by the name of Kolomin had established himself for the Shelikhof company at the site of the present Kenai, or Rédoute Saint Nicholas, where he lorded it over the natives with great severity and wanton cruelty. A Russian captain of the rival company, named Konovalof, drove him out of his fortification and caused him to build up a new settlement some 20 or 30 miles to the southward. The conqueror in this conflict, however, had no sooner begun to attend to his trade with the natives, and to send out hunting parties and explorers, than his vanquished enemy seized the opportunity to make night attacks upon any small detachments sent away to a distance from the fort; and in many of these enterprises Kolomin was assisted by the natives of the warlike Kenaitze tribe. Both parties had traders and hunters on Prince William sound, on the other side of the Kenai peninsula, and hostilities soon broke out in that region also. This fighting between the Russians had, of course, the most pernicious effect upon the natives, who seized upon every opportunity to fall upon the vanquished in the various encounters and kill or capture all that had been spared by the stronger party.

At this time of general anarchy, and when the very existence of the Russians in these distant regions was threatened, a new character appeared upon the scene. Shelikhof recognized that without the strong hand of some experienced man at the head of their enterprise in the colonies the business would soon prove a total loss, as every branch of it was then declining, and he finally selected a merchant from the town of Kargopol by the name of Baranof, who had displayed extraordinary energy and decision in the management of his own affairs in Siberia. Shelikhof approached him several times with requests to enter the employ of his company, but being in business for himself Baranof, who had an independent spirit, always declined, until finally he met with overwhelming losses in his own enterprises, having two or three of his trading caravans destroyed and plundered by the savage Chukches in the vicinity of Anadyrok. Shelikhof at once called upon the ruined trader and offered him ten preferred shares of his company for his services. A contract was concluded on the 18th of August, 1790, and the man who finally established the Russian empire on our North American continent sailed for his new field of action.

The Russian government was fully acquainted with the results of Cook's voyages and his visits to the northwestern coast of America. He had in 1778 taken possession of various points of the coast on Cook's inlet and Bristol bay, and had made a brief stay on the island of Oonalashka, where he tarried a few days for the purpose of restowing his cargo. Prince William sound had been visited later by Portlock, Dixon, and Meares, who also extended their trading operations to Cook's inlet and even to Kădiak island. The Spaniards also had determined the astronomical positions of many points in that vicinity, and given names to a few bays and islands. Apprehensive that such attempts might be renewed in greater force the imperial government had enjoined the Shelikhof company to prevent, if possible, the seizure by foreign powers of any of the territory then occupied by the Russian traders, while Baranof was furnished with the most minute instructions upon this subject, calculated to guide his actions under any emergency that might arise in such a way as to secure the actual or imaginary rights of the Russian government in the Pacific ocean. The English establishment at Nootka, on Vancouver island, was considered as especially threatening to Russian interests, and Baranof was instructed to push his establishment southward in that direction as far as possible, and even to occupy Nootka itself if it lay in his power. Every vestige or mark of foreign occupation was to be destroyed and replaced by the copper tablets previously mentioned.

The first difficulty Baranof found himself obliged to cope with was the hostile attitude of the rival traders on Cook's inlet, but he made short work of these; both Kolomin and Konovalof were seized, placed in irons, and sent to Siberia for trial, and their followers were scattered over the various trading-posts of both companies in such a manner as to make it impossible to communicate with each other. A cruel castigation with the knout was inflicted in most cases, in order to impress the wretches with the fact that the reign of lawlessnss was at an end and that the promyshlenik no longer ruled the land.

Though small of stature Baranof was possessed of a physique of extraordinary strength and great power of endurance. He was an indefatigable traveler, and had a natural talent for management and organization. As soon as he arrived on Kadiak island he discovered that the headquarters selected by Shelikhof were not adapted to the requirements of the larger scale of operations he had in view, and took steps at once to remove the principal establishment to the harbor of Saint Paul, on the northeastern end of the island, where the settlement of that name is now located. There he had timber at hand sufficient for all the buildings of the company, and an ample harbor with many outlets, allowing ships to depart and enter with almost any wind.

As soon as the foundation was laid to the new central establishment at Saint Paul harbor Baranof returned with renewed vigor to the exploration of the adjoining coast. The skipper Bocharof was dispatched with a party of 30 men in a large skin-covered boat to examine the northern coast of the Aliaska peninsula, and began his exploration at Issanakh strait, between the southern point of the peninsula and the island of Oonimak. He followed the coast of the mainland northward, and was well received by the natives of the few scattered villages he encountered on his way. Late in the season Bocharof's expedition arrived at the mouth of the Kvichak, the outlet of lake Ilyamna. The chief of the populous village located here treated the new-comers with the greatest consideration, and expressed his willingness to give hostages and live at peace with the Russians forever after. The approach of winter and the lack of fresh provisions, together with the appearance of scurvy among his men, caused Bocharof to make an effort to return to Kadiak. His native friends told him of a portage route across the peninsula; this he followed, discovering at that early day the quickest and safest means of communication between the strait of Shelikhof and Bering sea, and he returned to Saint Paul harbor at the beginning of winter with a large quantity of furs, walrus-ivory, and deer-skins. Baranof himself had set out early in the spring of 1793 in two large skin-boats with 30 men in the direction of Cook's inlet, but finding the yield of sea-otters in that vicinity decreasing, he made his way around the Kenai peninsula into the waters of Prince William sound, where he entered into friendly relations with natives of all the coast villages, taking hostages from them; and at Nuchek harbor he encountered Ismaïlof, the commander of the Saint Simeon, who had been cruising in search of new discoveries. After dispatching a portion of his command to the island of Sukluk (Montague) Baranof prepared to encamp on the island. Just at that time a large force of Kolosh Indians appeared in the harbor bent upon avenging some real or imaginary insult offered to one of their tribe by the Chugatch Innuits. Observing the small force of Russians, they concluded to combine revenge with profit by taking possession of the stores and trading goods belonging to Baranof. In the middle of the night they surrounded his bivouac, and under cover of darkness succeeded in throwing themselves upon the tents before the alarm was given. The panic created among the Aleutians of Baranof's party added much to the confusion, and everybody was groping for arms and ammunition in the dark, scarcely knowing in which direction to shoot, or able to discern a friend from an enemy. At last toward daylight the superior arms of the Russians prevailed, and at the same time re-enforcements arrived from Ismaïlof's ship. Twelve dead bodies of the enemy were found on the field; their wounded they had carried away with them. In Baranof's party two Russians and nine Aleuts were killed and over fifteen wounded. The commander himself wrote of the occurrence in the following words:

> God preserved me, though my shirt was pierced by several spears, and the arrows fell thick, without doing much damage. I was awakened from a sound sleep and had no time to dress, but as soon as I had emerged from my tent I knew that we should be able to beat them.

As early as 1791 Shelikhof had conceived the idea that, in order to convince the Russian government of the company's intention to permanently settle and develop the newly-discovered country, it would be wise to construct a few ships in the colonies to ply between the new settlements and Okhotsk or Kamchatka. He acted upon this idea at once, and in the autumn of the same year dispatched to Kadiak in the ship Northern Eagle, under command of Lieutenant Shields, a cargo of iron, cordage, canvas, and other materials for ship-building. The captain of the vessel was a practical shipwright who had left the English naval service and entered the Russian army. Shelikhof, always looking about for the best means to advance his colonial enterprise, discovered the fact of Shields' practical knowledge of ship-building and engaged his services at once. As soon as he had the means at hand Baranof selected a bay in Prince William sound as his future ship-yard, the harbor being named Resurrection bay. Timber of the largest size abounded in its immediate vicinity, and under Baranof's personal supervision and Shields' practical management a ship was completed in the summer of 1794. This craft had two decks, three masts, a length of 73 feet by 23 feet beam and 13½ feet depth of hold; she measured 180 tons, and was named the Phœnix. This was certainly the first three-masted ship ever built on the northwest coast of America. Having no paint or tar, Baranof was obliged to cover the new craft with a coating of spruce-gum, ocher, and whale-oil. As soon as the Phœnix was launched the keels of two smaller vessels 40 feet in length were laid, and these also were finished the following year and named the Dolphin and the Olga.

By this time Baranof's operations had been extended beyond Yakutat or Bering bay, and he was reaping a rich harvest of sea-otters in that vicinity, principally by means of his own hunting parties of Innuits from Kadiak and Oonalashka.

The two ships of Captain Vancouver, the Discovery and the Chatham, cruised in Cook's inlet and Prince William sound during the summer of 1794, but the great English explorer never succeeded in meeting Baranof, in spite of repeated efforts. Baranof had his instructions to keep out of the way of foreigners, and to give no unnecessary information concerning the company's business or the intentions of the Russian government. At the same time he was afraid that Shields, the Englishman, might be induced to leave him should he meet with his countrymen. His desertion would have been a great misfortune indeed, and would have nipped in the bud all schemes of naval construction for the future. Baranof succeeded in preventing a meeting, though a few letters passed between officers of the Discovery and the English shipwright.

Another important event of the year 1794 was the arrival of the first mission of the Greek church in those waters. For several years the astute Shelikhof had petitioned the government to dispatch priests and missionaries to the new settlements, stating that his own efforts to spread the gospel among the pagan natives must necessarily be limited, and that he should not feel safe among such numerous savage tribes unless the peaceful doctrines of Christianity were inculcated and preached among them. In a special ukase, dated June 30, 1793, the empress, Catherine II, instructed the metropolite Gabriel to select the best material for such a mission, and in the following year the archimandrite Ivassof, with seven clergymen and two laymen, was despatched to the island of Kadiak from Okhotsk on two vessels. At the same time Shelikhof had asked that a certain number of Siberian convicts, especially mechanics and farm laborers, with their families, might be selected to establish an agricultural settlement on the coast of America. This request was also granted by the empress Catherine in a ukase dated September 1, 1793, and the whole force, numbering over 200 persons, arrived at Kadiak together.

Of the convict settlers Shelikhof retained four families at Okhotsk, with the intention of sending them to the Kurile islands, and the remainder were to be settled in the vicinity of Yakutat, but the best mechanics and laborers among them were picked out for service at the various stations of the company before the colonists reached their destination.

The members of the mission at once began work at Kadiak and went forth to preach in various directions. One of them, named Makar, went to Oonalashka and converted and baptized within a few years nearly the whole of the Aleutian tribes. Another missionary, the monk Juvenal, proceeded northward to Cook's inlet and from there to the Ilyamna region, where he was finally slain by the natives for too active interference with their polygamous practices; while a third, named Germand, established a school on Spruce island, in Saint Paul harbor, where he lived for over forty years, instructing native boys and girls in the Christian faith and in agricultural and industrial pursuits. The other ecclesiastics remained in the immediate suite of the archimandrite, and a few years later accompanied the latter to Irkutsk, where he was ordained as bishop for the new Russian possessions on the Pacific. While returning with his new honors from Okhotsk the ship foundered at sea with all on board, and was never heard from again. This was the vessel constructed by Baranof in 1794. From that early time Russian clergymen and missionaries have never been absent from Alaska, but the number of actual communicants of the Greek orthodox churches has never exceeded 10,000 at any one time. In the course of the present century seven organized parishes and three mission stations were established, the latter all located on the mainland.

Shelikhof lived only long enough to see verified his prediction of a revival of the Chinese trade by means of the introduction of fur-seal skins. Commercial transactions at Kiakhta had almost wholly ceased for many years, but in the year 1794 the Chinese government notified the governor of Siberia that the merchants of the celestial empire were anxious to resume their operations on the border, and at the same time new privileges were granted to the Russians in conducting the intercourse. In the following year, on the 20th of July, 1795, Shelikhof died at Irkutsk, a few days after the receipt of a patent of nobility from the empress conferred in consideration of his services to his country; but his widow continued the management of the company's business. It had been a favorite scheme of her husband to effect the union or consolidation of the various companies trading in eastern Siberia, Kamchatka, and the American colonies, a scheme which was also favored by Ivan Golikof, one of the partners; and when the widow assumed control of the common business she used her influence to carry out her husband's wishes. The consolidation was finally effected in the year 1797, and the new firm, under the name of the Russian-American Company, obtained a charter from the Russian government granting it the exclusive right to all the territory and the resources of water and land in the new Russian possessions, including Kamchatka, the district of Okhotsh, and the Kurile islands. This charter, which was finally (1799) granted by the emperor Paul, who had at first opposed the creation of such a monopoly, marks an epoch in the history of Alaska, which from that time until the transfer of the country to the United States became identical with that of the Russian-American Company. The privileges conferred by the charter were very great and of the most exclusive nature, but at the same time the company was burdened with some heavy obligations, being compelled to maintain at its own expense the government of the country, a church establishment, a military force, and at various points in the territory magazines of provisions and stores to be used by the government for its naval vessels or troops whenever it was necessary. At a time when all such stores had to be transported from Russia overland through Siberia this was the most burdensome clause of the charter, and numerous petitions were forwarded by the company to be relieved from its provisions. Under this charter the company paid no royalty or rent to the government, but the treasury was in receipt of large sums in the shape of duty on teas carried by the company over the Chinese border. The records show that in some years as much as two million rubles were paid by the company to the government for these duties alone. The company was also obliged to make experiments in the establishment of agricultural settlements. The natives were freed from all taxes in skins or money, but those who were under its control were obliged to furnish a certain quota of sea-otter hunters to the company every season; all men between the ages of eighteen and fifty being liable to this duty, but not more than one-half of this number could be called upon at one time. The management of the company was placed in the hands of the administrative council, composed of shareholders in St. Petersburg, with a general office at Irkutsk and a chief manager residing in the colonies, who had to be selected from officers of the imperial navy of a rank not lower than post-captain. The chief manager had an assistant, who was also a naval officer, and each received a salary from the company independent of his pay from the government. As long as the company maintained a military or naval force in the colonies at its own expense such forces were entirely at the disposal of the chief manager; and the company also had the privilege of selecting the soldiers and sailors in its employ from any force stationed in Siberia, which gave it the opportunity of picking out such mechanics and tradesmen as were most useful in the colonies. The company was also permitted to purchase at cost-price powder, lead, and arms from the government works in Siberia. The chief manager had full jurisdiction over all offenders and criminals within the colonies, with the exception of capital crimes; offenders of that class were given a preliminary trial and then forwarded to the nearest court of justice in Siberia. In cases of mutiny or revolt the powers of the chief manager were absolute. The servants and employés of the company were engaged for a certain term of years, at the end of which time the company was obliged to furnish them free transportation to their homes, unless the unfortunate individuals were indebted to it, in which case they could be detained until the debt was paid. This privilege enabled the company to retain in the colonies any men among the lower class of employés whose services were desirable, as the miserable pittance allowed to the employés made it an impossibility to keep out of debt. Even among the higher officials were many who had served one period of seven years after another without succeeding in clearing themselves sufficiently from their obligations to the company to be allowed to return to their homes.

The charter was granted for a period of twenty years, counting from the year 1799. The company also had the right to carry its own flag, to employ naval officers as captains of its vessels, and to call itself, "under the highest protection of his imperial majesty, the Russian-American Company." In the meantime the new company began to attract considerable attention at St. Petersburg and Moscow, nobles and high officials of the government buying shares, and finally the emperor and members of the imperial family began to invest; the latter, however, making their investments under the pretext of donating their shares to schools and charitable institutions. It was the first enterprise of the kind in the Russian empire, and under imperial patronage rose rapidly in public favor. Its most sanguine supporters prophesied for it a future prosperity as great as that of the English East India Company; and many of the shareholders were dreaming of an annexation of Japan and perhaps portions of China on one side of the Pacific, and of the whole coast down to the gulf of California on the other.

A nobleman high in office and of very influential connections, Count Nikolai Rezanof, chamberlain of the emperor, had married a daughter of Shelikhof. His wife died two years after the marriage, but the count had identified himself with his father-in-law's enterprise, and the final development of the company into the grand monopoly was chiefly due to his incessant exertions and his judicious advice to his mother-in-law, the widow of Shelikhof.

Baranof in the meantime had been very successful in extending the domains of the company. In the year 1799 he extended his operations to Sitka, a region which had been explored a few years previously by Captain Shields under Baranof's orders. Shields had met there two ships belonging to American traders, who informed him that both English and American vessels frequently obtained cargoes of sea-otter and other skins in that vicinity. Anxious to locate himself at a point where he could communicate with vessels of other nations and purchase supplies of them, Baranof made up his mind to establish himself permanently in the bay of Sitka or Norfolk sound, and proceeded to that locality in the brig Catherine, accompanied by a large fleet of Innuit hunters and their bidarkas. With the assistance of these he secured over 1,500 sea-otter skins within a few weeks, and then began the construction of a fortified trading-post, the site selected for which was distant about 6 miles from the present Sitka. During the winter of 1799 and 1800 his whole force was busy erecting substantial log-houses and a high stockade surrounding them. In the spring of 1800 some American trading-ships made their appearance, and the owners carried on a brisk traffic under the very eyes of Baranof, who at once forwarded dispatches to the administrative council of the company, representing that the government must put a stop to such infractions upon their privileges. The strangers obtained most of their sea-otter skins in exchange for fire-arms, and paid no attention to Baranof's remonstrances. As soon as the Americans had left Baranof returned to Kadiak, where he found the employés of the company in a state bordering on insurrection. There had been disputes between officers of the company and members of the clergy, each declaring himself independent of the other, and the bad feeling had extended even to the ranks of the common laborers. No attention was paid to the orders of the company's agent in charge, and a few bold spirits had already commenced to fit out one of the small vessels of the company for the purpose of leaving for other climes, when Baranof returned and in a few days succeeded in restoring order, punishing the chief offenders with great severity. A man by the name of Larionof made an attempt to assassinate the chief manager, but Baranof seized his assailant's hand, wrenched his weapon from him, and strangled him to death with his own hands.

The loss of the ship Phœnix, which occurred about this time, interfered most seriously with Baranof's plans, as he stood in great need of both goods and men. The garrison he had left at Sitka was a small one, surrounded by numerous hostile tribes. He felt the necessity of re-enforcing his establishment there, while he saw himself powerless to send any succor of supplies or promyshleniks. Rumors of war with England had reached the colony and added to Baranof's perplexities. He set out at once on a round of the several trading establishments to warn the traders and give instructions how to act in case of the appearance of hostile cruisers. During his absence news was received at Kadiak of the destruction of the Sitka settlement by the natives, which disastrous event was the result of a preconcerted plan on the part of all the native tribes inhabiting the neighborhood. On a certain day, when over half of the small garrison was absent from the fortification hunting or fishing, a force of several thousand armed men surrounded the block-house, and, assailing it from all sides at once, soon gained an entrance. All the inmates, including the commander, Medvednikof, were massacred at once, and over 3,000 sea-otter skins were taken from the warehouse. Of the men who were absent at the time of the attack three Russians and five Aleuts succeeded in hiding in the woods until they could communicate with an English vessel anchored in the vicinity. Eighteen women who had been washing clothes in the river were taken and held captives by the Indians. The captain of the English vessel referred to, Barber by name, succeeded in enticing two of the most prominent chiefs on board of his craft and into his cabin. After feasting them at his table and plying them with drink he placed them in irons, and, having quite a battery of guns, was able to make his own terms for the release of his prisoners. These terms were the surrender of the captive women and of 2,000 sea-otter skins. After some hesitation on the part of the savages the conditions were accepted, and Barber sailed at once for Kadiak. Here the captain demanded of Baranof for his men and women a payment of 50,000 rubles for the time spent in rescuing them. With this demand Baranof could not or would not comply, and after many days an agreement was arrived at on the basis of the payment of 10,000 rubles.

Nearly at the same time with the Sitka disaster 180 Aleutian hunters were surprised and massacred at various points in the vicinity, and one party, consisting of nearly 100, perished almost to a man from eating poisonous mussels, in the strait separating Baranof from Chichagof island, which derived its name from this disaster (the Russian name was Pogybshie strait, meaning "destruction" strait, not "peril", as it has been translated by American geographers). Attacks upon hunting parties were made at many other points along the coast inhabited by the Thlinket or Kolosh.

At this time one disaster after another overtook the Russian colonies in America. Three ships loaded with provisions and stores were wrecked on their way from Kamchatka, and the employés of the Russian-American Company were on the verge of starvation, when an American ship arrived at Kadiak from New York, enabling Baranof to purchase a cargo, consisting chiefly of provisions, for 12,000 rubles. A portion of these supplies was at once forwarded to Yakutat and Sitka, while Baranof himself proceeded to Prince William sound to wind up the affairs of the Lebedev and other companies which were still represented by hunting parties in that region. In Prince William sound Baranof met Kuskof, who had been in the vicinity of Yakutat in charge of a hunting party of 300 canoes, and reported that he had repulsed an attack by the natives with considerable loss to the latter. He was still unaware of the disaster that had overtaken the new settlement of Sitka, but as soon as he heard of it from Baranof he proposed that they should both repair to the scene of action at once and inflict punishment upon the hostile Kolosh. The chief manager did not act upon Kuskof's suggestion, chiefly because the only vessel at his command was the Katherine, a schooner of less than 50 tons burden and but poorly provisioned, while Kuskof's hunting party had only just returned from a long voyage along the coast and a series of combats with the warlike Kolosh. Before returning to Kadiak Baranof visited his ship-yard on Prince William island and laid the keels of two more vessels to be employed in cruising along the coast occupied by the Kolosh for the protection of his hunting parties. At Kadiak he found dispatches from Siberia that had been saved from one of the wrecked transports and forwarded by canoes. A change of rulers had taken place in Russia, and Alexander I had succeeded the emperor Paul. The commander at Okhotsk, in making the announcement, forwarded an order to assemble all the natives of Kadiak and the "surrounding countries", in order to inform them of the ascension of the new emperor to the throne and to demand from them the oath of allegiance.

Situated as Baranof then was, almost without provisions and unable to rely upon his few followers of Russian extraction, he thought it unsafe to assemble a large number of natives at his headquarters, where they would easily discover his temporary weakness, and consequently he did not carry out the order from Okhotsk. One of his subordinates, a Mr. Talin, who had been an officer in the navy, but was dismissed for bad conduct, sent a lengthy report on the subject to Irkutsk, making various other charges against Baranof in addition to his apparent disobedience of orders. The complaint was duly forwarded to St. Petersburg and laid before the senate, but that body decided that under the company's charter Baranof was not subject to any orders from the local commander at Okhotsk. An order for the dismissal of Talin was the result of the investigation; but, unfortunately for Baranof, the document was delayed nearly two years in transmittal through Siberia to the Russian colonies, and during all that time Talin succeeded in creating disturbances wherever he was stationed on the American coast.

Shelikhof had petitioned the Russian government some time before his death for permission to employ naval officers on leave of absence as commanders of his trading-vessels, but the request was granted only at the time of the consolidation of the various companies, a clause to that effect being incorporated in the charter of the Russian-American Company; and in the year 1801 two capable officers of the navy, Lieutenants Khvostof and Davidof, received permission to enter the company's service. Up to that time the ships sailing from Okhotsk and Kamchatka were managed by "morekhods", that is, "sea-faring men." This title was applied to anybody who had made a sea voyage, no matter in what capacity; but they were generally hunters or trappers from Siberia who had some slight experience in flat-boat navigation on the rivers. They were entirely ignorant of nautical science and unacquainted with the use of instruments, relying altogether upon land-marks to make their way from Asia to America. The most extraordinary instances of stupidity in managing their vessels are related of some of these so-called navigators. Once out of sight of land they were lost, and compelled to trust to chance in hitting upon the right direction to make the land again. It was the practice to coast along the Kamchatka shore until nearly opposite the Commander islands, and to wait for some clear day when the latter could be sighted; then the crossing was made, and, satisfied with such a brilliant result, the skipper would beach his craft for the remainder of the season, and pass the winter in killing fur-seals and sea-cows and salting down the meat for his further voyage. Late in the following spring, rarely before the month of June, the vessel was launched again and headed at a venture to the nearest islands of the Aleutian chain. If the captain succeeded in finding the land he would proceed along the chain of islands, keeping a short distance to the northward, careful never to lose sight of the mountain peaks. As the trapper captain with his crew of landsmen knew nothing of keeping his craft up to the wind, no progress was made unless the wind was absolutely favorable; and thus another season would pass before Atkha or Oonalashka island was reached, where the craft was hauled up again for the winter. A term of seven years was frequently consumed in making the round trip to the American coast and back again to Kamchatka or Okhotsk, a voyage that at the present time a schooner can accomplish in about three weeks. At least 75 per cent. of all the vessels that sailed upon these voyages from the discovery of the American coast to the beginning of this century suffered wreck, and every one of these disasters could be traced to the ignorance both of captains and sailors.

The arrival at Okhotsk of the two naval officers above referred to forms an epoch in the history of Russian navigation in the north Pacific. They were both young and active and proceeded with great energy in their work of reform, their first voyage from Okhotsk to Kadiak being performed in the unprecedented time of two months, in an old vessel of wretched construction and without a single practical sailor in the crew. From that time forward the company always had numbers of naval officers in their employ, and in a few years their vast shipping interest was managed in the most systematic and economical manner.

In the year 1802 the company, through Count Rezanof, petitioned the emperor for permission to ship supplies to the colonies by sea from St. Petersburg. The request was at once granted, and a number of naval officers were detailed to navigate two vessels of between 400 and 500 tons burden, purchased by the company in London, and named the Neva and the Nadaishda; the former was commanded by Captain Lissiansky, and the latter by Captain Krusenstern. Rezanof himself was ordered to accompany the expedition in the capacity of government inspector of the colonies and special ambassador to Japan, and was also invested by the Russian-American Company with the powers of its plenipotentiary agent in the colonies. He sailed on the Nadaishda and proceeded directly to Kamchatka on his way to Japan, arriving at Petropavlovsk in July, 1804, after a voyage of nearly a year. The Neva arrived at Kadiak at the beginning of the same month. Here learning that Baranof had already left his headquarters for another visit to Sitka, intending to rebuild his settlement and punish the savages, Lissiansky sailed at once for that place, being anxious to assist in the enterprise.

Baranof in the meantime had been delayed at Yakutat, fitting out two small sloops built during the preceding winter. His whole squadron consisted of three vessels, in all considerably under 100 tons burden, with about 40 Russians and several hundred Aleutian hunters, and with this small force he intended to attack the powerful tribes inhabiting the vicinity of Sitka, numbering several thousand warriors; but to his agreeable surprise he found the Neva anchored in the roadstead when he arrived at Sitka. He made a formal demand upon the chiefs for restoration of the furs stolen from the warehouse at the time of the massacre and for the surrender of a number of hostages as security for their future conduct. These demands met with prompt refusal, and hostilities began. A party of promyshleniks, Aleuts, and sailors from the ship, commanded by Baranof, made an attack upon a large fortified inclosure, but were beaten back with some loss; three sailors and eight promyshleniks being killed, and Baranof, Lieutenant Arbuzof, and Midshipman Povalishin wounded. The approach of night prevented further operations, but the following day the ships approached the beach and bombarded the hostile camp. On the next day another attack was made with the same result as before, but during the night following the savages abandoned their fortification and retreated to Chatham strait. With the assistance of Lissiansky and his men a fortification was erected on a steep, rocky eminence, the present site of the so-called castle in Sitka. Around this nucleus quite an extensive village sprang up within a few months, separated from the adjoining Indian village by a high stockade. Twelve cannon were planted at a point commanding the immediate surroundings as well as the entrance to the bay. As soon as Baranof had firmly established himself in his new position Lissiansky left for Kadiak, and there passed the winter; but in the spring he returned, and finally sailed for Canton with a cargo of furs valued at considerably over a million rubles.

Rezanof's mission to Japan proved an utter failure, as, after detention in one of the Japanese sea-ports for ten months, he was coolly informed that he could not see the emperor. He returned to Kamchatka, and from there proceeded to Kadiak and to Sitka in the year 1805. He turned his attention exclusively to the organization of the colonies and to bringing order and system into the affairs of the Russian-American Company, and was the first to put a check to the indiscriminate slaughter of fur-seals on the Pribylof islands. When Rezanof in company with Baranof finally visited Sitka they found the magazines almost empty and famine staring them in the face. At last a ship from Boston made its appearance in Norfolk sound and brought much-needed relief Rezanof bought both ship and cargo and employed the former to bring further assistance. In a few days he was on his way to California, the nearest coast from which grain or flour could be obtained, reaching the bay of San Francisco, after a long and stormy passage, in so wretched a condition that when the Spanish officers visited the ship Rezanof ordered the crew to be kept out of sight, in order to conceal as far as possible from the strangers the extent of their distress. It was against the colonial laws of Spain to hold any intercourse with foreign vessels, but Rezanof, with the assistance of the missionaries, succeeded in overcoming the scruples of the governor, and filled up his ship with grain, tallow, and meat; and after a stay of several months, during which he engaged himself to marry the daughter of the comandánte of San Francisco, he sailed again for Sitka, with the intention of proceeding at once to St. Petersburg by way of Siberia, in order to ask the emperor's consent to his marriage with a foreigner.

Rezanof's visit to California was the beginning of commercial intercourse between the Russian and the Spanish colonies, of vital importance to the former.

The chamberlain had, during his sojourn in San Francisco bay, written to the emperor and to the directors of the Russian-American Company, submitting plans for the extension of the Russian domain and of the operations of the company in the direction of California. He spoke in glowing terms of the natural resources of the latter country, urging the establishment of an agricultural colony on the coast north of San Francisco, then called New Albion, stating, quite truly, that up to that time the Spaniards had no permanent settlement north of the presidio of San Francisco. With singular foresight he considered the fact that among the hunters and trappers in the Russian colonies it would be impossible to find laborers familiar with agricultural pursuits, and therefore suggested that the "patient and industrious Chinese" should be imported to labor on the Russian plantations; which proposal, made in 1806, is certainly the first on record looking to Chinese immigration to the Pacific coast.

Before his departure for St. Petersburg Rezanof laid the foundation of a very important change in the management of the company's affairs. Up to that time all employés had been engaged under the old system of allowing shares in the proceeds to all laborers; but Rezanof understood the inconvenience and injustice arising from such a system as the company's operations increased in magnitude, and he left positive orders with Baranof to introduce the payment of annual salaries to all employés as soon as practicable. On his way to St. Petersburg the chamberlain gave orders for the organization of an expedition, consisting of two ships under command of Lieutenants Kfvastof and Davidof, against Japan, to avenge the slight put upon Rezanof and his embassy. His instructions were only partially carried out by the two officers named, who thereby involved themselves in the most serious difficulties with the Siberian authorities. From Okhotsk Rezanof proceeded overland through Siberia, but was detained at various places by sickness and once by a fall from his horse; and his injuries, aggravated by disease, caused his death at the town of Krasnoyarsk, in Siberia, on the 1st of March, 1807. With him died the most earnest promoter of Russian interests in the north Pacific.

At the time of Rezanof's departure the chief manager reported that the Russian-American Company then possessed the following fortified stations: One at Three Saints harbor, one on Saint Paul island, one on Kadiak island, one off Afognak island, one at the entrance to Cook's inlet (Alexandrovsk), three on the inlet—Saint George, Saint Paul, and Saint Nicholas; and two on Prince William sound, one of them at Nuchek and the other on Sukluk island, Zaïkof bay. In addition to these there was the fort Saint Simeon, near cape Saint Elias; two forts in the bay of Yakutat, and finally New Archangel, in the bay of Sitka. The fortifications were nearly all armed with 3-pounder brass guns. The number of small arms, rifles, and shot-guns in the colonies was about 1,500.

The number of Russian employés was then 470, of which 69 were in the district of Oonalashka. Experiments in agriculture had already been made in nearly every section of the colonies, but without success except in the cultivation of potatoes, turnips, and cabbage. The small breed of Siberian cattle had been successfully introduced at Kadiak.

After the first expedition of the Neva and the Nadaishda the company continued to send supplies and re-enforcements by sea from St. Petersburg. The former ship was fitted out immediately after returning from her first voyage under command of Captain Hagemeister. The presence of naval officers in the colony had led to complications between the chief manager and the former, who were inclined to ignore any suggestions or requests made by a mere "civilian" or "kupetz" (trader). Complaints and charges arising from these difficulties were forwarded to St. Petersburg, and, upon Rezanof's suggestion, the emperor conferred upon Baranof the rank of "commercial councilor", in order to give him a certain official standing. The commission was accompanied with a gold medal and the order of St. Anne of the third class, for distinguished services. Baranof was, of course, highly gratified at his elevation and the recognition of his services by the emperor, but his promotion did not save him from endless disputes with government officers in the colonies; which continued until he left, and embittered his whole after life.

In the meantime the establishment of the Russians on the northwest coast had attracted the attention of American merchants, especially those of Boston, who began to send their ships to Norfolk sound and to Kadiak, laden chiefly with provisions most acceptable to the Russian colonists. In payment for such supplies they accepted fur-seal skins at the rate of $1 25 (Mexican) each; these being subsequently disposed of in the Chinese sea-ports at an immense profit. Others entered into an agreement with Baranof to hunt sea-otters, with native hunters furnished by him, on equal shares. The field of operations for these enterprises was generally the coasts of California and Oregon.

In the year 1811 Baranof at last carried out Rezanof's suggestion and established himself on the coast a short distance north of San Francisco bay. His next in command, Kushkof, was dispatched with a number of men, and succeeded in effecting a lodgment at Bodega, where he obtained a tract of land from the Indians "by purchase". The Indians at the time declared that they were entirely independent of the Spaniards, who had never advanced northward from the presidio of San Francisco. The Spanish crown, as is well known, claimed a title to the whole northwest coast of America by "right of discovery".

At that time Baranof was annually extending his intercourse and joint ventures with the traders from Boston and other American ports. He had close at hand in the seal rookeries of Bering sea an almost inexhaustible treasury, furnishing the means to pay all demands of his foreign friends without making drafts upon the home office at St. Petersburg. When the Kolosh Indians of Yakutat had destroyed the company's settlement at that place Baranof employed the Boston captain, Campbell, with his ship, to intimidate the hostile natives into a surrender of a few captive survivors, and during a single year the company's share in sea-otter expeditions, undertaken in partnership with these Yankee skippers, along the California coast, amounted to 200,000 or 300,000 rubles. In many instances, however, these shrewd "partners" managed to secure to themselves the best of the bargain. Once a Captain Bennett sold his cargo of provisions and stores for fur-seal skins at the rate of $1 each, and then sailed across to Kamchatka and sold the skins to the company's agent at Petropavlovsk at $2 each. These and similar transactions were duly reported to the company's home office, accompanied by demands for the appointment of a successor to Baranof, who was represented as a mere plaything in the hands of the foreign traders, who got into his good graces by wining and dining him in their cabins. The peculiar circumstances attending the attempt of Hunt, the agent of Astor, to negotiate with Baranof have been graphically described by Washington Irving in his sketch of Astoria.

The directors of the Russian-American Company became thoroughly alarmed at the reports of the large sums diverted into foreign channels from their own domains, and instructions were promptly forwarded to Baranof to change his policy. This communication was accompanied by the announcement that another ship, the Suvarof, commanded by Lieutenant Lazarev, was being fitted for a voyage to the Russian colonies. The vessel sailed from Cronstadt on the 8th of October, 1813, and arrived at Sitka November 14, 1814, having been delayed nearly four months in England waiting for a cargo. She had scarcely been moored at her anchorage when disputes arose between her commander and the chief manager of the colonies, the question of relative rank being of course involved, and giving additional bitterness to the contest. Lazarev finally refused point blank to obey Baranof's orders, and sailed from Sitka without final instructions. In his rage Baranof discharged a few of his cannon after the retreating ship, without, however, doing any damage, and Lazarev proceeded to San Francisco, and thence to South American ports, buying up a valuable cargo of the products of the tropical climes, which met with ready sale in Russia. The value of the whole shipment by the Suvarof, including the furs, was estimated at considerably over a million rubles. In his reports to the emperor and to the directors of the Russian-American Company Lazarev reported the doings and character of Baranof to his disadvantage, and arrangements were made at last to select a successor.

A Doctor Scheffer had gone out to the colonies in the capacity of surgeon of the Suvarof, but during that vessel's stay in the harbor of Sitka the doctor had quarreled with the officers, and finally left the ship and placed himself under the protection of Baranof; the latter taking a great fancy to the foreigner, who could boast of great linguistic ability and a general polish acquired in a life of adventure. Through the medium of the Boston skippers messages and presents had been exchanged between Baranof and King Kamehameha of the Sandwich islands. Scheffer seized upon this circumstance to work upon Baranof's ambition, and together, inspired by copious draughts of Sandwich Islands rum, they formed the scheme of colonizing and finally annexing those islands to the Russian empire.

Scheffer was dispatched to the island of Hawaii as diplomatic agent, provided by his ambitious patron with ample means and full powers. He found Kamehameha fully controlled by the English, but, nothing daunted, he proceeded to the island of Kaui, which was then under the rule of King Tomare, and endeavored to incite the latter to throw off his allegiance to Kamehameha and place himself under the protection of the emperor of Russia. With the assistance of quite a large force of Aleutian laborers Scheffer erected buildings and planted gardens and fields, the gift of Tomare, whose wife he had succeeded in curing of intermittent fever. This enterprise was maintained for several years, and, upon Baranof's earnest application, the company's authorities endeavored to enlist the imperial government in its aid. A magnificent gold-embroided uniform, a general's chapeau, and some gold and silver medals were forwarded to Tomare from the court of St. Petersburg, but, fully aware of its weakness at sea, the Russian government refused to go beyond this in support of the company's enterprise. In the meantime English and American intrigue had been active at the court of Kamehameha, who finally took active measures to restore his supremacy over the rebellious Tomare. The latter became alarmed at the non-arrival of Russian re-enforcements promised by Scheffer, and at last compelled him to fly from the islands. Two ships belonging to the company's service had been lost while attempting to convey supplies to the Sandwich Islands settlement, and altogether the enterprise was attended with pecuniary loss of such magnitude as to draw upon Baranof the severest censure of the board of directors.

A life of dissipation, old age, and constant struggles with savages and his own scarcely less savage subordinates, as well as the irritating quarrels with government officers, began to tell upon Baranof's health. Ever since the year 1809, when two promyshleniks, Naplavkof and Popof, had organized a conspiracy to kill Baranof, fit out one of the company's vessels with arms, provisions, and merchandise, and to make their escape to one of the South Sea islands, where they proposed to lead a life of perpetual bliss, the chief manager had given evidence of a broken spirit. The conspiracy was suppressed without bloodshed, one of the members having proved traitor, but its effect upon Baranof's mind could be detected in all his subsequent transactions. Twice the directors of the company had resolved to relieve him; and once, in 1808, they appointed Collegiate Assessor Koch to that position, but he died in Kamchatka before reaching his destination. Seven years later another officer of the civil service, Collegiate Councilor Bornovolokof, was sent out on the ship Neva, but the vessel was wrecked within a short distance of Sitka, and Bornovolokof lost his life. At last, in 1817, Captain Hagemeister was sent to Sitka in the ship Kutuzof, with instructions to relieve Baranof as chief manager of the colonies. He arrived in the same year, but did not introduce himself in his real capacity. He remained at Sitka inspecting and investigating the company's affairs until the 11th of January, 1818, when he suddenly produced his commission and ordered Baranof to turn over his command to him. The shock of this sudden revelation was too great for the old man, who began to fail more rapidly from that day. With the assistance of a few of his former subordinates he arranged his papers and transferred to Hagemeister both movable and immovable property far exceeding in value the amounts called for by the returns of the company. Though millions had passed through his hands he found himself at the age of eighty a poor man. Very much enfeebled in health, he sailed on the ship Kutuzof in the autumn of 1818. For some unexplained reason, Hagemeister, his successor, sailed on the same ship, leaving a Lieutenant Yanovsky in charge of colonial affairs. On the voyage home the Kutuzof was detained for some time at Batavia, and, against the advice of the physician, Baranof insisted upon passing that time on shore, where he was attacked with malarial fever, and with the greatest difficulty was taken on board when the ship was ready to sail. The following day, the 16th of April, 1819, the creator of Russia's domains on the north Pacific breathed his last.

Lieutenant Yanovsky, who had been left in temporary charge of the colonies by Hagemeister, did his best to carry out the wishes of the company concerning a thorough exploration of the territory, and expeditions were sent out by land and sea in various directions, resulting in the discovery and preliminary survey of the coast from Bristol bay westward to the mouth of the Kuskokvim river and Nunivak island. One party of explorers even reached the vicinity of Norton sound, without, however, discovering the Yukon river, the mouth of which must have been passed by the boats of the expedition. Another exploring party proceeded from the mouth of the Nushegak river into the interior, and succeeded in crossing over the mountains and tundras into the valley of the Kuskokvim.

The work of changing the company's system of hiring laborers on shares to the employment of men with fixed salaries was completed by Yanovsky under Hagemeister's direction.

Occasional intercourse was still carried on with the Boston traders, but not on its former scale of magnitude. In 1818 Hagemeister made a contract with a Captain Roquefeuille, who had been fitted out by several merchants of Marseilles for the purpose of opening the northwest coast of America to French trade. Roquefeuille saw at once that he could not compete with the Russian-American Company in opening trade, and therefore made an agreement with the Russian chief manager to hunt sea-otters on shares with the assistance of natives. He received thirty bidarkas (of two men each), under the condition that in case of loss of life or accident during the voyage the French captain was to reimburse the company or the hunters' families, the price of a life being fixed at $100.

Two weeks after leaving Sitka Roquefeuille's ship was attacked by the Hyda Indians inhabiting the southern end of Prince of Wales island. He succeeded in beating them off, but a party of his hunters, consisting of twenty men and three women, who had landed some distance from the ship, were butchered by the savages. Roquefeuille made a few attempts to trade with the natives after this agreement, but his goods were of an inferior character and he failed to secure a single skin. He returned to Sitka, paid for the twenty-three lives lost, and sailed away, and on his arrival at Marseilles convinced his patrons that there was no field for French enterprise in the north Pacific.

The settlement established by Baranof on the coast of California had by no means remained undisturbed. When the Spanish authorities at San Francisco discovered that the Russians had located themselves permanently, they sent an officer with several men with a peremptory demand that the Russians should leave at once a coast claimed by the king of Spain. Kushkof, who was then in command, managed to postpone action in the matter on the plea of having no authority, and in the following year Baranof sent Lieutenant Podushkin to the governor of California with a declaration that the company's colony was located on land purchased of the Indians, and that he could not withdraw it until the courts of St. Petersburg and Madrid had decided the question. At the same time he made proposals for a sea-otter hunt along the California coast on joint account of the Russian-American Company and the California authorities, offering the latter high prices for the skins. The offer was tempting, and, though officially declined, was privately accepted. The Russians remained undisturbed on their farms at Bodega bay, and the coffers of the Spanish officials and missionaries began to fill with the bright dollars received in payment for sea-otters killed by Innuit hunters in Spanish waters. The principal motive of Rezanof in ordering the establishment of this colony had been to secure a depot of breadstuffs for the northern stations, but in this respect the enterprise proved a failure, owing to the very cause foreseen by the chamberlain.

The Siberians and the Aleuts were but indifferent farmers, and would go off on hunting expeditions just at the time when the ground ought to be plowed or the seed put in, and the consequences were short crops and a demand for supplies from Sitka. In cattle-breeding the Arctic farmers met with no better success. Large herds were purchased from the Spaniards, but the Aleut herdsmen were in mortal dread of the huge animals, unlike anything they ever saw at home, and at the least display of unruliness on the part of the cattle they would fly to the station, leaving their trust to the mercy of marauding Indians. Failing in these two objects the manager of the colony began to experiment in ship-building, using the wood of the live-oak and cedar covering the hillsides.

The privileges granted the Russian-American Company by the emperor Paul expired with the year 1820. The business of the company during the preceding twenty years had, on the whole, been very profitable, and the most strenuous efforts were made to get an extension of the privileges for another period of equal length, and owing to the fact that many nobles of high standing, and even members of the imperial family, were shareholders, this object was easily attained. The emperor Alexander I not only extended the old privileges but made some valuable additions to the rights conferred upon the company by the charter, and in the year 1820 the company reported the payment of a biennial dividend to the shareholders amounting to 1,195,495 rubles, while for the years 1816 and 1817 it had been 1,156,950 rubles.

The population of the colonies under full control of the company (exclusive of the independent native tribes) was given at 391 Russians, 444 creoles, and 8,384 natives.

The fleet owned by the company and engaged in traffic in the colonial waters in the year 1820 consisted of one brigantine of 306 tons, three brigs of 200 tons, two schooners of 120 and one of 60 tons; and three sloops, one of 60 and two of 30 tons each. In addition to these the company had purchased five foreign barks and ships for the voyage from St. Petersburg to the colonies, and eight others for service in the colonies.

In the year 1821 Hagemeister was relieved by Mikhaïl Ivanovich Muraviev, who continued the work of organization of the colonies and managed the company's trade. Hagemeister urged removal to the island of Kadiak, which offered a much more pleasant and comfortable place of residence than Sitka, but it would have been necessary to maintain quite a large force at the latter place to keep in check the warlike and unruly Kolosh. Up to the year

1823 the district of Atkha had been attached to the Okhotsk office of the Russian-American Company, but the impracticability of such an arrangement became obvious, and all the Aleutian islands were transferred to the immediate jurisdiction of the chief manager of the colonies, and from that time dates the separate existence and management of Russian America.

The boundary of the Russian possessions was finally settled under Muraviev's administration. The treaty was concluded between Russia and the United States on the 17th of April, 1824, and with England on the 28th of February, 1825, designating Prince of Wales island, in latitude 54° 40′ north, and between longitude 131° and 133° west from Greenwich, as the southern line of the Russian possessions, and as its eastern boundary a line running from the head of Portland canal northward along the summits of the coast range of mountains to a point where it intersects the fifty-sixth degree of latitude; from thence the line running to the Arctic ocean along the one hundred and forty-first meridian. Both English and American traders were allowed to trade for a period of ten years in the waters belonging to the strip of coast up to latitude 56°.

The principal explorations undertaken during this period were made in the northern precincts of Bering sea by two skilled navigators, Etholin and Kromchenko, the former of whom subsequently rose to the rank of chief manager of the colonies. Their surveys are still our best authorities for the coast-line included in their labors. An Arctic expedition had been organized as early as the year 1815, by Count Rumiantzof, at his own expense. He fitted out the brig Rurik, and placed in command Lieutenant Kotzebue, of the navy. The German poet and scientist, Adelbert von Chamisso, accompanied this expedition, which resulted in the discovery and survey of Kotzebue sound and the Arctic coast of America as far as cape Lisburne.

In 1826 Muraviev was relieved by Captain Chistiakof. In this period occurred the exploring-voyage of the sloop of war Seniavin, commanded by Captain Lütke, who subsequently compiled an atlas of the Alaskan coast and islands and published a valuable work describing the country.

The work of christianizing the natives of the Russian colonies had been prosecuted with increased vigor since the renewal of the company's privileges in 1821, and in 1823 the priest Mordovsky arrived at Kadiak with two missionary monks. In 1824 Ivan Veniaminof landed at Oonalashka, and in the following year Yakof Netzvetof took charge of the church at Atkha. Veniaminof especially was instrumental in spreading the teachings of Christianity over a vast extent of country, visiting not only the Aleutian islands, but also the coast of the mainland from Bristol bay westward beyond the Kuskokvim delta, and in the third year from his arrival the Russian church in the colonies numbered 10,561 communicants, of whom 8,532 were natives. All the churches and chapels were erected at the expense of the company. The schools at that time numbered but three, located at Sitka, Kadiak, and Oonalashka.

After a prosperous administration, during which much valuable information concerning the Russian possessions had been obtained by means of numerous exploring expeditions, Chistiakof was relieved, in 1831, by Baron Wrangell. This was the time when the Hudson Bay Company was most active in extending its operations on the Pacific coast, and the two vast monopolies were watching each other with suspicion. The English company made several proposals for mutual agreements looking toward uniformity in the management of their intercourse with Indians, but Wrangell had his instructions to crush the dangerous opposition if possible without proceeding to open rupture. His sloops and schooners patrolled the channels of the Alexander archipelago, with orders to seize all boats belonging to the English. The Hudson Bay Company had stations on the upper course of the Stakhin river, which they were anxious to supply by water, sending ships into the mouth of the river, which was situated in the Russian territory. Wishing to prevent this Wrangell sent Lieutenant Zarenbo in the brig Chichagof to the mouth of the Stakhin river with orders to establish a station. This he did, constructing the Rédoute Saint Dionys on the spot where the present Indian village of Wrangell is located. Several boats of the Hudson Bay Company attempting to enter the river were fired upon and turned back. At last the British traders concluded to make the attempt on a larger scale, and fitted out a bark, the Dryad, commanded by Captain Ogden, with orders to establish a large fort at the head of tide-water on the Stakhin river; but Captain Ogden, finding it impracticable to ascend, returned to Vancouver island and reported his failure. The matter was duly represented to the directors of the Hudson Bay Company in London, who presented a claim for damages against the Russian-American Company, amounting to £21,500, the alleged expenditure incurred by the company in fitting out the Dryad. At this time Baron Wrangell's term of office was about to expire, and he concluded to attend personally to the settlement of this complication. Proceeding to San Francisco in one of the company's vessels, and thence overland through California and Mexico to the capital of that young republic, he endeavored to settle with the authorities a dispute concerning the Russian title to the Ross colony on Bodega bay. Without concluding this business, he hurried on to Hamburg, where he met two commissioners of the Hudson Bay Company, including Sir George Simpson, and an amicable arrangement was quickly agreed upon. The terms of this agreement were as follows:

1. The Hudson Bay Company abandoned all claim to the sum of £21,500, the damages for the detention of the vessel.

2. The piece of coast in the Russian possessions from Lynn canal to the southern boundary was leased to the Hudson Bay Company at an annual rental for a period of ten years dating from the 1st of June, 1840, the Hudson Bay Company to have the exclusive right of trade in the leased territory for the time mentioned, under condition of final surrender of all the buildings and fortifications erected on the lands thus leased.

3. The Hudson Bay Company was obliged to confine its operations to the mainland and not to trade on any island or other portion of the Russian domain.

4. The payment of rental was to be made annually in land-otters, to the number of 2,000 skins, representing at the prices of that time 118,000 rubles.

5. In addition to this payment the Hudson Bay Company bound itself to sell annually to the Russian-American Company 2,000 additional sea-otter skins from the Columbia river, at 23 shillings each, and 3,000 land-otter skins from Hudson bay, at 32 shillings each.

6. The Hudson Bay Company bound itself to furnish the Russian-Americon colony with a certain quantity of provisions, carrying the same on their own vessels at a fixed rate of freight.

7. In case of war the agreement was to be annulled after a notice of three months.

This agreement was approved by both the Russian and the English governments, and the land in question was surrendered to the Hudson Bay Company. The arrangement was advantageous to the Russian-American Company, who theretofore had maintained their establishment on the Stahkin river at a loss, being unable to compete with the rival company in the interior.

In 1836, after Baron Wrangell's departure, Captain Kuprianof assumed the duties of chief manager of the colonies, and turned his attention chiefly to an extension of the company's business in the northern part of the colonial domains, where, under his predecessor's rule, Lieutenant Tebenkof had in 1835 established the Rédoute Saint Michael on Norton sound. He fitted out the brig Polyphene, under command of Captain Kashevarof, for an Arctic exploration, and sailed in July, 1838, succeeding in reaching point Barrow, not with his ship, but by means of bidars, coasting from Kotzebue sound eastward. Kuprianof made several voyages to San Francisco, attending personally to the still unsettled question in regard to the company's California colony, and inaugurating proceedings leading to its final sale a few years later. Toward the end of his administration the missionary Veniaminof was called to Irkutsk and consecrated as bishop of the independent diocese of Russian America, which up to that time had been attached to the episcopal see of Irkutsk, this change involving the erection of a cathedral at Sitka and the subsequent residence of Veniaminof (who on his consecration had assumed the name of Innocentius) at that place. In his new field of labor he devoted himself to the conversion of the savage Kolosh, and, mastering their language, translated several books of the New Testament and some hymns and a catechism. His success in the work of conversion was, however, only temporary, being confined altogether to the time of his presence among them. A seminary for the training of native and creole youths to the priesthood was also established by him, and maintained until the bishop's see was finally transferred to Kamchatka.

While the northern sea-coast was being surveyed by scientific navigators, such as Lieutenants Tebenkof and Rosenberg, the interior of the country was not neglected. Glazunof and Malakhof penetrated into the recesses of the Yukon and the Kuskokvim valleys; the former ascending the Yukon (then called the Kvikhpak) as far as Nulato, and was the first to make the portage between the Yukon and the Kuskokvim in 1836; while the latter proceeded from the rédoute on the Nushegak river to the Kuskokvim, and thence to Nulato, establishing a station which was subsequently destroyed by the savage natives.

The fortification of Saint Michael, established by Tebenkof, was seriously threatened by the natives of Kotzebue sound in the year 1836. The rédoute was surrounded by a large force during the absence of a small detachment consisting of nine men, with the trader Kuprianof; but the latter, observing the movements of the savages, fought his way through their lines with great bravery and rejoined the garrison, and together they succeeded in repelling all attacks.

One of the most remarkable events that occurred under Kuprianof's administration of the Russian possessions was the appearance of a small-pox epidemic extending from 1836 to 1840, inclusive. The disease first made its appearance in Sitka, November, 1836, and though at that time the company had a resident physician, Dr. Blaschke, at that place, all efforts to stay its ravages were in vain. Old and middle-aged people suffered most, attacks in their cases proving nearly always fatal; but among children the mortality was less. The creoles, owing perhaps to their more cleanly mode of life, suffered in a minor degree, but the Kolosh, living in filth and misery, were swept away by whole families, and inside of three months 400 deaths occurred in the native village of Sitka alone. Only one Russian was attacked during that time, and he recovered. In March, 1837, the disease began to die out. Among the inhabitants of the native settlements on the interior channels of the Alexander archipelago the mortality was also very great. As soon as navigation opened a stationed surgeon, Valsky, with three experienced assistants was dispatched to the district of Kadiak with orders to vaccinate the people; but the precaution came too late, the disease having been evidently carried to Kadiak on the same ship which brought the medical assistants. On the island of Kadiak 736 persons died. On the peninsula of Aliaska one of the assistant surgeons vaccinated 243 persons, and in that vicinity only 27 succumbed to the disease.

Dr. Blaschke was dispatched to Oonalashka, where he vaccinated 1,086 natives, and here only 130 died. In the vicinity of the trading-posts on Cook's inlet, Prince William sound, and Bristol bay the natives refused to submit to vaccination, the consequence being that 550 persons were attacked by the disease, of whom over 200 died. The last cases of small-pox in any portion of the Russian colonies were reported in 1840.

About the end of Baron Wrangell's administration it had become evident that the expenses of the Russian-American Company in maintaining their colonies in northwestern America were increasing to an alarming degree, while the income derived from the fur-trade remained stationary, or even decreased in many of its branches. The officers of the company stationed in the colonies reported that one reason for this state of affairs could be found in the fact that hundreds of feeble and superannuated employés were drawing salaries and subsistence without rendering adequate service. These individuals had grown old and lost their health in the employ of the company, and could not well be discharged and thrown upon their own resources; and in order to relieve the company from this burden, to a certain extent, the directors petitioned the government for permission to pension off the useless employés, or to settle them in the most favorable localities as fishermen and tillers of the soil. The proposition was favorably considered by the government, and a ukase was issued on the 2d of April, 1835, empowering the Russian-American Company to locate as permanent settlers such of their employés as had married native or creole women in the colonies, and who, on account of disease or old age, were no longer able to serve the company. Such settlements were to be made only upon written request of the superannuated servants, and the company was obliged to select a piece of ground, build comfortable dwellings, furnish agricultural implements, seed, cattle, and fowls, beside providing the settlers with provisions for one year. These individuals thus located were exempt from taxation and military duty, and a list of their names was to be forwarded annually with the company's report. The children of these settlers could be taken into the company's service upon their own request, at established rates of salary. The company was obliged to purchase all surplus produce of the settlers, and also such furs as they might be able to obtain. The ukase also permitted creoles to enjoy the same privileges after concluding their term of service with the company. The Russian settlers of this class were to be known officially as colonial citizens and the creoles as colonial settlers. As localities best adapted to this purpose the chief manager selected the coast of Cook's inlet, the island of Afognak, and Spruce island.

In 1840 Captain Etholin was appointed chief manager of the colonies, and found himself face to face with serious difficulties in the management of the native population. The small-pox epidemic had carried off a large percentage of the providers of the native families, and, as a consequence, whole families and communities were brought to the verge of starvation. On Kadiak and nearly all of the Aleutian islands it had been the custom of the people to live in small settlements of one or two families each, widely scattered along the coast, and even these small communities wandered frequently from place to place in search of better hunting- and fishing-grounds. In their isolated condition a large number of these small families or village communities found themselves at the end of the small-pox epidemic in a condition of extreme want, and out of reach of assistance from their neighbors. On Kadiak island alone sixty-five village-sites, occupied by a few individuals each, were enumerated. Captain Etholin, acting upon the suggestion of his predecessor, concluded to consolidate the scattered settlements, each hamlet being unable to provide for its own existence, and to establish large villages, each under the management of a competent chief. The chiefs were to be held responsible for the collection of food-supplies at the proper season, and were intrusted with the maintenance of storehouses in which each community deposited surplus provisions in times of plenty, to be issued again in times of want. This measure was energetically carried out, not only at Kadiak, but on the Shumagin and the Aleutian islands, and its effect was very beneficial.

The second term of the Russian-American Company's special privileges expired in 1841, and the directors and shareholders labored assiduously for a new grant of charter for another twenty years. The imperial government took some time to consider the question, but in 1844 a new charter was granted. This document increased the rights and advantages enjoyed by the company, confirmed the establishment of the two classes of colonial citizens and colonial settlers, and enlarged the colonial government by the establishment of a council to consist of the assistant chief manager and two or three naval officers stationed in the colonies, which council was invested with advisory functions only in the management of colonial affairs, but acted in certain emergencies as a court of arbitration between the inhabitants of the colonies and the company's authority.

An extensive exploration of the Yukon and Kuskokvim regions was made under the direction of Etholin. In the month of May, 1842, the brig Okhotsk proceeded to Saint Michael with Lieutenant Zagoskin, of the navy, and five assistants. After fitting out his expedition with provisions, dogs, and canoes Zagoskin made several journeys along the coast of Norton sound, and finally crossed over the hills of the coast range into the valley of the Yukon. On the 15th of January, 1843, the expedition reached Nulato, and from here Zagoskin undertook a journey to Kotzebue sound, but, owing to the desertion of his assistant, failed to accomplish his object and was obliged to return to Nulato. The following spring he constructed a large bidar of six oars, and set out in June upon the journey to the upper river. After advancing more than a hundred miles from Nulato the hostile attitude of the natives obliged him to return to the latter place, whence he made his way to Ikogmute, crossing over the tundras to the Kuskokvim. In the beginning of February, 1844, he established himself at the Rédoute Kalmakovsky, making a thorough exploration of the surrounding country, finally returning to Saint Michael and thence to Sitka.

Zagoskin subsequently published a voluminous journal of his travels in the basins of the Yukon and Kuskokvim.

At the beginning of his administration Captain Etholin concluded arrangements for the sale of the Ross colony on the coast of California. The imperial permission for this transfer had been obtained some years previously by the directors of the company, who had become convinced that the enterprise had not resulted in any pecuniary advantage. During the occupation of the settlement ten vessels (brigs and schooners) had been constructed of timber cut in the immediate vicinity. The records show that not one of these vessels proved seaworthy for more than six years after construction; but whether this was due to the incapacity of the builders or to the fact that the timber had not been seasoned, it is impossible to decide. There was no lack of skilled mechanics in the settlement, as we have evidence of much work performed by the Russians for their unskilled neighbors in San Francisco bay, where sailing- and row-boats were built for the Mexican authorities and private individuals, and even one buggy for the use of a missionary; but having failed in its principal object of creating a never-failing supply of breadstuffs for the northern stations, the company finally sold the land, with all buildings and live stock, to a native of Switzerland, named Sutter.

Etholin also displayed great energy in establishing new schools and enlarging those already in operation in the various districts of the colonies. Under the active superintendence of his wife a home was founded in Sitka, in which the creole girls were educated, instructed in household duties and female handicraft, and finally provided with a small dowry and married to officers and employés of the company.

The clause in the company's charter requiring that the chief manager should be selected from officers of the navy had an unfortunate effect upon business. After Baranof's departure not a single practical merchant or business man had the management of colonial affairs, and the consequence was that the dividends diminished every year, while at the same time, according to the official reports to the directors and to the imperial government, the colonies seemed to be flourishing and developing rapidly. Each succeeding chief manager seemed to think only of making the greatest display of continued explorations, erection of buildings, construction of ships of all sizes, and the establishment of industries and manufactories. The ship-yard at Sitka was as complete as any similar establishment in the Russian empire, being provided with all kinds of workshops and magazines, even having brass- and iron-founderies, machine-shops, and nautical-instrument makers. Experiments were made in the manufacture of bricks, wooden ware, and even woolen stuffs of material imported from California. For all these enterprises the skilled labor had to be imported from Russia at great expense, and this circumstance alone will explain the failure attending the attempts. Vast sums were also wasted in endeavors to extract the iron from a very inferior grade of ore found in various sections of the country. The only real advantage the company ever reaped from its many workshops at Sitka was the manufacture of agricultural implements for the ignorant and indolent rancheros of California, thousands of plowshares of the very primitive pattern in use in those countries being made at Sitka for the California and Mexican markets. Axes, hatchets, spades, and hoes were also turned out by the industrious workmen of the Sitka ship-yard, while the foundery was for some time engaged in casting bells for the Catholic missions on the Pacific coast. Many of these bells are still in existence and bear witness to the early, though perhaps abnormal, industrial development on our northern coast.

Etholin was in 1845 relieved by Captain, subsequently Admiral, Tebenkof, to whom we owe the best atlas of the coast of Alaska ever published. The hydrographic notes were very copious and correct, and nearly all subsequent charts and maps have been based upon his surveys. He brought the colonial fleet into a high state of effectiveness, but of the fur-trade he knew no more than his immediate predecessors, and, as a consequence, the shares of the company continued to decline in value. Toward the end of his administration the discovery of gold in California occasioned a sudden revival of business, as for a brief time the Russian possessions in North America were the nearest depot of supplies. A few cargoes of shop-worn, unsalable goods that had blocked up the warehouses of the company for decades were disposed of at San Francisco at immense profit, and a lucrative trade was inaugurated in salt fish and lumber. An attempt was also made by the company to engage in mining in California on its own account, an official with a force of Aleutian laborers being sent to the mines, where he took up a claim, but after obtaining a few ounces of the precious metal his Aleutians left him to take up claims of their own. Finding themselves baffled in this enterprise the directors of the company dispatched an experienced mining engineer, a graduate of the college of mines in St. Petersburg, to Sitka, with orders to prospect for precious minerals in the colonies. This man, Lieutenant Doroshin, began his explorations in 1849. He discovered gold in the vicinity of Cook's inlet and collected several ounces in dust, but this was the result of the labor of forty men for nearly a year at great expense; and upon the recommendation of Doroshin these experiments were abandoned.

The existence of coal in the southern portion of the Kenai peninsula had been known for many years, and occasionally a small quantity of the mineral had been extracted for use in the Sitka ship-yard and on the tug-boats and small steamers of the company. The discovery of gold in California, however, gave a new impetus to this industry. Experienced miners and engineers were imported from Russia and Germany, and a large force of men was employed in opening the coal-veins at English bay, or Graham's harbor.

The prosecution of this enterprise required a large amount of capital, which the shareholders of the Russian-American Company were unwilling or unable to furnish, but by this time the development of California had created a demand for coal, and it was not difficult to find men willing to engage in such a venture at San Francisco. A company was formed, consisting of several American merchants of San Francisco and the Russian-American Company, represented by their resident agent in San Francisco, Mr. Kostrometinof. Arrangements were made for the shipment of machinery, pump and hoisting-works, from the eastern states, the Russian-American Company furnishing the necessary capital for preliminary expenses. The San Francisco partners of the new firm, which was subsequently named the American-Russian Company, suggested that shipments of ice from Alaska to San Francisco be included in the operations of the firm, and the Russian company began the construction of ice-houses and wharves at Sitka, and subsequently on Wood island, near Kadiak.

In the spring of 1851 Lieutenant Barnard, a member of Captain Collinson's Franklin Search expedition, proceeded to Nulato in search of information with regard to the fate of Sir John Franklin, and having traced certain rumors of the presence of white men in the far interior to the Koyukuk tribe, he expressed his determination to send for the principal chief of that tribe, who was then participating in the celebration of an annual festival about twenty-five miles from Nulato. The chief in question was the most wealthy and influential in the whole region, and, being possessed of an exaggerated opinion of his own importance, took offense at the English officer's expression. The Russian traders who had lived for years at the isolated station of Nulato, and were much at the mercy of the surrounding warlike tribes, had always respectfully invited him to the fort whenever they desired his presence. His Indian pride rose at the insult, and a council of warriors was called; the shamans were also consulted, and it was finally concluded that all the Indians assembled should proceed to Nulato and demand satisfaction for the alleged insult. At this time a Russian employé of the company, accompanied by one man, arrived on the spot, having been instructed to induce the chief to meet Lieutenant Barnard at Nulato. As soon as his errand was known the man was doomed, and he was approached from behind while seated on his sled and instantly killed with a lance. The Indian companion of the murdered trader was also killed. Immediately after committing this crime the warriors prepared for action and set out for Nulato. Only half a mile from the trading-post was situated the native village of that name, containing about one hundred people. The Indian slain by the Koyukuks belonged to this village, and, in order to forestall retaliation, the invaders surprised the inmates in their houses, killing all with the exception of a few women and children. This was done so quietly that the Russians and their visitor at the station were not aroused. When the blood-thirsty savages finally reached the stockade they found the commander, Deriabin, who had just arisen, sitting behind one of the houses. He was approached stealthily from behind and stabbed in the back, dying immediately, without giving the alarm, and over his body the party entered the house where Lieutenant Barnard was reading. At the sight of the infuriated Indians the English officer seized a gun and fired twice without hitting any one, and a notorious shaman, named Larion by the Russians, then stabbed the lieutenant in the abdomen, inflicting a mortal wound. The Indians next turned their attention to the barracks, where the laborers lived with their native wives, but a few shots fired by the besieged induced them to retreat with the prisoners made in the village. The murderous shaman had been wounded in the melee, but managed to make his escape, and lived until a few years ago, both feared and hated by whites and Indians, committing many horrible crimes and frequently inciting others to murder. Lieutenant Barnard was buried within a few yards of the stockade of Nulato, and a cross was erected over his grave by Surgeon Adams, royal navy, with the inscription: "Lieutenant J. J. Barnard, of Her Majesty's Enterprise, killed February 16, 1851, by the Koyukuk Indians.—F. A." The cross has since been painted at various times by traders stationed at Nulato, and the inscription has disappeared. When I visited the spot in the summer of 1880 the simple monument was still standing, with a new coat of sky-blue paint, and to the right and left were two other graves of victims of murderous Indians in the vicinity.

In 1851 Tebenkof was relieved by Captain Rosenberg as chief manager of the colony. The latter continued to carry out the terms of the company's agreement with its San Francisco partners in the coal and ice business, but a suspension of all traffic was threatened by the outbreak of the Crimean war, involving the danger of an attack upon the Russian colonies by English cruisers. As soon as war was declared the representatives of the Russian-American Company and the Hudson Bay Company met in London and drew up a mutual agreement of neutrality as long as the war should last; no armed vessel and no land force larger than was needed for the purpose of local protection was to be maintained in either colony, and intercolonial traffic was to be carried on as usual, with one exception, this concerning the piece of land rented by the Hudson Bay Company from its Russian neighbors. The rental for this was commuted from 2,000 land-otter skins to a fixed sum of 1,500 pounds sterling per annum. The Hudson Bay Company was also temporarily released from its obligation to ship provisions to Sitka on its vessels.

The Russian possessions on the northwest coast of America remained undisturbed throughout the war, though a few ships of the company were captured by English cruisers; one of them, the Sitka, falling into the enemy's hands at the end of a successful voyage around the globe, having escaped the notice of all the English squadrons then scouring the oceans, until in the vicinity of the Kamchatka coast she was hailed by a frigate and obliged to surrender. On the Asiatic coast several encounters took place between the Russians and the allied fleet, among them the famous unsuccessful attack of the joint French and English squadrons upon the harbor of Petropavlovsk.

Rosenberg, whose transactions as chief manager were confined within very narrow limits by the war, was relieved in 1854 by Captain Voievodsky, under whose administration the lease of the territory to the Hudson Bay Company was again extended for ten years, upon terms similar to those of the first agreement. In the year 1855 the Kolosh Indians located in the immediate vicinity of Sitka gave evidence of an unruly spirit, and toward the end of the year two savages, who were prevented from stealing wood by a sentry, wounded him with a spear. The chief manager demanded a surrender of the guilty parties, but this demand was met with threats. A few shots were fired from a cannon over the village, but the only effect was a swarming of armed warriors from all the huts and hovels, who rushed upon the fortified inclosure of the settlement and began to cut down the palisade with axes. Fire was then opened upon the savages by all the batteries and block-houses, and was rapidly returned by the savages. The latter obtained possession of a chapel built of stout logs for the accommodation of the natives and converted it into a stronghold from which they could command with rifles nearly all the Russian batteries. During the first day they did considerable execution in picking off officers and men as they hurried to their stations; but on the following day a regular bombardment of the native village took place, and after two hours the Indians ceased firing, declaring themselves willing to treat. The most profuse professions of friendship for the Russians were made by the savages and good behavior promised for all future time, and after the assailants of the sentry had been surrendered for punishment Voievodsky agreed to pardon the attack. During the action 2 Russians were killed and 19 wounded, the Kolosh losing 60 in killed and wounded. A report of the transaction to the imperial government resulted in an expression of thanks by the emperor to Captain Voievodsky.

Lieutenant Baranof, of the Siberian line battalion stationed at Sitka, who had been wounded, received the order of Saint Anne of the fourth class; and one gold and four silver medals, with the inscription "for bravery", were bestowed upon soldiers who had distinguished themselves on the occasion.

The American whalers frequenting Bering sea previous to entering the Arctic through Bering strait had frequently been the object of complaint to the Russian government by the Russian-American Company. It was claimed that these whalers made a practice of landing on the Aleutian islands to try out blubber, and that the offensive smoke and stench resulting from this operation had the effect of driving away the precious sea-otter from the coast. In 1842 Chief Manager Etholin reported that in his tour of inspection throughout the colonies he had encountered several American whalers close inland, but that they refused to answer his questions or to obey his orders to leave the Russian waters. Some of the whalers learned that in 1841 fifty ships from New Bedford and Boston had been in the vicinity, and that they had succeeded in capturing from ten to fifteen whales each. From 1842 these complaints concerning the whalers were renewed every year, and during Tebenkof's administration he proposed to the company to go into the whaling business in the waters of Bering sea and the north Pacific as the best means of keeping out foreigners. His plan was to hunt whales in boats only from the harbors of the Aleutian islands, and to engage at first a number of American harpooners and steersmen until they and the Aleutians had been sufficiently trained to do the work.

Under the terms of the treaty with England and America no vessel of either of those two nations was allowed to hunt or fish within 3 marine leagues of the shore; but as there was no armed government craft in the colonies the provisions of the treaty were totally disregarded by the whalers, until at last the company proposed to the imperial government that if a cruiser were sent out from Russia to guard the colonial coast against intruders the company would bear the expenses of such a vessel. The emperor agreed to the proposal, and gave orders to the naval authorities to prepare estimates as to cost and expenditure. In reply a report was received stating that the sum of 270,000 rubles was required to fit out the ship for the cruise, and 85,000 rubles annually for its maintenance. This sum the company found itself unable to pay and the project fell through. At last, in 1850, the corvette Olivitza was ordered to the sea of Okhotsk, and did some service in keeping foreign whalers out of that sea and breaking up their principal station near the Shanta islands. In the meantime Tebenkof's suggestions concerning the fostering of Russian whaling interests in the Pacific had borne some fruit; a few of the shareholders of the Russian-American Company, together with some ship-owners in Finland, concluding to fit out whaling ships in Finland or at Cronstadt, and send them around into the waters of Bering sea and the Arctic beyond the straits.

A capital of 100,000 rubles was quickly contributed, and active operations began as early as 1849. By order of the emperor a sum of 20,000 rubles was appropriated from the special fund of the province of Finland to aid in the construction of the first whaling ship, and a sum of 10,000 rubles to be paid the company for the construction of each succeeding ship of the same class. The company also obtained the privilege of importing free of duty all the material necessary for building and fitting out the first twelve ships, and to carry on the business without payment of duties for a period of 12 years. The name of this branch company was "The Russian-Finland Whaling Company", and its charter was approved on the 13th of December, 1850.

The first ship, the Suomi, of 500 tons, was burned in the port of Åbo, Finland, in the year 1851. The command of the vessel was intrusted to a German captain, Hagshagen; and a crew of thirty-six men was engaged, which consisted principally of foreigners, among them three steersmen, three harpooners, and three coopers. The whale-boats had been imported from New Bedford. The cruise of the Suomi in the Okhotsk sea in the year 1852-'53 was very successful, the catch being 1,500 barrels of oil and 21,400 pounds of whalebone; the cargo was sold on the Sandwich islands, realizing 88,000 rubles, a sum that covered the price of constructing the vessel and fitting it out, and left a clear profit of 13,000 rubles. Unfortunately the war with England and France broke out about that time and interfered with further operations in this line.

The Suomi had sailed for home before the news of the war reached the Sandwich islands, and consequently knew nothing of the circumstances when she made the first port on the English coast. The pilot came off and, strange to say, warned the captain of his danger and gave him an opportunity to make his escape to Bremen. The presence of French and English cruisers in the channel made it necessary to sell the ship at Bremen for the comparatively small sum of 21,000 rubles.

The second whale-ship dispatched by the new company was the Turko, which left for the Okhotsk sea in 1852, having been fitted out altogether at Åbo. The captain was a German by the name of Schäle, and the crew consisted of twenty-five Finlanders, many of whom had served on American whaling-voyages. A cargo of goods for the Russian-American Company was also forwarded on this ship; but by various disasters the vessel was delayed and did not arrive at Sitka until late in 1853. Shortly before reaching port a few whales were killed, 150 barrels of oil and 650 pounds of whalebone being secured.

Early in the following spring the ship proceeded to sea under command of the first mate, Sederblom, the captain being disabled by disease. The voyage was very successful, resulting in a catch of 1,700 barrels of oil and 23,000 pounds of whalebone.

During the siege by the Anglo-French fleet the Turko was in the harbor of Petropavlovsk, but succeeded in making her escape, discharging her valuable cargo at Kadiak for safe-keeping, and finally reached Sitka, where she remained safely until the end of the war.

The third whale-ship dispatched to the north Pacific from Finland was the Aian, 540 tons. She was commanded by a Finlander, Captain Enderg, and reached the sea of Okhotsk in 1854. The catch during the first year was not great, and in the spring of 1855 the naval commander of Kamchatka ordered the captain to land his cargo and to transport the families of officers and soldiers from Petropavlovsk to the Amoor, and during this voyage the ship was captured by an English frigate and burned. At the end of the war the whaling company discovered that, though no actual loss had been incurred, the profits of the business were not what they had expected, and the subsequent operations do not seem to have been pushed with energy or vigor.

A few more ships were fitted out, but as soon as they returned with their cargoes of oil and bone they were sold for whatever price they would bring. It was perhaps unfortunate for the interests of the Russian whaling industry in the north Pacific that the company engaged in the business was so closely connected with the Russian-American Company, which was then becoming more deeply embarrassed every year.

Under Captain Voievodsky's administration the affairs of the Russian-American colonies were managed very much in the same way as under his predecessors—with the same extravagant display of colonial government and useless experiments in mining, agriculture, and ship-building which characterized the five years immediately preceding the expiration of the third term of the company's privileges. The corporation was deeply in debt, and, though desirous of continuing the business, endeavored to transfer to the government the expense of maintaining its authority in the colonies. The imperial cabinet was both unwilling and unable to accede to the proposition, as the country had just emerged from a disastrous and expensive war, and thus the grant of another charter was postponed from year to year. In the meantime several government officers were intrusted with a thorough inspection of the condition of the colonies and the company's affairs. Private Councilor Kostlivtzof and Captain Golovin compiled voluminous reports on the subject, and committees of the imperial senate and ministerium of commerce deliberated upon the vexed questions for years. Their reports were very conflicting, and it seemed next to impossible to reconcile the interests of both the government and the company by any arrangement the various committees could devise.

Voievodsky had been relieved in 1859 by Captain Furuhelm, but the company refused to select a successor to the latter until the new charter should be granted. In the meantime the first negotiations for a sale of the Russian possessions on the American coast were inaugurated privately in the year 1864. It is said that the first offer was made to England, although the American government was approached on the subject early in 1864; but the matter was temporarily dropped on account of the civil war then raging.

With the establishment of peace in the United States the subject was taken up again by the Russian ambassador and Secretary Seward. San Francisco merchants, among them the members of the American-Russian (so-called) Ice Company, were among the most active promoters of this scheme, the latter firm expecting to succeed the Russian-American Company in their fur-trade and other branches of business. Upon the refusal of the company to appoint a new chief manager the emperor of Russia had sent out Prince Maksutof, a naval officer of Tartar extraction, who administered the colonies under the title of military governor. He was, however, subsequently invested by the American-Russian Company with the powers of a plenipotentiary agent, and finally assumed the whole management of its affairs in winding up the general business and transferring its property.

In 1865 the managers of the Western Union Telegraph Company conceived a plan for constructing a line of telegraph to connect the new world and the old by means of a cable via Bering strait. The project was first directed by Mr. P. McD. Collins, who obtained the necessary charters from the British and Russian governments. Colonel Bulkley, of the United States army, was appointed chief engineer of the enterprise, and, after making arrangements for work in British Columbia, went to Sitka in the United States steamer Shubrick, which had been placed at the service of the Western Union Company by the government. Here Colonel Bulkley found his advent quite unexpected, but the governor, Prince Maksutof, expressed readiness to afford every assistance in his power, giving the assurance that the natives would be friendly to the enterprise if properly approached. Some of the Thlinket chiefs were then at Sitka, but Maksutof thought it best to defer negotiations, probably because he had no instructions from his government. During the same year, in the month of July, an exploring party of the telegraph company, commanded by Robert Kennicott, was landed at Saint Michael, Norton sound, by the bark

Golden Gate, belonging to the Western Union Telegraph Company. The party was provided with a small stern-wheel steamer, the Wilder. Mr. Kennicott had previously explored the headwaters of the Yukon in connection with a journey through British North America, but the other members of the expedition were new to the country, though they have since become most intimately connected with scientific and mercantile enterprises in the territory. Among them may be mentioned Mr. Ketcham, Mr. Whimper (artist), Mr. William H. Dall, Mr. F. M. Smith, and Mr. Francis, the engineer of the little steamer. Preparatory arrangements for the work of constructing a telegraph line began at once, with the assistance of Stephanof, who was then the Russian commander at Saint Michael.

During the winter a portion of the telegraph party proceeded up the Yukon river and located at Nulato. The winter was passed in active explorations, but the approach of spring was marked by a sad calamity: the talented and energetic director of the Western Union scientific corps, Robert Kennicott, was found dead on the bank of the river on the 13th of May, 1866. On the day before he had saved the life of a Russian whose canoe had been caught between cakes of ice. In the morning he was missing at breakfast, and his friends, becoming alarmed, searched and found him lying dead about half a mile from the fort, an open compass lying near him, and figures in the sand showed that he was making a calculation at the moment of his death. He had been suffering from heart disease, aggravated by exposure and anxiety.

Mr. William H. Dall was subsequently appointed Kennicott's successor, and the explorations were continued by him alone. The completion of the transatlantic cable put an end to the enterprise as far as the Western Union Company was concerned, and all its various detachments already in the field in the wilds of Alaska and Siberia were recalled at once.

In the same year (1866) the legislature of Washington territory forwarded a petition to Washington requesting the United States government to obtain from the emperor of Russia such rights and privileges as would enable American fishing-vessels to visit the ports and harbors of the Russian possessions. As negotiations for the purchase of the territory were already in progress no further notice was taken of this special request.

Early in 1867 a surveying party, under command of Professor George Davidson, United States coast survey, was dispatched from San Francisco by the United States steamer Lincoln, arriving at Sitka August 11 and returning late in November.

After long debates in Congress, both in the Senate and House of Representatives, still fresh in our memory, the treaty with Russia for the cession of the present territory of Alaska to the United States was finally passed and the necessary appropriation of $7,200,000 made. The opposition to the measure was strong and fierce, and its success was almost wholly due to the efforts of Secretary Seward and Senator Sumner.

In the month of May, 1867, the treaty was signed, and on the 18th of October of the same year the ceremony of final transfer of the territory took place at Sitka. Both American and Russian troops were drawn up in line, General Rousseau acting as commissioner for the United States, Prince Maksutof occupying the same position for the Russian government. With the roll of drums and the discharge of musketry the imperial eagle of Russia descended and the stars and stripes rose into the murky atmosphere of an Alaskan autumn day. The Princess Maksutof wept at the spectacle, and all nature seemed to keep her company, drenching to the skin all the participants in the ceremony. The native Indians in their canoes witnessed it from a distance, listening stolidly to the booming of cannon and gazing with indifference upon the descending and ascending flags. Of the nature of the proceedings they had a faint and imperfect conception, but one thing they did realize—that the country they once imagined their own was now being transferred to a strange people by what must have appeared to them a singular ceremony.

The new acquisition was looked upon as an "Indian country", and a military commander was placed in charge, General Jefferson C. Davis being appointed commander of the new department, with headquarters at Sitka. The garrison consisted of one company of artillery and one company of infantry, numbering together perhaps 250 men.

A number of business men had accompanied or preceded the commissioners of the two governments, and the American flag was scarcely floating from the top of the flag-staff before new shops were opened, vacant lots covered with the frame-work of shanties, and negotiations entered into for the purchase of houses, furs, and other property of the old Russian company, and in less than a week new stores had been erected, and two ten-pin alleys, two drinking saloons, and a restaurant were opened.

Sitka, the town that for two-thirds of a century had known nothing beyond the dull, unchanging routine of labor, and a scanty supply of necessaries at prices fixed by a corporate body 8,000 or 10,000 miles away, was profoundly startled even by this small ripple of innovation. To the new American domain flocked a herd of men of all sorts and conditions, Alaskan pioneers and squatters, and aspirants for political honors and emoluments in the new territory. Before the first sunset gun was fired pre-emption stakes dotted the ground, and the air was full of rumors of framing a "city charter", creating laws and remunerative offices; and it was not long before an election was held for town officers, at which over 100 votes were polled for nearly as many candidates. The Russian population looked with wonder upon this new activity. The families of the higher officials, as well as those of the farmer and laboring classes, opened their houses to the new-comers with true Russian hospitality; but unfortunately they did not discriminate, treating officers, merchants, and soldiers alike, and in many instances their kindness was shamefully abused. Robberies and assaults were the order of the day, or rather of the night, until the peaceable inhabitants were compelled to lock their doors at nightfall, not daring to move about until the bugles sounded in the morning.

A number of representatives of wealthy firms and corporations had started upon a race from San Francisco or the Sandwich islands to secure the property and good-will of the Russian-American Company. Mr. H. M. Hutchinson, representative of the firm of Hutchinson, Kohl & Co., was the successful competitor, he having completed his bargain with Prince Maksutof even before the agent of the American-Russian or Ice Company, the previous partners of the Russians, had been able to present his claims.

The Russian-American Company was allowed two years in which to settle its affairs and to transport all the Russian subjects who wished to return. For this purpose all its employés distributed through the territory were collected at Sitka, and from the time of the transfer to 1869 nearly 1,000 of them were living there; and to these between $40,000 and $50,000 were paid every month as salaries, which, being regularly spent before the next pay-day, made business decidedly brisk. In addition to these Russians there were two companies of soldiers and a few hundred American and other traders, while a man-of-war and a revenue-cutter were always in the harbor, yielding a golden harvest to business men and saloon-keepers. At this time high hopes of Alaska's future prosperity were entertained. The Western Union Telegraph enterprise, before its abandonment, had pushed its wires to British Columbia, to fort Stager, on the Skeena river, in latitude 53°, 30′. This brought the telegraph within 350 miles of Sitka, but at present the nearest telegraph office is at Victoria, Vancouver's island, 900 miles away.

Difficulties with the Indians in southeastern Alaska began at an early day under the new government. The last acts of hostility committed by the Kolosh of that vicinity had occurred in 1864, when an English vessel called the Royal Charlie was boarded by the Kekh Indians and the entire crew slaughtered. The Russian authorities took no notice of the affair whatever, because the English craft had no right to trade in those waters, and the offenders remained unpunished.

In December, 1867, the first trouble occurred at Sitka. A sentry of the garrison observed some Indians after nightfall with a light in the vicinity of the powder-magazine, and, hailing them without receiving an answer, he fired, wounding one of the number. The remainder decamped, but the next day a demand was made by the chief for compensation for the injuries sustained by the wounded man. General Davis refused to comply with the request, whereupon the chief returned to the village and hoisted the English flag. Davis sent a messenger to notify the chief that if the foreign flag was not removed by daylight on the following day he would bombard the village; and when day dawned the rays of the sun illuminated the stars and stripes in place of the cross of Saint George, but the Indians were surly for some time after the occurrence, threatening an outbreak occasionally.

As early as the 1st of March, 1868, a newspaper appeared in San Francisco under the name of the *Alaska Herald.* It was published by a runaway monk of the Greek church, who had never seen Alaska, but who imagined that he was called upon to declare himself a champion of the former Russian possessions. A few columns of this sheet were published in the Russian language, and the most absurd proclamations addressed to the people of Alaska were circulated among its readers, and for some time its publisher succeeded in sowing the seeds of discord and dissatisfaction among the new Russian-speaking citizens of the United States by telling them that as Americans they were all entitled at once to 160 acres of land, and that they must not labor for less compensation than $5 a day in gold, declaring with the greatest effrontery that the Constitution of the United States so provided.

In the meantime military garrisons were dispatched to other points in the territory and located among peaceable tribes, where even the first discoverers had never found it necessary to make a display of force. A battery of artillery was stationed on the island of Kadiak, and another command from the same regiment sailed from Washington territory in June, 1868, to establish a military post on Cook's inlet. The spot to be selected had not been definitely indicated on the charts, and while attempting to find the proper place a ship was wrecked upon a rock on July 16, at the mouth of what is now called English bay or Graham's harbor; no lives were lost, but nothing else was saved. After suffering much hardship the wrecked soldiers were rescued in the month of August by the steamer Fideliter and taken to Kadiak. For many years following the natives of the vicinity had ample supplies of military clothing, rifles, and other stores cast up by the sea.

The first American vessel that visited the seal islands was owned by the firm of Williams & Haven, of New London. The agent and commander landed on Saint Paul island on the 13th of April, 1868, and on the 2d of September sailed for the Sandwich islands with a rich cargo of seal-skins. Disputes arose between this party and the agent of the successors to the Russian-American Company, and the government found it necessary to station treasury agents on the island to preserve order and prevent, if possible, an indiscriminate slaughter of seals.

In February, 1868, the first detachment of Russians homeward bound left Sitka, numbering 200, on the ship Tsaritza.

The Indians of the upper Yukon river and in the vicinity of Nulato gave indications of hostile spirit at the beginning of the year 1868. The epidemic pneumonia was prevalent among them, and their shamans declared to the people that the disease had been imported and spread by the white men. The Rédoute Nulato had previously been the scene of bloody encounters, as in 1851, when Lieutenant Barnard, royal navy, one of the members of the Franklin Search expedition, was killed, as before described. Several murders occurred among these Indians during the first year of American possession, but the white traders were not attacked, though frequently threatened. In the meantime the military authorities at Sitka continued to have difficulty in the immediate vicinity. It is the time-honored custom of the Thlinket to demand payment in money or goods for the death or injury of a member of the tribe, and failing to receive the desired equivalent they retaliate with violence.

On the 1st of January, 1869, the chief of the Chilkhat tribe was on a visit to Sitka with sixty or seventy of his warriors, and paid his respects to General Davis, who made him a present of a few bottles of whisky. The American commander had adopted from the Russians the rule of allowing no Indian inside of the palisades surrounding the settlement between sunset and sunrise. On that day the visitors began to feel the influence of the whisky, and both the Sitka and the Chilkhat chiefs refused to retire, and snatched the gun from the sentry who endeavored to enforce the order. The Sitka chief was immediately arrested, but on attempting to seize the other chief the soldiers were met by an armed body of Indians, and in the mêlée the Sitka chief was knocked down and one of the soldiers was wounded, when both parties retreated. On the following morning the Sitkans came to the fort with a flag of truce, requesting an audience with General Davis, declaring that they desired peace and protection. A messenger was sent to demand the immediate surrender of the Chilkhat chief, and, when he refused to come, orders were given to shell the house in which he was staying. The troops were all under arms, guns double shotted, and citizens prepared for defense. The vessels of war in the harbor had orders to prevent the escape of Indians from the village, but during the following forenoon several canoes put off from the beach and were fired into from the Saginaw. One canoe was sunk and three of the inmates killed, one belonging to the Sitka, one to the Chilkhat, and one to the Kehk tribe. Obtaining no payment, the Kehks killed two white men, prospectors, who had ventured into their country. At the same time a small schooner, the Louisa Downs, was wrecked in one of the interior channels, and it was reported that the whole crew had been massacred. General Davis placed a company of troops on board of the United States steamer Saginaw and started from Sitka on the 11th of February. The first village was found to be deserted by all the inhabitants with the exception of one squaw, and the houses were laid in ashes and everything of value destroyed. Subsequently two other villages were found alike deserted and were treated in a similar manner. Not a hostile warrior was seen. Some time later it was discovered that the shipwrecked crew had not been killed, but rescued by these savages and treated kindly. The return to Sitka was delayed only through fear of the natives caused by the bloodless campaign narrated above.

In the month of July of the same year the Chilkhat Indians, who had still a life to their credit on account of the trouble in Sitka in the month of January, boarded a small trading-vessel and demanded a life or money. A written guarantee for the settlement of the claim was given and the matter reported to the commanding officer at Sitka, who, however, refused to have anything to do with it. Upon this the trader who had given the security paid the claim, thus securing peace to the country, and after this the Indians submitted to the general's demands.

On the 29th of April, 1869, the first number of the Sitka *Times* was published at Sitka, by T. G. Murphy, who combined the avocations of tailor, lawyer, and editor. The little sheet was the organ of an aspirant for gubernatorial honors, through whose efforts the city government was organized in Sitka, with W. S. Dodge as mayor. The new government labored under difficulties, being confronted at every step with military orders threatening arrest and confinement in the guard-house. A truce between the contending powers was observed during the visit of Secretary Seward, in the month of July, 1869, who came to view the purchase so intimately connected with his name. Congratulatory speeches were exchanged between Mr. Seward, the military commander, and the "mayor and the board of aldermen". But the Russian church was robbed of some richly-jeweled paraphernalia of worship, and minor thefts were of common occurrence. Among the officers wordy disputes were frequent, and one duel was fought with fatal result.

General Thomas, who was then in command of the military division of the Pacific, made a tour of inspection throughout the territory, and after careful investigation of the state of affairs deemed it wise to abandon all military posts in Alaska with the exception of that at Sitka.

The year was not to end, however, without additional difficulty with the Indians of southeastern Alaska. An occurrence took place at fort Wrangell which delayed the abandonment of that post for some time. Some white miners passing the winter at that place had sold liquor to the Indians about the fort, and one of the drunken savages beat his squaw until the blood rushed from her mouth. The post-trader, Leon Smith, interfered and had the woman carried into the house of one of the laundresses of the garrison. The brutal husband then feigned regret for the ill treatment of his wife, and offered to shake the hands of the laundress who had protected her. During this friendly ceremony he suddenly seized one of the woman's fingers in his mouth and bit it off, and then fled for the Indian village. A detachment of soldiers was sent to arrest him, but the Indians displayed considerable hostility. The trader Smith then set out for the village, hoping to pacify the savages, but after advancing a few steps he was shot down. After considerable delay, and bombardment of the Indian village from the garrison, the murderer was delivered, tried by court-martial, and hanged, the chief of the tribe acquiescing in the sentence.

In the spring of 1870 another murder was committed at Sitka by a soldier who had been dishonorably discharged. This man, William Bird, had a grudge against the commander of his company, and meeting him in a saloon he drew his pistol, threatening to kill him. The officer struck at Bird and pushed him out of the door; the man then fired through the door, instantly killing a lieutenant of the revenue service who happened to be standing in range. The murderer, though threatened with mob law, was secured by the guards, and subsequently repeatedly tried in military and civil courts at Sitka, Portland, Oregon, and San Francisco, but was finally released on account of conflicting rulings concerning jurisdiction.

In the summer of 1870 the organ of the tailor journalist was removed from Sitka to Seattle, Washington territory, and shortly after passed out of existence. This event, unimportant as it seemed in itself, marks the end of the brief period of sudden rise and fall of commercial prosperity in Sitka. The causes instrumental in creating a temporary bustle and hopeful feeling in business circles have been explained above; but when one ship after another took the Russians away to their native country the flow of cash from their pockets ceased; the garrison was being continually reduced in numbers, and in 1870 business was dead. There remained about sixty soldiers, about two hundred Russian half-breeds of the lowest order, and a few Americans, and the town which had once held nearly a thousand Russians, the governor with a large retinue of officers and officials, a bishop with his train of priests, and which then was the scene of gay society life, was now almost deserted. The people who had been so sanguine of success, saying that the fisheries, the fur-trade, the timber, and the minerals needed but American enterprise to yield fortunes, had been singularly blind as to the real cause of this spasmodic prosperity of Sitka, and but few could understand that the resources of a northern country are few and slow to develop.

During the year 1870 the western military garrisons were withdrawn, and the substantial buildings erected at great expense of labor and money were abandoned. It would be difficult to point to a single benefit conferred upon the people of those regions by the temporary sojourn among them of the military forces. A small detachment of soldiers had also been stationed on the seal islands to enforce such regulations as had then been promulgated by the treasury department for the protection of both sealers and seals. This measure benefited only the soldiers themselves, who were employed by the traders in killing and skinning the seals, and in this way assisted in the threatened extermination rather than in the protection of these animals. Fortunately for the existence of the valuable fur-seal industry, the government about this time hit upon the only practical plan to preserve the animals from destruction. The islands were declared a treasury reservation, and by an act of Congress approved July 1, 1870, the islands of Saint Paul and Saint George were leased for a term of twenty years to a corporate company. The lease was awarded to the highest bidder, the Alaska Commercial Company, located at San Francisco; and since that time all danger of extermination or a decrease in the number of the seals has been averted, and in fact, at present a steady, gradual increase can be observed.

During the brief period of prosperity, between September, 1867, and August, 1869, the arrivals of vessels at Sitka were 71, with an aggregate tonnage of 13,339, the departures during the same time being 67, with an aggregate tonnage of 12,371; but from that time forward the shipping of the port was confined almost entirely to the monthly mail-steamer, the only means of communication between Sitka and Washington territory, and all intercourse between Sitka and the western portion of Alaska was absolutely at an end.

In 1872 another difficulty with the Sitka Indians occurred, originating in a fight between a soldier and an Indian. In the fracas ensuing three Indians were wounded and an attack upon the garrison was threatened. The affair was settled, however, without additional bloodshed. The garrisons at Sitka and Wrangell are still maintained, but on the 5th of February, 1873, the last mayor of Sitka, George A. Edes, resigned, and the "council" held its last meeting on February 18 of the same year. As the functions of these officers had been exceedingly limited, no social revolution followed this event, and matters went on much as usual under military rule.

In the beginning of the year 1874 the garrison at Wrangell was withdrawn, but owing to disorder among the natives it was re-established the following year.

In the year 1874 an attempt was also made to colonize Alaska with Icelanders, who were then leaving their own country in large numbers, and two of these people were taken to Alaska on a United States man-of-war, and given every opportunity to view the country. They were pleased with what they saw, declaring that the Kadiak archipelago and the coast of Cook's inlet were far superior in natural resources to their former home, but before their favorable report was in the hands of the government their people had found more pleasant homes in the western states and in the British possessions. The Alaska Commercial Company at that time offered to transport a colony of five hundred Icelanders to any portion of Alaska free of charge, but unfortunately the offer was not accepted, and the opportunity of securing additional permanent population for at least some portions of Alaska passed by. During the same year four miners from the Cassiar "diggings", in British Columbia, made their way to the headwaters of the Yukon, and descended that stream. They discovered small "prospects" of gold in a few localities, but found it more profitable to engage in the fur-trade, in which pursuit they still continue.

During the years following several bills were introduced in Congress looking to the establishment of some sort of civil authority in Alaska, one of them being to make it a county of Washington territory, and another to annex the country to Washington territory altogether. All the various measures proposed fell through without action on the part of Congress until 1877, when the troops were finally withdrawn.

In 1878 the Sitka Indians began to comport themselves in the most insolent manner; defacing the graves in the Russian cemetery, pulling down the stockade separating the town from the Indian settlement, and committing other similar outrages. At that time not even a revenue-cutter was present in the harbor, and the inhabitants, becoming very much alarmed, sent an appeal for immediate protection to the commander of an English man-of-war in the harbor of Victoria. The assistance was promptly rendered, just in time, it was claimed, to prevent disaster; opinions on that subject were, however, divided. In due time the English man-of-war was relieved by a similar vessel of the United States navy, and since that time a vessel of that class has been constantly stationed in the harbor of Sitka, affording protection and assisting the inhabitants of southeastern Alaska in various ways.

Ledges of gold-bearing quartz had been discovered in the vicinity of Sitka before the removal of the troops, but considerable difficulty was encountered in securing the necessary capital to open the mines; but finally some capitalists in Portland, Oregon, formed a company, and for a time the prospects of Sitka were once more brightened. A stamp-mill was erected, but, though numbers of other claims were located and opened, the ore existing here was found to be of a very low grade, and would not even pay for the most economical mode of working. For years the enterprise was kept up in the constant hope of "strikes" of better ore, but at present the Sitka quartz-mines are practically abandoned. On the coast of the mainland in the vicinity of Wrangell a surface-mining camp of small extent has been in existence for several years, yielding a small profit to two or three proprietors of the claims. The most promising discovery of the kind was made at the end of the season of 1880 on the coast between Takoo and Chilkhat inlets. The gold found here is said to exist both on the surface and in quartz-veins, and rich specimens were forwarded to Portland and San Francisco, resulting in a rush of miners and speculators during the spring of 1881, and a town sprang up which has boasted of three names during its brief existence—Harrisburg, Rockville, and Juneau City. The mail-service was extended to this place, and shipments of bullion were actually made, the exact value of which cannot be ascertained. Of the value of this discovery it is impossible to judge at such an early date, but upon its success depends the development of at least this section of Alaska in the immediate future. In the meantime, in the absence of all legislation on the subject, Alaska remains as it has been, an abnormal appendage to our states and territories—not a territory even in name—only a district for the collection of customs.

## CHAPTER V.—NOTES ON ALASKAN ETHNOLOGY.

The native tribes of Alaska offer a vast field for the labors of students of North American ethnology. Thus far they have only been roughly grouped in families and tribes by various writers, many of whom, possessing no personal knowledge of the subject, have built up theories from the notes of incompetent and casual observers. As an instance of this we may cite that casual remarks of travelers on the facial similarity existing between certain Aleutian individuals and the Japanese resulted in the positive and reiterated assertion by scientific writers that the former migrated to their present homes from eastern Asia—a theory now thoroughly exploded by recent authorities.

Our knowledge of the distribution and classification of the tribes in the extreme northwest is still very limited, and years of careful investigation will be required to enable us to arrive at any satisfactory result and to attain to any degree of accuracy. Some fragmentary ethnological material from Russian-America has been furnished in times past by Russian and German writers; Veniaminof, Davidof, Zagoskin, Wehrman, Baer, Wrangell, Holmberg, and others have given to the scientific world valuable contributions on this subject. Veniaminof (who died but a few years ago in Moscow as the metropolite or primate of the Russian church) was one of the most reliable and painstaking investigators, but his personal observations were limited to the Aleutian islands and the Alexander archipelago. Davidof, an officer of the Russian navy, visited the island of Kadiak and the adjoining continental coast at the beginning of the present century, and Holmberg also devoted himself chiefly to the Kadiak and Sitka districts. To L. Zagoskin, a lieutenant of the Russian navy, we owe our first definite knowledge of the tribes of Norton sound and the lower Yukon region. Another naval officer, Lieutenant Wehrman, compiled in 1857 the first map showing in colors the distribution of native tribes in Russian America, a map quite accurate in its main features. Next in order is the manuscript map, also in colors, compiled by Dr. George Gibbs from information obtained from the Russian authorities at Sitka.

Since the purchase of Alaska by the United States the most valuable contributions to its ethnology thus far published have come from the pen of Mr. William H. Dall, of the United States coast and geodetic survey, who also compiled a map in colors, which was printed with Volume I of *Contributions to North American Ethnology.* A vast amount of ethnological material relating chiefly to the Yukon basin in the extreme northwest has been collected by Mr. E. W. Nelson, of the United States signal service; but this has not yet been given to the public. During repeated and extended journeys in Alaska I have been enabled to glean some fragmentary knowledge of this subject; but until intelligent investigation can be extended systematically over all sections of Alaska, and the results carefully compared and sifted, the work cannot be looked upon as complete.

All that can be done at present in the way of classifying the natives of Alaska is to divide them into four distinct families or tribes, whose habitat and boundaries can be defined with a certain degree of accuracy, subject to future corrections. The numerous subdivisions of each family (based chiefly upon dialectic differentiation) can only be vaguely indicated, in the hope of furnishing to future investigators a frame-work upon which to build a more satisfactory structure.

A comparison of the ethnological map published with this report with those previously compiled at various times will show the gradual acquisition of knowledge on this subject. The differences between the latest map and the one preceding (compiled by Mr. William H. Dall) are slight, and give evidence only of an extension of the field of investigation. This result is all the more gratifying because Mr. Dall and myself have arrived at very similar conclusions through entirely different channels, and without consultation upon the subject. The crude ground-work accomplished earlier by Russian and other writers was, of course, equally accessible to both of us, giving to a certain extent a common base to start from.

The four families or groups now distinguished in Alaska are the Eskimo (or Innuit), the Aleut (Oonángan), the Thlinket, and the Athabaskan (or Tinneh). The first three named occupy the whole coast of Alaska, forming as it were a barrier between the Athabaskan in the interior and the sea-coast, except in one instance, where the latter people have succeeded in supplanting the Eskimo on the shores of Cook's inlet. The evidence in favor of ascribing to the Eskimo and to the Aleut a common origin is quite strong, but time and circumstances have wrought such changes in both physical and linguistic features of the Aleut tribes that a distinct classification appears justifiable. For the purposes of this report I have adopted the terms Eskimo and Athabaskan, in lieu of the Innuit and Tinneh of recent writers, purely in the interest of uniformity, and in deference to the action of both the American and British science associations, which have decided that priority must prevail, and that the name first given to a race or tribe in scientific classification must be retained. The terms Innuit and Tinneh represent words in their respective languages, and as such I should prefer them, but I am quite willing to bring a sacrifice upon the altar of uniformity in the work of science. In taking leave of these terms, therefore, I will only mention that *Innuit* was derived from a root signifying *man*, and existing in a majority of the Eskimo dialects. I find this root as *innūk*, *niūk*, *yūk*, *yūt*, *liūt*, and *liūk;* the plural being generally formed in *üng* or *üin*, with a collective form ending in *t*, meaning *people.* It has been suggested that the word *īna*, which signifies *house*, *dwelling*, in nearly all the dialects, has been blended with this root in order to describe a people living in houses, or a settled tribe; but in view of the nomadic habits of the Eskimo this theory is open to doubt. In the dialect of the easternmost Eskimo tribe on the Pacific coast, the Chugachimute, *īna* designates a *house*, but the word for *people* is *shuït* or *shvït* (from *shiūk*, *man*). Zagoskin, whose observations extended over several years, stated that after much questioning of various individuals he arrived at the conclusion that *yugguit* or *yughuït* was a collective or plural of *man* with the Norton Sound tribes, and that *kangyulit*, *kaniulit*, or *ngyulit* was the general name of all the coast people from the Arctic to the Aliaska peninsula, and that this term signified *people of one language.* The only evidence in our possession confirmatory of this assertion of Zagoskin is the name of Kangmali Innuïn, reported by Richardson, and used by Dall as applying to certain tribes on the Arctic coast; to which we may add the fact that with the Bristol Bay and Togiak Eskimo the word *kang* means *the same.* Zagoskin also gives the word *kangakhtuik, to speak.*

The word Tinneh in various forms signifies *man* in a majority of the dialects of Alaska, and I find it in the form of *tinné*, *tinne*, *tenna*, *tynnai*, *kinna*, and in the collective *kokhtane*, *khotana*, and *ahtena*.

In discussing these four families or tribes I shall proceed without reference to their relative importance, beginning with the Eskimo.

## I.—The Eskimo (or Innuit).

The Eskimo or Innuit, numbering nearly 18,000, inhabit the whole coast-line of Alaska west of the one hundred and forty-first meridian, with the exception of the northern part of Cook's inlet, that portion of the Aliaskan peninsula lying west of the one hundred and fifty-seventh meridian, and the Shumagin and Aleutian groups of islands. The origin of the Alaskan Eskimo has been discussed by various authors, most recently by Mr. William H. Dall, in Volume I, *Contributions to North American Ethnology*, but the only tangible result of such discussion has been the establishment of a general belief that these tribes are of American origin, and that their appearance on the Alaskan coast probably occurred at the same time with the general migration resulting in the settlement of the inhospitable regions where are now found the eastern or Greenland Eskimo.

For reasons elsewhere explained more at length it appears improbable that the settlement of the Alaskan coast and the islands by the Eskimo could have been effected without the aid of the kaiak, or skin-canoe, or at least a craft of similar construction, and consequently it may be presumed that they spread gradually to the westward and southward after having reached the Arctic shore from their original habitations in the interior of our continent; for the present, however, I have nothing to do with this question, the discussion of which rests chiefly upon speculation, and therefore turn to a description of the tribes of Eskimo stock now found in Alaska.

All the Eskimo tribes without exception manufacture and use the covered skin-canoe known as the kaiak, identical with that of the eastern or Greenland Eskimo; and this feature is so distinctive and exclusive that a tribal name might justly be based upon it should the necessity arise for another. At present I know of only one instance where an intermixture of the Innuit with another tribe has taken place under such circumstances that the foreign element has gained the upper hand, and there they have already abandoned the manufacture of the kaiak and apparently forgotten the art of its construction; I refer to the Oughalakhmute, who have mixed with the Thlinket. The open skin-boat, the *oomiak*, or women's boat, also known as *bidar*, is used by certain tribes on the north coast of Asia; but the kaiak proper is only found among the Eskimo.

When the Russians first observed this craft they applied to it the name of *bidarka*, a diminutive of bidar, a Kamchatkan term for an open skin-boat. This term is now used throughout Alaska wherever Russian influence once predominated, and the same word has been incorporated into several Eskimo dialects in the form of *bidali*, which is, however, applied only to two- and three-hatch kaiaks—a variety formerly known only on the Aleutian islands, and adopted by the Russians for greater convenience in hunting and traveling. From Bristol bay westward and northward the kaiak and the oomiak only are used.

The subdivisions thus far made of the Eskimo tribe inhabiting the Arctic coast are based almost wholly upon locality and dialectic differentiation as reported by traders and whalers who come in contact with them; but for the purpose of classification it would seem sufficient to here use the term Arctic Coast tribes as one subdivision.

The Arctic-Coast tribes include Dall's Kopagmute, Kangmaligmute, and Nuwukmute, and all the coast villages down to Cape Krusenstern.

In their mode of life all the people living on the coast between the British boundary and Kotzebue sound are very much alike. Some settlements are inhabited chiefly by whale-hunters, while at others much time is devoted to the pursuit of reindeer, each industry engendering different habits and customs, but they all have subterranean winter houses and skin-covered tents for summer use. Though they have been in contact with whites directly and indirectly for nearly a century there are still found in use among them many implements fashioned of stone, ivory, and bone; and they still consume much of their fish, seal- and walrus-meat, and blubber in a raw state. But a remarkable contrast to their primitive condition is furnished by specimens of carvings, chiefly masks and human figures, deposited in the national museum by Mr. E. W. Nelson, many of which may justly be classed as artistic sculpture. A large amount of ready-made clothing finds its way into the hands of these people, who wear it in the summer, but the excessive cold of winter compels them to resume the fur garments formerly in general use among them. The heavy parka of reindeer-, wolf-, or dog-skin, is the outside garment worn by both sexes; undergarments are generally fashioned of the tanned skins of reindeer, or of hair-seal- and fox-skins, the latter being used for trimming; and the high boots worn by both sexes are made of hair-seal- and reindeer-skins.

Of the tribal organization of these people but little is known, but there seems to be no recognized chieftainship; each isolated settlement generally containing one man who makes himself prominent by superintending all intercourse and traffic with visitors. The profits accruing to him from this position give him some slight influence among his people; but the *oomailik* (*oomuialik* of Zagoskin), as these middlemen or spokesmen are called, possess no authority over the people of their village, who pay far more attention to the advice or threats of sorcerers, shamans, or "medicine men". In the festivals, consisting of feasting, singing, and dancing, with which these hyperboreans while away the long winter nights, the shamans also play a prominent part, directing the order of the performances and the manufacture of masks, costumes, etc., while the oomailik or spokesman sinks back into insignificance for the time being.

During the brief summer a large proportion of these people roam eastward and westward along the coast trading and hunting. In late years their movements have been guided chiefly by those of the whalers pursuing their quarry in the narrow belt of open water between the solid ice and the coast.

THE KOPAGMUTE (Big River people).—In this subdivision I include all the Eskimo tribes living in the western interior of Arctic Alaska. Their habits are almost entirely unknown beyond the fact that they form the connecting link between the coast people in the north and the Athabaskans in the south.

THE NUNATAGMUTE (Inland people).—This subdivision includes both the Nunatagmute and Kowagmute of Dall, comprising the inland tribes living on the Noatak and the Kowak rivers. Of these people we also know but very little beyond the fact that they live on the upper rivers, have communication with the Athabaskans of the northern Yukon region, with whom they have mixed, on the headwaters of the Koyukuk river. Mr. E.W. Nelson, who saw some of these half-breeds on Kotzebue sound, describes them as resembling in stature and facial peculiarities the Athabaskan, while speaking an Eskimo dialect.

THE MAHLEMUTE.—The Mahlemute inhabit the country between Kotzebue and Norton sounds, occupying villages upon the coasts of both these estuaries. In their mode of life they resemble the Arctic Eskimo, but they are the traders *par excellence* of all this region; indulging, however, frequently in robbery and violence when trade is slack. They serve as middlemen in the exchange of commodities between Bering sea and the Arctic, drawing their supplies of stock in trade chiefly from the depots of Saint Michael, which place they visit during the summer in large open skin-boats fitted with masts and sails. The Mahlemutes are expert navigators and bold hunters, but their reputation with whalers and traders is decidedly bad, and great caution is observed in intercourse with them. They are naturally anxious to maintain their profitable position as middlemen, and thus far have resented all attempts to locate permanent trading-stations among them or within the limits of their own mercantile operations.

In dress and appearance the Mahlemute do not differ from their neighbors. In the sketch herein inserted they are represented as they appear in their summer encampments on Norton sound. The southernmost village permanently occupied by the Mahlemute is Shaktolik, on Norton bay, but several families possess winter houses in the vicinity of the trading-post of Oonalakleet, within the boundaries of another tribe. Their festivals are distinguished for variety, there being one in honor of nearly every animal hunted by the people, most of them being celebrated during the period of winter idleness, the "reindeer dance" and the "whale dance" being among the most important ceremonies, which are accompanied by the most grotesque display of masks and costumes. The "labret" or cheek ornament, of bone, ivory, or stone, is still worn by the Mahlemute as universally as it is found among the coast tribes in the north and west; and even where the ornament itself is absent the cut made in the cheek and under lip for its insertion can be observed. All the masks are provided with an imitation of this ornament. The custom of trimming the hair of the head exists among the Mahlemute as well as among nearly all the tribes of Eskimo stock, but the shaving of the entire crown of the head of males seems to be confined to the Arctic tribes. Wherever the Eskimo appear together with their interior neighbors it is easy to distinguish the long, unkempt, matted hair of the Athabaskan from the closely-cropped bullet heads of the Eskimo.

THE KINGIGUMUTE (including the Okeeagmut of Dall and the Okeeagmut of King's island).—This unruly and warlike tribe occupies the country adjoining cape Prince of Wales and the islands of Bering strait. They are also great traders, and act as middlemen between the people of Asia and those of America. They hunt but little, living chiefly on the profits of traffic. Their reputation with whalers and traders is fully as bad as that of the Mahlemute on Kotzebue sound. Their festivals and superstitions closely resemble those of their neighbors; and the same can be said substantially of their southern neighbors.

THE KAVIAGMUTE.—This tribe occupies the portion of the Kaviak peninsula south of port Clarence and east of Norton bay and the Mahlemute territory.

THE OONALIGMUTE (the Unaligmute of Dall).—This tribe occupies the coast of Norton sound from Shaktolik down to the mouth of the Yukon, extending back into the interior as far as the range of hills forming the boundary between the Eskimo and the Athabaskan tribes.

THE IKOGMUTE.—This tribe occupies both banks of the Yukon river from its junction with the Chageluk river near the village of Paimute to its mouth, occupying the east coast between Kotlik and the Kusilvak branch of the Yukon.

THE MAGMUTE (or Mink people).—This tribe adjoins the Ikogmute in the south, extending to the line between the Kvichak river and cape Rumiantzof.

THE NUNIVAGMUTE.—This tribe occupies Nunivak island, and also a few settlements on the Kashunok branch of the Yukon.

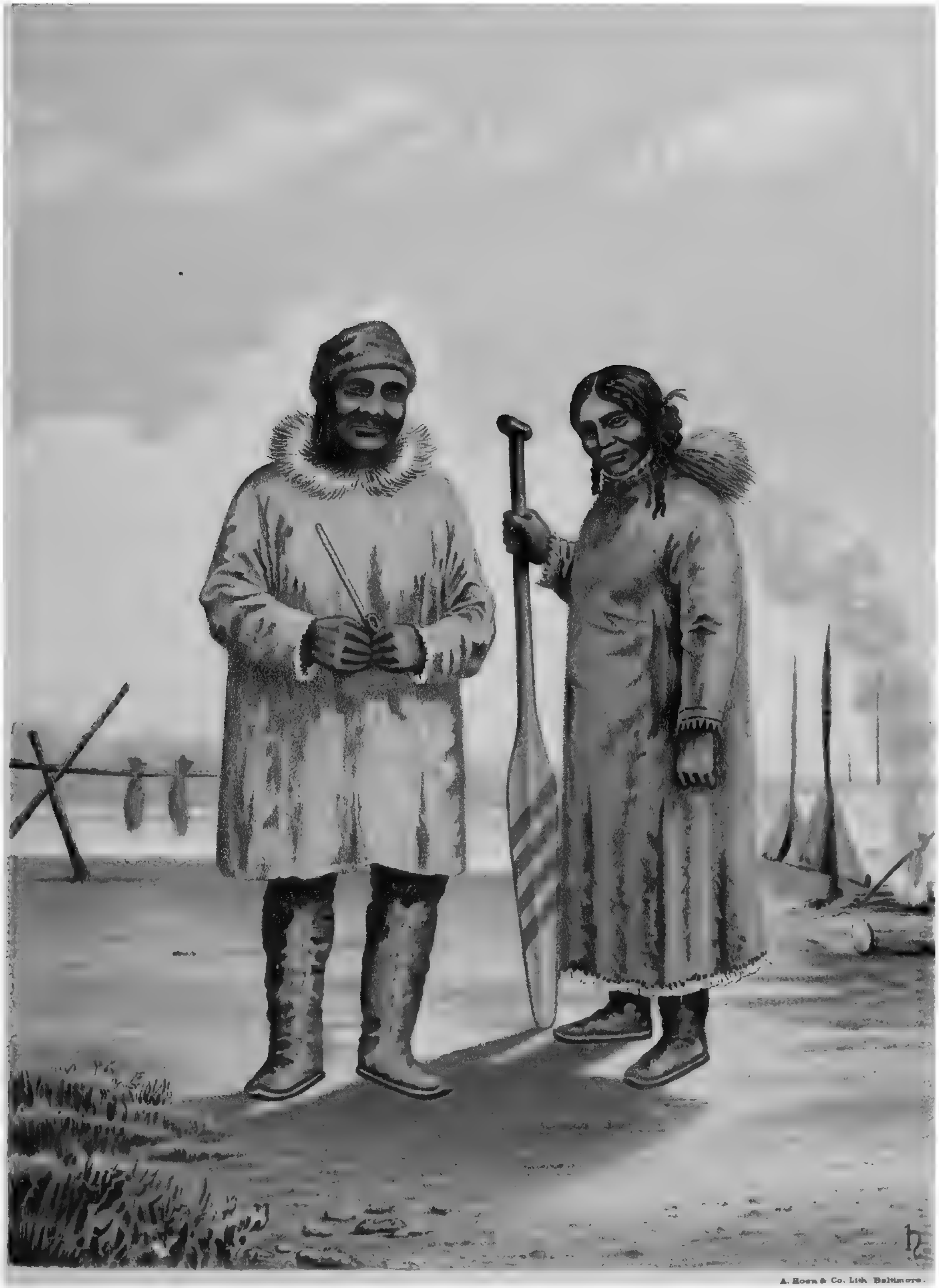
THE KAIALIGUMUTE.—This tribe occupies the coast from cape Rumiantzof to cape Avinof, with the exception of the Kashunuk settlement, but including the villages on Nelson island.

The three tribes last enumerated were classed together by Dall as Magmute, but sufficient differentiation has been discovered by Mr. Nelson to warrant the new divisions.

To all the coast tribes between Kotzebue sound and the mouth of the Kuskokvim river may be applied the description furnished by Lieutenant Zagoskin in the year 1843. He stated in substance that the natives of Norton sound and their neighbors are of medium stature, well built, quick in their movements, with round faces varying in complexion from an almost white to a light bronze. All the males exhibit some trace of beard, and mustaches are quite common. The hair is black, coarse, and straight, but glossy; the mouth large, not curved; teeth even and white. The men wear labrets in the lower lip on each side of the mouth, consisting of stone or bone buttons; but among the females this latter custom has long been obsolete. The men trim their hair all round the head, while the women confine this operation to the vicinity of the ears, wearing the back hair either loose or plaited.

No chiefs are known to exist among them, though some families have acquired prominence and influence, chiefly through the accumulation of what they consider wealth. The oomailik, the most experienced tradesman of the village, who serves as spokesman in all transactions with strangers, exerts his influence only as agent or business manager. If a joint action of a number of the inhabitants of a village becomes necessary for any purpose, the old men assemble in the council-house, or kashga, where they settle upon the plan of action for the distribution of labor; and no young man will venture to disregard the decision of his elders in council.

These coast tribes, being essentially a trading people, are possessed of greater shrewdness than their neighbors in the interior, but they rarely use this superiority for the purpose of cheating in trade, as all their capacity in this direction is reserved for their intercourse with white people. As a rule these tribes do not practice polygamy, though a few instances have been known of wealthy traders who maintained separate households in the various settlements visited in pursuit of their business. No especial marriage ceremony seems to be observed, though the consent of parents seems to be essential to the accomplishment of a union. The bridegroom either takes away his bride to his own people or she remains with her family. Separations rarely occur, but in such cases the children remain with the mother. A man who has lost two or three wives rarely succeeds in obtaining a fourth.



A. Hoen & Co. Lith. Baltimore.

MAHLEMUTE—MAN AND WOMAN.

The females of the coast tribes are not fruitful, and to see four children of one mother is quite a rare occurrence, one or two being the common number of children to a family. Marrying early, as a natural consequence the women fade early; a wife of twenty-five is always an old woman. The children are treated with great tenderness, but grow up in perfect liberty until they are self-supporting, and their every want or whim is satisfied by the parents, even at the greatest inconvenience to themselves. The young of both sexes acquire skill in their respective labors early while playing with the diminutive arms, tools, and implements fashioned for this purpose by their parents. Festivities take place at certain periods during the lives of children; for instance, when the boy's hair is trimmed for the first time, or when he first goes to sea alone in a kaiak, or when he dons his first pair of snow-shoes, or when the first incision in his lip is made to accommodate the labrets, a feast is given by the parents if they are able to do so; but in cases of great poverty these ceremonies are frequently postponed until the young man himself is able to provide the necessary material. No youth is considered to have reached manhood until he has killed either a wolf, a reindeer, or a beluga.

The shamans or sorcerers living among these people furnish children with amulets or charms, consisting of little ivory carvings, or pieces of skin fancifully braided, or other articles to be worn around the neck, and the parents frequently go to considerable expense to secure such talismans.

The men sometimes change their names several times during their lives by assuming a new one after every great memorial feast given in memory of a deceased relative.

A woman after child-birth is not allowed to partake of fresh food for twenty days, during which time she must stay within the house, generally sitting in some dark corner with the infant; and every five days during this period she must bathe.

Like all Eskimos these tribes are superstitious and afraid of the dead or dying, though they seem to reverence the memory of the deceased; and sometimes a sick person at the point of death is carried into an abandoned hut and left there alone to die of hunger and neglect. The dead bodies are generally wrapped up in mats, with the knees drawn up to the chin, and are covered up with rocks or pieces of drift-log; and the skulls of reindeer or bear are frequently placed beside such burying places, especially if the deceased had been a hunter. After the death of a husband the wife cuts her front hair short, and abstains for a period of twenty days from fresh food; the husband frequently observing the same custom on the death of his wife. The festivals in memory of the deceased are celebrated at various times of the year, chiefly at times of leisure between the seasons for hunting various animals. In addition to the annual memorial feasts, grand festivals are celebrated at intervals of ten and fifteen years, according to the ability of the surviving relatives to accumulate sufficient property for the purpose, and on such occasions the giver of the feast frequently distributes all his property among the guests.

The clothing of these coast tribes consists of furs, especially the skin of reindeer. Garments made of marten, musk-rat, or ground-squirrel skins they receive from the Yukon river, while mink-skins are used chiefly for making gloves and the trousers of women. The upper garments, or parkas, have short sleeves and do not reach below the knee, those of the males being the same length all around, while those of the women are slit on the sides. The men wear one pair of pantaloons with the fur inside; the women wear two, one short, reaching not quite down to the knee, generally made of tanned buckskin or reindeer-fawn skin with the fur inside, the other long with the fur outside. They have no buttons or hooks, and the pantaloons are attached to a belt with straps. The boots for winter use are generally made of the skins of reindeer-legs, and reach about half way up the calf of the leg; some of these are richly trimmed with wolverine or white-reindeer skin. The summer boots are made of seal-skin, reaching up to the knee and above; the soles being made of the thickest portion of the hair-seal skin. The winter parkas are usually provided with a hood which can be drawn over the head. The most valuable of these garments are obtained from the Mahlemutes, who purchase them of the Chukches in Siberia. These garments are made of the skins of tame reindeer. A woman clothed in one of these parkas and provided with boots made of the skins of white tame reindeer considers herself dressed in the height of fashion, and attracts much attention from the youths of her tribe. For convenience in walking the parkas are girded up with a belt, the latter being worn far below the waist.

The skin of the wolf is much valued for trimming garments, and to obtain these the coast tribes formerly resorted to an artifice which has been superseded at present by the use of steel-traps. In the middle of winter, when the snow was deep and the wolf hungry, the hunter would whittle down strips of whalebone about two feet in length, roll them up, wrap them in pieces of seal-blubber, and throw them promiscuously about the vicinity. A hungry wolf would bolt down one of these frozen lumps, when, the heat of the stomach melting the fat, the piece of whalebone would be released and straighten out, killing the animal, and in the morning the hunter would go out and pick up his quarry.

Reindeer are generally captured by these tribes by surrounding the herd and shooting the animals with arrows or bullets as they approach the concealed hunters. Fish are caught both with nets and hooks and lines; and seals are generally shot or speared on the ice in the winter, or as they come up to their breathing-holes. While watching for seals the hunter piles up pieces of ice before him and wears a white-reindeer skin parka in order to conceal himself from the vigilant animal. The beluga is hunted by numerous parties in kaiaks. Sometimes a hundred or more of the natives proceed to sea on a calm summer day, observing perfect silence, and keeping well inshore. As soon as a school of belugas is sighted an old man gives a signal, the kaiaks hurry to seaward of the school, and a tremendous noise begins, with shrill cries and yells, beating of drums and rattles, and splashing of paddles and spears in the water. The hunters gradually approach the shore, driving the belugas before them, until the latter, in the shallow water, fall an easy prey to their spears. In former times, when the beluga was more plentiful, from one to two hundred were secured in this way in a single day; and the old men and the women and children crowded the shore ready to drag off the carcasses beyond the reach of the tide.

All of these tribes shun the use of iron in killing the beluga, confining themselves entirely to spear- and arrow-heads of stone and bone. Inflated bladders of whole skins of the young seal are attached to the spear-heads, serving to buoy up the wounded animal and keep it from diving. The blubber, meat, and skin of the beluga are all valued alike as food when fresh, and the tanned hide is used for making boots, covering kaiaks, and making nets. The tanning is generally accomplished with rotten fish-roe.

All these tribes have summer dwellings distinct from those used during the winter. For the winter houses a square excavation of about 3 feet or more is made, in the corners of which posts of drift-wood or whale-ribs from 8 to 10 feet in height are set up; the walls are formed by laying posts of drift-wood one above the other against the corner posts; outside of this another wall is built, sometimes of stone, sometimes of logs, the intervals being filled with earth or rubble; the whole of the structure, including the roof, is covered with sods, leaving a small opening on top, which can be closed by a frame over which a thin, transparent seal-skin is tightly drawn. The entrance to one of these houses consists of a narrow, low, underground passage from 10 to 12 feet in length, through which an entrance can only be accomplished on hands and knees. The interior arrangement of the winter house is very simple, and is nearly the same with all these tribes. A piece of bear- or reindeer-skin is hung before the interior opening of the passage; in the center of the inclosure is the fire-place, which is a square excavation directly under the smoke-hole in the roof; the floor is generally planked, and frequently two low platforms about 4 feet in width extend along the sides of the house from the entrance to the back, and covered with mats and skins which serve as beds at night. In the larger dwellings, occupied by more than one family, the sleeping-places of each are separated from each other by suspended mats, or simply by a piece of wood. All the bladders containing oil, the wooden vessels, kettles, and other domestic utensils, are kept in the front part of the dwelling, and before each sleeping-place there is generally a block of wood upon which is placed the oil-lamp used for heating and cooking.

The summer houses are erected above ground, and are generally log structures roofed with skins and open in front; no fire is made in these houses, and therefore they have no opening in the roof, all cooking being done in the open air during the summer. They seldom have flooring, but otherwise the interior arrangements resemble those of the winter houses. The storehouses of all the Eskimo tribes are set on posts at a height of from 8 to 10 feet above the ground, to protect them against foxes, wolves, and dogs. They have generally a small square opening in front that can be closed with a sliding board, and which is reached by means of a notched stick of wood. These buildings are seldom more than 8 feet square by 3 or 4 feet in height.

In every village there is a common building known as the kashga, built after the pattern of the winter houses, but of much larger dimensions, some kashgas measuring as much as 60 feet square and from 20 to 30 feet in height. A raised platform runs all around the interior, and, in a few kashgas of extraordinary size, three tiers of such platforms have been observed. The fire-place in the center is large, often 3 or 4 feet deep, and on ordinary occasions, when no fire is wanted, is covered over with planks. The entrance is through a passage resembling that of the dwelling-houses, but divided at the end; one branch leading to the fire-place below the flooring, the other into the main compartment. In this building the men carry on their domestic labor, such as the preparing of skins, the plaiting of fish-traps, and the manufacture of sleds. In the kashga all public business is transacted and councils held; and it also serves as shelter for all guests and visitors, who are there entertained, as well as the theater for all festivals, mask dances, and representations. In addition to this the kashga serves as a sleeping-place for adult males; and finally, also serves as a bath—the most popular recreation of the Eskimo tribe.

The cooking of these natives is a very simple matter, though they do not eat raw fish or meat unless it is frozen or dried in the air. All the offal of meat and fish is given to dogs. The meat when boiled is never well done, being merely kept in boiling water for a short time. The oil of the beluga or of the seal is considered as the most palatable sauce for everything—meat, fish, or berries; while rotten fish and fish-roe, considered luxuries, are preserved in wooden vessels for festive occasions, and the heads of salmon are buried in the ground to give them the desired high flavor. With such a diet no cleanliness in cooking or eating can be expected. As a rule, these natives are moderate eaters. In the morning the wife or some other female relative brings to the husband, father, or brother who has slept in the kashga, a *kantag*, or wooden bowl, with cold water, together with a piece of dried, frozen, or boiled fish weighing perhaps a pound. After breakfast the men follow their various pursuits of hunting and fishing, and some time in the afternoon, having indulged in a bath, they partake of another piece of fish or meat of about the same weight, with the addition of a tit-bit of rotten fish or spawn, which they eat sitting on their haunches, while the women turn their backs to them, as it would be unbecoming to watch them eating. Visitors are thus served by the wives or daughters of those whom they visit. An evening meal is frequently, but not always, partaken of at home in the dwellings; but the women and children always eat at home.

Their means of transportation consist in the kaiak, the oomiak (bidar), and in winter the dog-sled, as they are all alike skilled in propelling the kaiaks and in the management of dog-teams.

The sleds used by the coast tribes are generally from 8 to 12 feet long, and the dogs are harnessed tandem. Their snow-shoes consist of a very light frame of spruce wood over which is stretched a network of seal-hide, which supports the foot—the toes only being attached to the shoe by means of a small strap. The length of the Eskimo snow-shoe is about 3 feet.

In addition to the spears propelled by hand used in hunting the beluga and the maklak seal the coast tribes also have spears especially adapted for killing birds and reindeer; these they shoot by means of bows; and the bird-spears are divided into several prongs, with the object of dragging down the bird if it be not killed. The spear-heads for killing reindeer are made of walrus-ivory, and are provided with teeth on one side; these weapons are still preferred to bone points. The shafts of both arrows and spears are made of spruce or larch wood, obtained on the Yukon at the head of Norton bay; the length of the shaft is from 2 to 3 feet, and that of the bone head from 5 to 6 inches, while the point proper measures about 2 inches. The bows also are manufactured of spruce and larch wood, and the strings are made of the sinews of the seal or whale.

Independent of the great annual and periodical festivals accompanied by religious or superstitious rites, and to attend which the people from different villages flock together, the coast tribes also indulge in private festivals or evening entertainments during the late autumn and the beginning of winter. As among other mortals, singing, dancing, and eating form the principal objects of such merry-makings. On these occasions, however, one family does not invite another to pass the evening, as either the whole population of the village attend promiscuously, or the women invite the men, treating them to delicacies of their own providing, or *vice versa*. To pass the time, masquerading is often resorted to, in which case the women who give the entertainments appear in male garments, with mustaches, and with bead pendants in the under lip, and dance like the men; the latter, on the other hand, representing women.

The subjects of their songs are of indefinite variety, but the melody as well as the time of their only musical instrument, the bladder drum, is always the same: first one stroke, then a pause; then two strokes, the second stronger than the first, then another pause; again two strokes, a pause; and so on, producing a rather monotonous noise.

All these games, both private and public, take place in the kashga. At the public performances the dancers and singers, men and women, stand around the fire-hole; and the men, to the time of the drum and the singing, go through various contortions of the body, shifting from one foot to the other without moving from the spot, the skill of the dancer being displayed only in the endurance and flexibility of his muscles. The women, on the other hand, with their eyes cast down, motionless, with the exception of a spasmodic twitching of the hands, stand around in a circle, forming, we may say, a living frame to the animated picture within. The less motion a dancer displays the greater his skill. There is nothing indecent in the dances of the sea-board natives. The dancing dress of the men consists of short tight drawers made of white-reindeer skin, and the summer boots of the Chukche, while the women on such occasions only add ornaments, such as rings and bracelets and bead pendants to their common dress, frequently weighting themselves down with 10 or 15 pounds of these baubles.

The entertainment of the women was described by Zagoskin as follows:

> We entered the kashga by the common passage and found the guests already assembled, but of the hostesses nothing was to be seen. On three sides of the apartment stone lamps were lighted, the fire-hole was covered with boards, one of them having a circular opening, through which the hostesses were to make their appearance. Two other burning lamps were placed in front of the fire-hole. The guests, who formed the chorus, began to sing to the sound of the drum, two men keeping them in order by beating time with sticks adorned with wolfs' tails and gulls' wings. Thus a good half hour passed by. Of the song my interpreter told me that it consisted of pleasantry directed against the women; that it was evident they had nothing to give, as they had not shown themselves for so long a time. Another song praised the housewifely accomplishments of some woman whose appearance was impatiently expected with a promised trencher of the mixed mess of reindeer-fat and berries. No sooner was this song finished than the woman appeared and was received with the greatest enthusiasm. The dish was set before the men, and the woman retreated amid vociferous compliments on her culinary skill. She was followed by another woman. The beating of drums increased in violence and the wording of the song was changed. Standing up in the center of the circle the woman began to relate, in mimicry and gesture, how she obtained the fat, how she stored it in various receptacles, how she cleansed and melted it, and then, placing a kantag upon her head, she invited the spectators with gestures to approach. The song went on, while eagerness to partake of the promised luxury lighted up the faces of the crowd. At last the wooden spoons were distributed, one to each man, and nothing was heard for a time but the guzzling of the luscious fluid. Another woman appeared, followed still by another, and luxuries of all kinds were produced in quick succession and as quickly dispatched, while the singers pointedly alluded to the praiseworthy Russian custom of distributing tobacco. When the desired luxury had been produced, a woman represented with great skill the various stages of stupefaction resulting from smoking and snuffing. All the women appeared in men's parkas.

The men's entertainment witnessed by Zagoskin took place in the same village. The preparatory arrangements were the same, one of the women, a sorceress, leading the chorus. The first song on that occasion praised the propensity of the Russian for making presents of tobacco, rings, and other trifles to the women, who, in their turn, were always ready to oblige them. This, however, was only introductory, the real entertainment beginning with a chorus of the men concealed in the fire-hole. The gist of their chant was that trapping, hunting, and trade were bad, that nothing could be made, and that they could only sing and dance to please their wives. To this the women answered that they had long been aware of the laziness of their husbands, who could do nothing but bathe and smoke, and that they did not expect to see any food produced, such as the women had placed before them, consequently it would be better to go to bed at once. The men answered that they would go and hunt for something, and shortly one of them appeared through the opening. This mimic, who was attired in female apparel, with bead pendants in his nose, deep fringes of wolverine tails, bracelets, and rings, imitated in a most admirable and humorous manner the motions and gestures of the women in presenting their luxuries, and then gave imitations of the various female pursuits and labor, the guests chuckling with satisfaction. Suddenly the parka was thrown off, and the man began to represent how he hunted the maklak, seated in his kaiak, which performance ended with the production of a whole boiled maklak, of which Zagoskin received the throat as his portion. Others represented a reindeer-hunt, the spearing of birds, the rendering of beluga-blubber, the preparation of seal-intestines for waterproof garments, the splitting of deer-tendons into thread, and so forth. One young orphan, possessing nothing wherewith to treat the guests, brought on a kantag filled with water, which was drunk by the women amid much merriment. It sometimes happens on these occasions that lovers of fun sprinkle the women with oil, or with the fluid which they use in place of soap, squirted from small bladders concealed about their persons; and such jokes are never resented.

The Eskimo tribes all look upon the shamans or conjurers (*tungaks*) as mediators between themselves and the invisible world, but it is impossible to say whether or not they believe in the actual control of spirits by the conjurers. A majority of these individuals have considerable practice in tricks of sleight-of-hand; at the same time they do not seem to enjoy much respect, unless they combine with the business of conjuring the qualities of an expert trader and skilled hunter. The tungak, in addition to calling spirits proper (*ikhchingak*), also claimed the power to force the souls of deceased members of their family to enter his (the tungak's) body. The spirit or principle of life (*iltkhluaghúm*) is invoked on all occasions, but principally in cases of sickness. It is believed that he appears in five distinct forms. A creator of the world, called *Nunalukhta*, also occasionally appears in traditions of the coast people.

A festival in honor of the spirits of land and sea, and in memory of deceased kinsmen, is celebrated annually in the month of October or November, in the following manner: At sunset the men assemble in the kashga, and, after a hurried bath, ornament each other by tracing various figures with a mixture of oil and charcoal on the naked back. Two boys, who for this occasion are respectively named the Raven and the Hawk, are in attendance, mixing the paint, etc. Finally the faces also are thickly smeared, and then the females are summoned into the kashga. After a brief lapse of time a noise is heard, shrieks and yells, snorting and roaring, and the disguised men, emerging from the fire-hole, show their heads above the floor, blowing and puffing like seals. It is impossible to distinguish any complete human figure, as some are crawling with their feet foremost, others running on their hands and feet, while the head of another is seen protruding between the legs of a companion. They all cling together and move in concert, like one immense snake. A number of the men wear masks representing the heads of animals, and the unsightly beings advance upon the spectators, but chiefly endeavoring to frighten the women, who have no means of escaping molestation except by buying off the actors with presents. Knowing what was before them, they have brought the kantags or wooden bowls full of delicious morsels—beluga-blubber, walrus-meat, whale-oiled berries, and other dainties. When each of the maskers has eaten and filled a bowl or two with delicacies to take home, they indulge in a pantomime and gesture-play of a highly grotesque character. After completing the ceremony in the kashga the maskers frequently visit some of the dwellings and receive gifts in each, the whole performance ending with singing, dancing, and feasting in the kashga.

An annual memorial feast, celebrated in one of the villages on Norton sound, was described by Zagoskin as follows:

> On the day before the festival the people from neighboring villages had assembled to the number of seventy, exclusive of children. On the following day the givers of the feast proceeded to the burial-ground, for the purpose of renewing the memorial posts and depositing the head of a reindeer with its entrails; wooden bowls with various articles of food were also deposited. In the evening the kashga was filled with people, but the most profound silence reigned. The feast was in memory of seven deceased persons, and accordingly seven huge stone oil-lamps were placed around the fire-hole. Before the beginning of the ceremonies the givers of the feast, dressed in their best apparel, deposited upon the floor the articles intended for distribution in memory of their dead kinsmen. These articles consisted of spears, arrows, garments of various kinds, seal-skins, paddles, knives, hatchets, rings, tobacco, mats, and various trifles. Each giver proclaimed in a loud voice for whom each article was intended, and then delivered it in silence. At the end of the distribution the spectators and hosts divided themselves into four groups, one in each angle of the kashga. One of the visiting old men, assisted by a number of women, began to chant a song especially composed for the occasion by the shamans or tungaks, acting as masters of ceremonies. The voices of the singers were kept in a low key; drums and rattles were not used on this occasion. Then the givers of the feast represented in pantomime, without stirring from their places or moving a foot, the deeds of their deceased relatives. After the pantomime, which lasted half an hour, the performers left the kashga. After the lapse of about fifteen minutes the whole floor of the kashga was covered with food; there were mountains of blubber, several whole boiled seals, huge piles of dried fish, and also, to my astonishment, several wooden dishes with clean water. Several of the givers of the feast produced as many as fifteen different dishes. All those who rejoiced in the same name as the dead in whose honor the feast was given were selected and presented with one of the small bowls of water, which they seized, wetted their fingers and sprinkled a few drops of water upon the floor, whispering, at the same time, "Drink, our dead kinsman." Then these namesakes of the dead were presented with bowls of food, and they also scattered a few morsels upon the floor, saying, "Take this, our dead kinsman, from our stores, and help us to obtain more during the coming year." After this the gorging became general.
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> The small-pox had decimated these tribes but a few years previously, and the number of bowls of water distributed in memory of its victims was very great.

It has already been mentioned that many individuals gave away all their property on such occasions. If it happens that during such a memorial feast a visitor arrives from a distant village who bears the same name with the subject of the celebration he is at once overwhelmed with gifts, clothed anew from head to foot with the most expensive garments, and returns to his home a wealthy man.

Another festival, in honor of the spirits of the sea (*ingiak*), is celebrated by the coast tribes during a whole month. The preparations for this gathering begin early in the autumn. Every hunter preserves during the entire year the bladders from all such animals as he kills with arrows; the mothers also preserve with the greatest care the bladders of all rats, mice, ground-squirrels, or other small animals killed by their children. At the beginning of December all these bladders are inflated, painted in various colors, and suspended in the kashga; and among them the men hang up a number of fantastically-carved figures of birds and fish. Some of the figures of birds are quite ingeniously contrived, with movable eyes, heads, and legs, and are able to flap their wings. Before the fire-place there is a huge block wrapped up in dry grass. From morning until night the carved figures are kept in motion by means of strings, and during the whole time a chanting of songs continues, while dry grass and weeds are burned to smoke the suspended bladders. This fumigating process ends the day's performances, which are begun anew in the morning. In the evening of the culminating day of the festival the strings of bladders are taken down and carried by the men upon painted sticks prepared for the occasion; the women, with torches in their hands, accompanying them to the sea-shore. Arrived here, the bladders are tied to the sticks and weighted with stones, and finally thrown into the water, where they are watched with the greatest interest to see how long they float upon the surface. From the time of sinking and the number of rings upon the water where the bladder has disappeared the tungaks prophesy success or misfortune in hunting during the coming year.

A final memorial feast in honor of a distinguished ancestor is conducted as follows:

Eight old men clad in parkas enter the kashga, or council-house, each carrying a stone lamp, which they deposit around the fire-hole. They next produce three small mats and spread them upon the floor in three corners of the building, and from the spectators three men are selected who are willing to go to the grave. The three nearest relatives of the deceased then seat themselves on the mats and divest themselves of all their clothing, wash their bodies, and don new clothes, girding themselves with belts manufactured several generations back and preserved as heirlooms in the family. To each of these men a staff is given, and they advance together to the center of the kashga, when the oldest among the invited guests sends them forth to call the dead. The messengers leave the building, followed by the givers of the feast. After an absence of ten minutes the former return, and through the underground passage the whole population of the village crowds in, from the old and feeble down to children at the breast, and with them come the masters of ceremonies, wearing long seal-skin gloves, and strings of sea-parrot bills hanging about the breast and arms, with elaborate belts nearly a foot in width, consisting of the white bellies of unborn fawns trimmed with wolverine tails. All such ornaments are carefully preserved and handed down from generation to generation, some of them being made of white sable—an exceedingly rare skin—for which high prices are paid, as much as twenty or thirty beavers or otters for one small skin. The women hold in their hands one or two eagle-feathers, and tie around the head a narrow strip of white sable. Each family, grouping itself behind its own stone lamp, chants in turn in mournful measure a song composed for the occasion. These songs are almost indefinitely prolonged by inserting the names of all the relatives of the deceased, living and dead. The singers stand motionless in their places, and many of those present are weeping. When the "song of the dead" is concluded the people seat themselves, and the usual feasting and gorging ensue. The next morning, after the bath indulged in by all the males, the multitude again assembles in the kashga. The chanting around the fire-hole is renewed in the same mournful tone, until one old man seizes a bladder drum and takes the lead, accompanied by a few singers, and followed in procession by all participants in the feast. They walk slowly to all the sepulchers in succession, halting before each to chant a mourning song; the visitors not belonging to the family in the meantime crowding upon the sodded roofs of the houses watching the proceedings. In the evening all that remains of food in the village is set before the people, and when the last kantag is scraped of the last remnant of its contents the feast is ended, and the visitors at once depart for their homes.

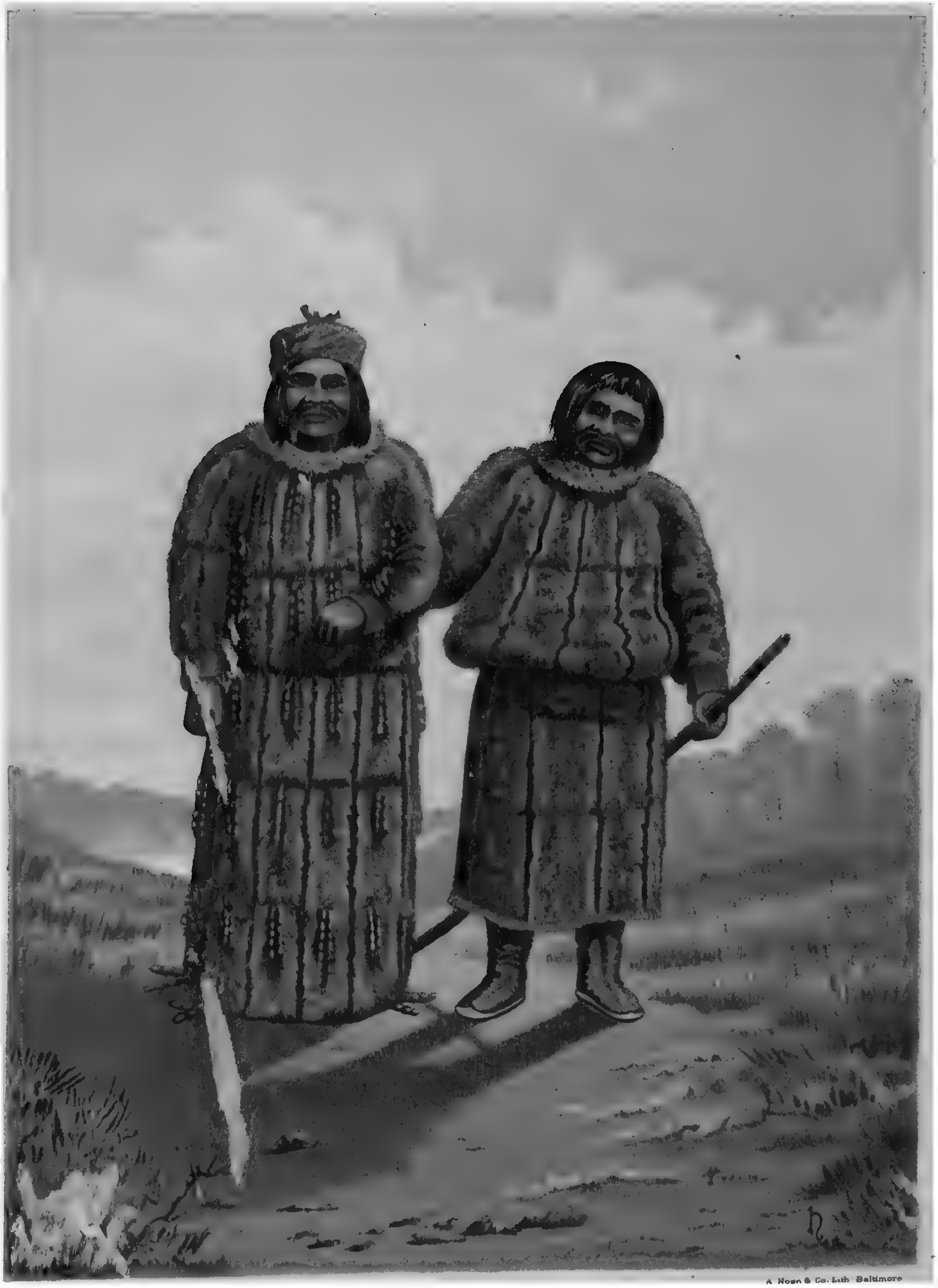
Occasionally the giver of such a feast, desiring to do special honor to the object of it, passes three days sitting naked upon a mat in a corner of the kashga, without food or drink, chanting a song in praise of his dead relative. At the end of such a fast the visitors present gifts to him; the story of his achievement is carried abroad, and he is made famous for life among his fellows.

The history of a day as it passes in an Eskimo village on the Bering sea-coast will furnish the best description of the manners and customs of these people. As has already been mentioned, it is customary with the men to sleep in the kashga, a few having reindeer-skins as bedding, and those who are without them sleep on the bare planks, covering themselves with their parkas and using their nether garments as pillows; feather pillows seeming to be the prerogative of the wealthy only. In the winter time the day begins at about 8 o'clock. Whoever happens to be first awake lights the oil-lamp, if any of the fluid remains from the previous night; if not, he emerges from the kashga and brings a supply from his home. The kashga is common property, though a few old men, who probably assisted in building it, assume the duties of hosts on certain occasions. Axes, wedges, and other tools are brought to the kashga from time to time, and are also considered common property as soon as they have been deposited.

The huge stone lamps for lighting do not require any repairs, and are handed down from generation to generation; but if any material is wanted, such as planks, dried grass, etc., for repairing the building, it is at once furnished by those who happen to have it on hand.

A few of the men prepare breakfast in the kashga, but to most of them the meal is brought in by their wives or some other female relatives. After breakfast it is deserted for a time, the men going out to look after their traps and fish-nets, or to hunt in the neighborhood. The women assist their husbands in harnessing the dogs and then, in their turn, go out to gather dry wood, or employ themselves in domestic labor, sewing or patching, making threads from deer-tendons, or plaiting mats or socks. Nearly all the coast tribes here discussed wear, always in the summer and frequently during the winter, socks made very skillfully of dried grass by the women. Occasionally a woman may be seen hammering with all her might one of the posts of a storehouse without any apparent purpose; she is in the last days of pregnancy, and that kind of exercise is considered conducive to an easy delivery. The boys and girls scatter about the vicinity to look after their snares and traps set for hares and grouse. About an hour after noon the thickening, whitish smoke arising from the dwellings indicates the dinner of the children; after that the adults assemble for the same purpose. The wife divests her returning husband of his wet garments, unharnesses the dogs, deposits the sled on the roof of the dwelling, and stores away in the storehouse the fish or game brought home by the husband, always laying aside a portion for days when the inclement weather will keep the provider at home. During the winter from four to five days frequently pass when the hunters have no opportunity to leave the house to look after their nets and traps. The dinner over, the kashga begins to fill up. Men bring their work and pass away an hour repairing arms, tools, nets, and other implements, until somebody suggests a bath; this meets with general approbation, and preparation begins. Wood is carried in by the armful, the fire lighted, and the men bring from their houses their toilet articles—a wisp of dry grass, a basin, and a few branches of alder for whipping themselves into perspiration. At last the bath is ready; the kashga is heated to suffocation and full of smoke; the men throw off their garments, and with shouting, dancing, and whipping bring themselves into perspiration; then a liberal application of their disgusting substitute for soap produces a lather, which is rinsed off with cold water and finally removed by the bathers rushing out of the building and rolling in snow, or jumping into the river should it be free from ice. The first part of the process creates a terrible stench in the kashga, which is still increased and perpetuated by throwing the remains of the fluid contained in a bowl into the four corners of the building. While the men are indulging in the bath we will watch the sports of the young people outside. Some boys and youths have organized a jumping match; a number of willow branches are placed upon the ground at a distance of 6 or 7 feet from each other, and the contestants endeavor to jump from branch to branch without removing them from their places. Gradually the distance between the marks is increased until but a few active individuals succeed in accomplishing the feat. In the meantime the women are chasing each other over the snow, screeching and laughing, and if one happens to fall she is jeered most heartily and nearly smothered with snow thrown upon her by the spectators. The bath being over, the opening in the roof of the kashga is uncovered, and the men sit around the platforms, stupefied with heat and smoke and weak from profuse perspiration. Some of the more ambitious youths propose another contest, while the fresh air gradually enters the kashga and makes it habitable once more. An arduous task is set—to go to the river and in the shortest possible time to pierce the ice, at least 4 feet in thickness. One of the old men is chosen as umpire and the whole party proceeds to the river bank. The tools employed are crude ice-picks and bone crowbars, and it is astonishing with what rapidity this solid ice is pierced, while a shower of sparkling fragments flies up and over the ambitious workmen. In five or six minutes the feat is accomplished, water welling up through the opening made by the victor, who is escorted back to the kashga amid general acclamation.

Evening is approaching, the people are scattering about the village, when away in the distance on the ice of the river two sleds appear in sight, and children playing on the river bank are first to discover them; but no particular attention is paid to the incident. The travelers approach and put up at one of the dwellings; it is a family consisting of a man, a woman, a grown-up daughter, and a small boy. Nobody meets them, but the new arrivals, seeming perfectly at home, tie their dogs to the posts of the storehouse, discharge their lot of provisions or utensils, and place the sleds on top of the roof. The women and the boy then enter the house while the man proceeds to the kashga, which he enters without any solicitation—in fact, words of salute are missing in the vocabulary of this people. Making his way to one of the platforms he shakes the snow from his boots, then takes them off and hangs up his outer garments to dry; he then divests himself of his gloves or mittens and draws his arms out of the sleeves of the inner parka. Seating himself he may remark to the man next to him, "I sit beside thee," to which the other will answer "Tavai, tavai"; an expression of assent, with no very definite meaning. The new-comer then lights his pipe or takes a pinch of snuff, and after thus refreshing himself begins to talk. He does not address himself to anybody in particular, but communicates what has happened along the line of his journey, what he has seen and what he has heard in the various villages through which he has passed; but everything is related in a disguised, indefinite manner. For instance, he says: "Russians or traders have been in such a village and made presents of tobacco." This means that he has seen the strangers and himself received presents, without specifying where the meeting took place and what other villages were visited by the Russians. Or he will say that such a man lies in the kashga dressed in a new parka, with his head against a wall; which means that somebody has died.



A Hoen & Co. Lith Baltimore

KUSKOKVEGMUTE—MALE SUMMER DRESS

Again he says in such a house the shaman or tungak is busy, a sign of sickness; of another family he says that oil and blubber are plenty with them, without going to the trouble to explain that the head of the house has returned from a long hunting or trading journey crowned with success; but who died, or who was sick, or who was fortunate in hunting, is only ascertained upon further questioning, which may be postponed for days. At the time of the first narrative just described nobody makes any remarks except, perhaps, "*Ah kika*," an affirmative exclamation.

The stranger has not come to see anybody in particular, but wishes to dispose of some goods in exchange for other articles he needs. After having told his tale, in the fragmentary manner described above, he brings into the kashga all he wishes to barter, declaring at the same time that for such an article he wishes to exchange such other commodity. Every one present inspects the articles deposited on the floor, and if one finds anything of use to him he leaves the kashga without saying a word and brings the article asked in exchange, which is at once submitted to the inspection of all present. If the stranger is not satisfied he remains silent, the purchaser withdraws, and others try their fortune until a trade is made. Here comes a man who purchased something of the stranger a year or two previously, but, ruing his bargain, returns the article, saying simply "This does not suit me". The other picks it up and returns without any remonstrance anything he has in his possession of equal value with the original price.

When night comes the kashga appears dark and empty, and the greater part of the men have gone to partake of supper in their own dwellings; but gradually they assemble again. Those who are well to do bring their quota of oil for the lamps, others bring their handiwork, while others again sit on their haunches, rocking backward and forward, listening to the narrative of the new arrival or to domestic gossip, from time to time refreshing themselves with smoke or snuff. Suddenly the sound of the drum is heard from one of the dwellings, accompanied by the chanting of the tungak; signifying that some sick man is being doctored. In one of the dwellings sits the patient suffering from fever and rheumatic pains; before him are placed two lighted oil-lamps, and a parka is drawn over his head, while two shamans or tungaks, one standing on each side, alternately sing and beat the drum. Behind them, faintly visible in the semi-darkness, is the head of an old woman, who, while imitating the croaking of a raven, rubs and pounds the back of the patient. If the pain does not cease the old woman changes her tactics and also her voice, imitating successively the chattering of magpies, the barking of dogs, and the howling of wolves; and if all this be in vain she throws herself upon the sufferer, cuffing and beating him until she makes him forget one pain in another, while the tungaks sing louder and louder and the drums give forth a deafening noise. At last she snatches the parka from the patient's head, yells repeatedly, and points to the roof; the cover of the smoke-hole is removed and the evil spirit which has caused the sickness escapes amid the beating of drums and the triumphant cry, "He is gone! He is gone! Ugh! Ugh!" and the old woman, her task accomplished, collapses into a mass of rags upon the floor. It is the third spirit driven out of this patient—how many more dwell with him nobody can tell; if it was the last he will soon mend, but on the other hand, if not the last, there will be more chanting, more drumming, more cuffing, and more payments to the cunning tungaks, until the sick man either dies or can pay no more. The tungaks claim that their science and skill consist in discovering what spirit infests the sick man, and to drive it out they do not consider difficult at all.

At midnight the young men stretch themselves upon the platform of the kashga, which has been deserted by the married men, who have returned to their homes.

THE KUSKOKVAGMUTE.—This tribe (the Kuskokvogmute of Dall, or the Kuskuchevak of Richardson), numbering between 3,000 and 4,000, occupies both banks of the Kuskokvim river from its mouth to the vicinity of Kalmakovsky, and are among the most interesting of the Eskimo tribes bordering upon Bering sea. They were brought into contact with the Russians at an early date (1835), when Kolmakof explored the overland route from Bristol bay to Norton sound, along which route, now no longer traveled, the effects of Russian influence are quite perceptible; but the inhabitants of the lowlands about the river mouth have scarcely come in contact with Caucasians up to the present day. The labors of the Russian missionaries of the Yukon never extended to this region, though their registers and reports show quite a number of Christians on the Kuskokvim river. The only trace of Christianity among this tribe, outside of the immediate vicinity of the trading-station with its chapel, consists of a few scattered crosses in the burial-places adjoining the settlement. At the village of Kaltkhagamute, within three days' travel of the Russian mission on the Yukon, the graveyard contains a remarkable collection of grotesquely carved monuments and memorial posts, indicating very clearly the predominance of old pagan traditions over such faint ideas of Christianity as may have been introduced among the people. Among the monuments in this place the most remarkable is a female figure with four arms and hands, resembling closely a Hindoo goddess, even to the almond eyes and the general cast of features. Natural hair is attached to the head, falling over the shoulders. The legs of this figure are crossed in true oriental style, and two of the hands, the lower pair, hold rusty tin plates, upon which offerings of tobacco and scraps of cotton prints have been deposited. The whole is protected by a small roof set upon posts. Other monuments are scarcely less remarkable in variety of feature and coloring, and the whole collection would afford a rich harvest of specimens to any museum. During my brief stay at this spot it was found impossible to ascertain anything of the meaning of these monuments or to gather any of the traditions of the people with reference to them, though several of the structures were quite new, one of them, in memory of a young man who had been killed accidentally while hunting, having been erected but a month previously. The presence of my Christian paddlers from the Yukon mission acted as a very efficient restraint upon the people of Kaltkhagamute, who nominally belong to the missionary fold. Nearly all these figures were human, though grotesque and misshapen, and drawn out of proportion. No images of animals or birds, which would have indicated the existence of totems and clans in the tribe, were to be seen; but here and there, over apparently neglected graves, a stick, surmounted by a very rude carving of a fish of the salmon species, could be discovered.

The burial-places of the populous villages of the lower Kuskokvim river abound in these carved monuments, but nowhere could I discover the totem among the emblems, though Mr. E. W. Nelson, of the United States signal service, claims that among the Kaialigamute of the great lake region of the delta he saw totem-posts set up among the dwellings. As the people of the great lakes have always led an isolated existence, having been totally unknown to white men until Mr. Nelson went among them (the whole region having been covered by former map-makers with a mountain chain), it is probable that they have preserved customs which their neighbors have long since discarded; and it is very desirable that some scientific explorer should locate himself for a year or two on the lower Kuskokvim, in order to investigate thoroughly the ethnological features of this highly interesting region.

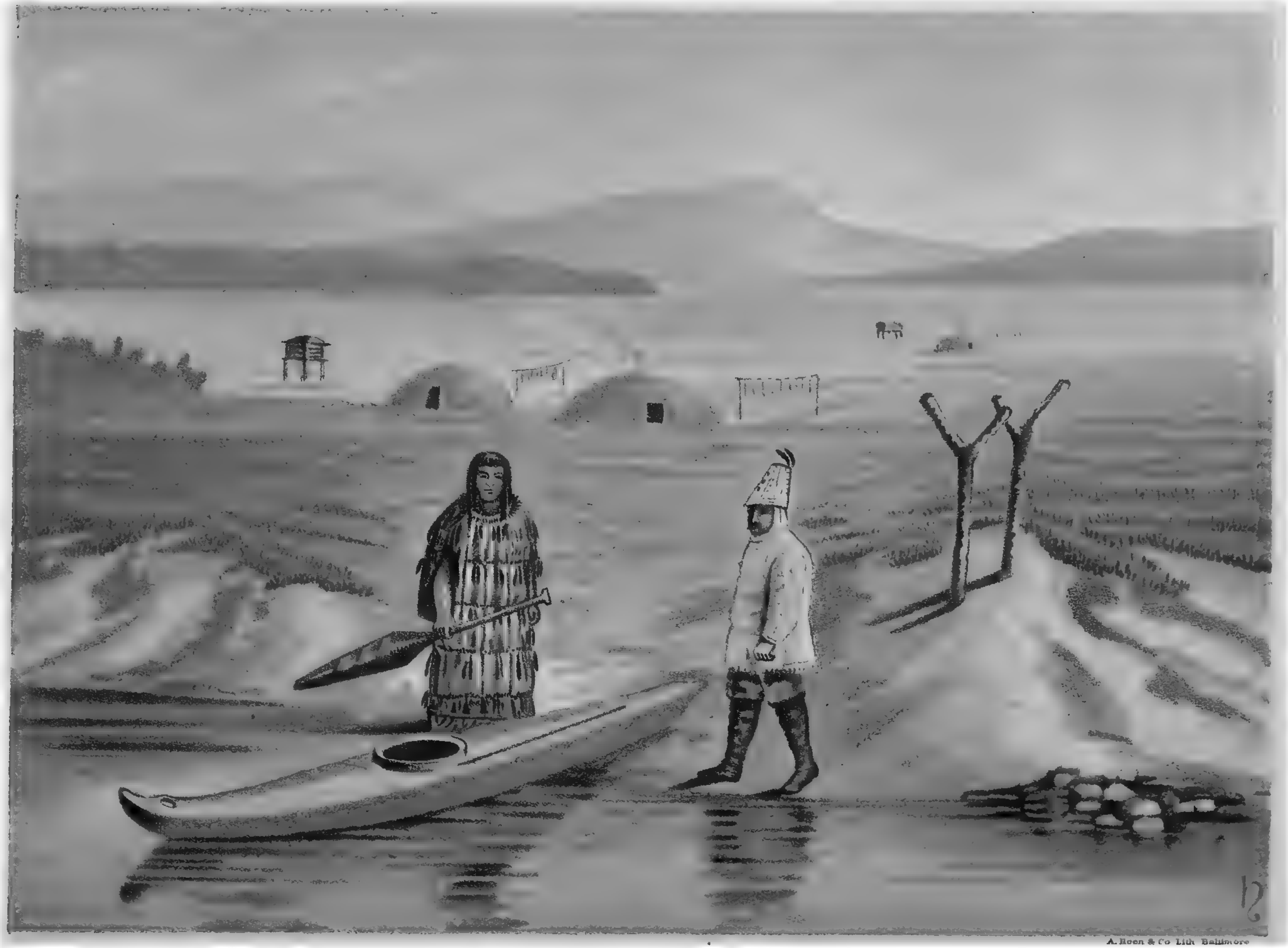
The Kuskokvagmute resemble in outward appearance their Eskimo neighbors in the north and west, but their complexion is perhaps a little darker. The men are distinguished from those of other tribes by having more hair on their faces; mustaches being quite common, even with youths of from twenty to twenty-five, while in other tribes this hirsute appendage does not make its appearance until the age of thirty-five or forty. Their hands and feet are small, but both sexes are muscular and well developed, inclined rather to embonpoint. In their garments the Kuskokvagmute differ but little from their neighbors described above, with the exception of the male upper garment, or parka, which reaches down to the feet, even dragging a little upon the ground, making it necessary to gird it up for the purpose of walking. The female parkas are a little shorter. Both garments are made of the skins of the ground-squirrel, ornamented with pieces of red cloth and bits of tails of the squirrel, as depicted in the accompanying plate. The females wear no head-covering except in the depth of winter, when they pull the hood of their reindeer parka over the head. The men wear caps, made of the skin of the ground-squirrel, resembling in shape the famous Glengarry cap. The young men frequently wear a small band of fur around the head, into which they insert eagle and hawk feathers on festive occasions. The former custom of this tribe, of inserting thin strips of bone or the quills of porcupines through an aperture cut in the septum, seems to have become obsolete, though the slit can still be seen on all grown male individuals. The ears are also universally pierced for the insertion of pendants, but these seem at present to be worn by children only, who discard them as they grow up. In fact, all ornamentation in the shape of beads, shells, etc., seems to be lavished upon their little ones, who toddle about with pendants rattling from ears, nose, and lower lip, and attired in frocks stiff with embroidery of beads or porcupine-quills, while the older girls and boys run almost naked, and the parents are imperfectly protected against cold and weather by a single fur garment.

The use of the true Eskimo kaiak is universal among the Kuskokvagmute, but in the timbered regions on the upper river, in the vicinity of Kalmakovsky, the birch-bark canoe also is quite common. The latter, however, is not used for extended voyages or for hunting, but is reserved chiefly for attending to fish-traps, for the use of women in their berrying and fishing expeditions, and for crossing rivers and streams.

Each of the villages of the tribe has a kashga or council-house, many of them of large dimensions, and in structure closely resembling those already described in the Yukon region and delta. The dwellings also are very similar to those already described; but as we descend the river and pass from forests into the desolate marshes or tundra, the dwellings, owing to scarcity of wood, become more wretched, until they finally appear little more than holes in the ground covered with low mounds of turf. The custom of performing all kinds of labor in the kashga prevails here as among the other tribes, and the same building is used for the celebration of festivals, which are of frequent occurrence among these sociable people; whole villages leaving their homes for two or three weeks to visit their neighbors and assist in dances and masked performances in memory of some deceased person of prominence. During such visits only the sick or the very aged are left behind. The steam baths, so common in all these regions, are also prepared in the kashga, but are indulged in only by the grown-up males.

The accompanying plate represents a beluga-hunter of the lower Kuskokvim and his humble home.

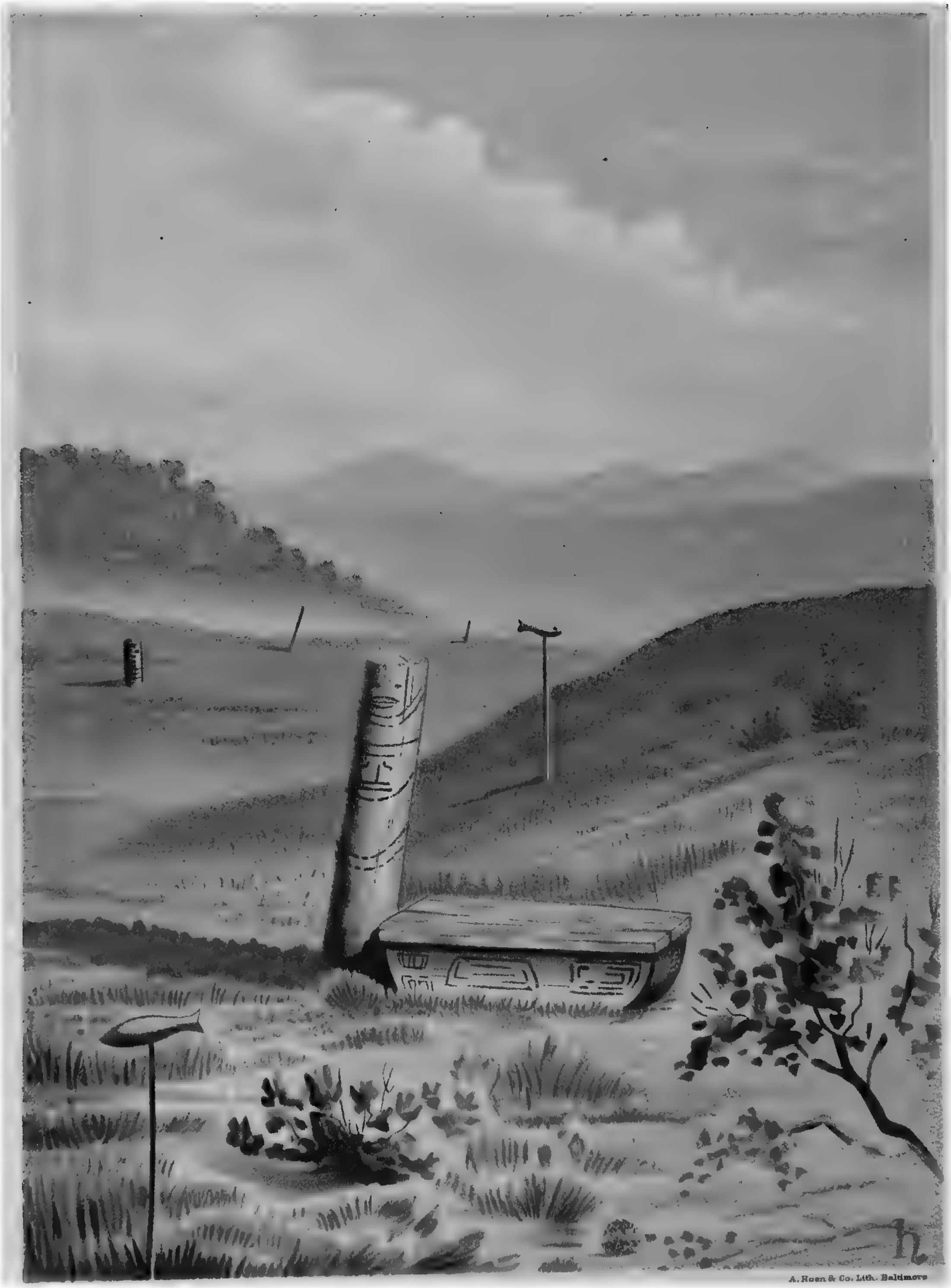
The Togiagamute.—This tribe has not heretofore been distinguished as a subdivision of the Eskimo, having never been visited by white men in their own country until the year 1880. They have remained thus isolated and unknown because their country affords no attraction to the trader in the shape of furs. They possess the general features of their Eskimo neighbors, but the males rarely have any beard until they are quite old. Their dwellings are of the most rude description, the villages resembling those of the prairie-dog on a somewhat enlarged scale. This similarity is increased in the morning, when it is the custom of the men to crouch upon the apex of the low mound of sods, staring about aimlessly into vacancy, wrapped completely in their ground-squirrel parkas. The Togiagamute—who may be divided into people of the coast and those of the interior or lakes—have held no communication with traders, except through the medium of a few individuals of the coast people who were bold enough to visit a small trading-post some distance to the eastward of the mouth of Togiak river. The interior people, or Kassianmute, had never beheld the Caucasian until my visit. Of their domestic life but little could be ascertained, as women and children would fly screaming to hide in the tall grass of the tundra at first sight of the



A. Hoen & Co. Lith. Baltimore

BELUGA HUNTER AND DWELLINGS — LOWER KUSKOKVIM, ALASKA.

PLATE IV


A. Hoen & Co. Lith. Baltimore

BURIAL PLACE OF TOGIAGAMUTE.

visitor, who was at once surrounded by a crowd of astonished and inquisitive males, nearly everything on and about the traveler and his canoe possessing the greatest interest for them, and loose articles, such as a compass and field-glass, writing materials, etc., were passed around from hand to hand and closely inspected, but safely returned at last. An absence of the elaborate carvings found among the Kuskokvagmute is very noticeable here; the crudest images of fish and the human head and face being all they possess in this line. They lead a thoroughly nomadic life, wandering from place to place in search of game or fish, having no shelter beyond that afforded by a kaiak turned upon its side, supported by a paddle or two. This simple screen is shifted about as the wind changes, and whole families rest in the lee of this unsatisfactory shelter in pelting rain-storms, with only their heads enjoying the least protection. Among the Eskimo tribes heretofore described the traveler generally finds some one in each village who acts as spokesman, though not possessing any real authority, but the Togiagamutes seem to live in the most perfect state of independence of each other. Even the communities do not seem bound together in any way; families and groups of families constantly changing their abode, leaving one community and joining another, or perhaps forming one of their own. The youth, as soon as he is able to build a kaiak and to support himself, no longer observes any family ties, but goes where his fancy takes him, frequently roaming about with his kaiak for thousands of miles before another fancy calls him to take a wife, to excavate a miserable dwelling, and to settle down for a time.

A branch of this tribe occupies a few villages in a peninsula formed by cape Newenham. These differ much in their habits and customs from their immediate neighbors, owing to the fact that large droves of reindeer still roam over the mountains of the peninsula, the hunting of which seems to be a monopoly of these natives, whom we may distinguish as the Chingigumute or Cape people, and whose principal settlement is Azivigiak. The Chingigumute have been in contact with both Russians and neighboring tribes, as a portage route from the Kuskokvim to Togiak bay leads through their country; consequently they do not differ much in their customs from the Kuskokvagmute, though their dialect is that of the Togiagamute. There is one peculiarity of the people just described which they have in common with the inhabitants of the lower Kuskokvim. I refer to the surprising indifference in regard to the quality of their drinking-water, as they drink the water of brackish lagoons, full of offal of fish, seal, etc., even in localities where running water of better quality is quite convenient. The hunters who proceed to sea in their kaiaks in pursuit of the seal or of the beluga take with them only a dipper, and quench their thirst with salt water. I had occasion to observe this peculiar custom even when I had with me a supply of fresh water, of which these natives might have partaken.

The accompanying plate represents a burial-place near the mouth of the Togiak river.

THE NUSHEGAGMUTE.—The Nushegagmute, also known as Kiatagmute, are confined strictly to the valleys drained by the Nushegak river and its tributaries. In outward appearance they resemble their neighbors already described, but their manners and customs have been somewhat changed by long contact with the Russians and the location of the missionary station at Alexandrovsk, on the mouth of the river. The men are hunters of considerable skill on both land and water. The natives inhabiting the headwaters of the river and the lake region of the interior are in constant communication with the Athabaskan tribes. All the natives of this tribe are carried on the register of the Russian missionary, and consequently are nominally Christians, although still addicted to their old pagan customs and festivals. During a favorable season the outlying settlements receive an annual visit from the missionary, whose influence does not extend much beyond the baptizing of infants and the marriage of such couples as visit the mission station. The interior of this region being generally wooded, the dwellings of natives are somewhat larger and more comfortable than those of the coast people. The inhabitants of the immediate vicinity of Alexandrovsk and the sea-coast have been strangely mixed by immigration from the westward and northward, and we find here families from the Kuskokvim, from the Yukon delta, and even from Norton sound, the latter of the Mahlemute tribe. Many of these strangers are engaged in walrus-hunting along the shallow coast and about the outlying islands. Here, as on the Kuskokvim, the natives within the reach of tide-water use the Eskimo kaiak exclusively, while those of the interior have birch-bark canoes. The men are all skillful carvers in ivory, and both males and females take part in the scenic performances connected with their many festivals. The kashga, or kashima (the latter a Russian term), is found in every village, and is used as workshop, bath, and assembly-room alternately.

Great care and pains are bestowed upon their masks and scenic representations by these natives, as well as by the neighboring tribes. The actors in the scenes represented always array themselves in their costumes and masks out of sight of the spectators, generally in that part of the kashga partially covered by the flooring, ascending through the fire-hole like actors from a trap in the stage. A change in the action is generally accomplished behind skins held up as a screen, and every participant in the performance does his utmost to act his part as true to nature as possible. During representations of combats between men, and between men and animals, bladders filled with seal's blood are concealed about the person in order to give a realistic representation of the flowing blood. Stuffed animals introduced on such occasions are generally moved about quite naturally by hidden strings and cords, and carved birds flap their wings through the same agency. The majority of the masks have movable eyes and jaws. In fact, these performances afford a striking contrast to the dramatic scenes enacted by the Chinese, who boast of the oldest civilization of the globe. A learned Chinaman, with the red button on his cap, the proof of having passed the most difficult examinations, will stand in the auditorium of a Chinese theater crowded to suffocation, through a five or six hours' performance on the board stage, where everything in the way of scenery consists of a few dry-goods boxes and a stool or two; where changes of scenery are denoted by placing a small flower-pot on one of the dry-goods boxes to represent a garden, and placing an inkstand to indicate an office or a court-room; where a criminal about to be executed is touched with a paper sword on the side of his neck, and walks demurely off the stage in full sight of the audience; where a man about to be murdered walks out and brings in a miserable dummy and holds it up to be slain in his place; while among these savage tribes every detail pertaining to their representations is attended to with patience and care, exceeding even those bestowed upon such matters on our provincial stages.

THE AGLEMUTE.—This tribe, numbering but a few hundreds, inhabits the north coast of Aliaska peninsula, down to the Oogashik river, where the Aleutian settlements begin. The Aglemute also are Christians, but, like their neighbors, retain all their former customs and superstitions. Their villages are all located on the sea-coast, with the exception of one at the head of lake Walker. The natives of the coast villages are walrus-hunters, and occasionally put out to sea in pursuit of whales. They are equally skilled in ivory carving with their northern neighbors, the difference between them being almost purely dialectic. The latter circumstance is probably owing to the fact that the Aglemute have lived from time immemorial upon the portage routes between Bering sea and the north Pacific, across the Aliaska peninsula. The people of the easternmost villages on lake Walker even now maintain a more constant communication with the Kaniagmute of Katmai across the mountains than they do with their kinsmen on the coast of Bering sea. Among the Aglemute also traces of immigration from distant tribes exist. I found on the Naknek river, the outlet of lake Walker, a family hailing from Ikogmute, some 200 or 300 miles up the Yukon. Their immigration had taken place quite recently, and they still remembered many of the people in their old home by name. In former times there existed another element among the Aglemute—Aleutian invaders, who for some time inhabited two settlements on the mouth of the Naknek river. As far as can be ascertained, the Aleutians retreated down the peninsula as far as Oogashik at the beginning of the present century. In their garments the Aglemute do not essentially differ from their western and northern neighbors, though they make use of reindeer-skins for their winter garments, these animals being quite plentiful in their country.

THE KANIAGMUTE.—Crossing the mountains from the country of the Aglemute, we enter the territory inhabited by the most important among the Eskimo tribes of Alaska, the Kaniagmute (Koniagimute or Kadiaktzi of the Russians, Kikhtagmute of the Aglemute, or the Ultz-chna of the Athabaskans of Cook's inlet). The Kaniagmute were the first Eskimo tribe with whom the Russians came in contact, and their first meeting was not of a friendly nature. Before the Muscovite traders had become more intimately acquainted with this tribe they classed them as Aleuts, on the strength of their outward resemblance to the latter, and such they were called as long as the country remained under Russian rule, though scientific men knew long ago that the Aleut belonged to a different tribe from this. Our earliest knowledge of the Kaniagmute is based upon the reports of Golovief, the Russian, who landed on Kadiak in the year 1762, and of Shelikhof, who established the first permanent settlement on the island. The latter, whose personal investigations among the people extended over two years of residence, in narrating the events of his voyage, wrote as follows:

> The Kaniags (Kadiak people) are tall, healthy, and strong, generally round-faced, with light brown color; the hair is black, seldom dark brown, and is cut off around by men and women. The wives of some of the more prominent natives comb a bunch of their hair foward over the forehead and cut it off at the eyebrows. A few of the men have beards, and both sexes frequently tattoo the breast and shoulders in imitation of neckerchiefs. Men, women, and young girls pierce the partition of the nose as well as the ears and under lip; the latter disfigurement often assumes the size and shape of a second mouth. Through the hole in the nose a small stick or bone is worn, and bead ornaments are placed in the ears, mouth, and nose. The men do not cut their beard. They have no shoes, going always barefooted, and at home entirely naked, with the exception of a small apron of skin. They wore parkas of the skins of beaver, otter, fox, bear, birds, ground-squirrels, marmot, marten, rabbit, reindeer, wolverine, and lynx. Their rain garments are made of the entrails of sea-lions, seals, and whales. On their heads they wore hats made of spruce-roots and grass, also wooden caps, bent or curved, of one piece.
>
> In the chase of marine animals they used spears that were thrown from little boards, but in war times they used bows and arrows and lances, with points of iron, copper, bone, or stone. They have iron hatchets of peculiar shape, also pipes, knives of iron and bone, iron needles (until our arrival the women made their own needles of bone); thread made of sinews, dishes made of wood, of the horn of mountain sheep, of clay, and stone. Their boats were bidars covered with skins. They catch fish at sea with bone hooks, the lines being very long and made of dried sea-weed, the seam of one kind of sea-weed being sometimes 40 fathoms long. In the rivers they catch their fish by means of weirs and dams, killing them with spears. They make fire by friction, and use stone lamps for lighting filled with the fat of seals, bears, or sea-lions, and provided with wicks of grass.
>
> Of their marriages I know nothing, nor can I say anything of their new-born children, except where the name is given from the first object in view, be it animal, bird, or anything else.
>
> The burial customs differ in the various tribes of the Kaniag. I have not witnessed these ceremonies, but I have been assured that some deposit the corpse, together with the most valuable possessions of the deceased, in a small canoe, and cover it with earth; others inter at the same time with the deceased a live slave. The Kenaige (Kenaitze), however, burn the corpse, together with a number of skins presented by relatives for the purpose.
>
> During the mourning for their dead relatives they cut the hair of the head and smear the face with black pigment; this they do only for relatives such as father, mother, brother, sister, and others especially beloved; sometimes also if a stranger for whom they have felt great friendship. If the deceased has been in bad repute or quarreled with his relatives, the latter do not go into mourning.
>
> Epidemic diseases I did not notice among them; they did not know anything of small-pox; they are of healthful habit, and live to a hundred years.

These natives go to meet arriving visitors dressed in their best and painted red, beating drums and dancing to the time with arms in their hands; the visitors approach in order of battle. As soon as the canoes are near enough the host and hostess wade into the sea up to their breasts and drag the canoes ashore as rapidly as possible; then they hurriedly assist the guests out of the bidarkas and carry them singly on their backs to the place appointed for their reception; here they all seat themselves, but perfect silence reigns until everybody has eaten and drunk his fill.

The first and most important ceremony consists in partaking of cold water, and then the children and youths bring on the various dishes, consisting of blubber, a hash made of fish, seal, whale, and sea-lion meat and blubber; the next, berries of various kinds served with oil; then roots mixed with berries and dried fish, and finally meat of animals and birds. Salt is unknown to them. Of every article of food the host must taste first. This made me believe that they had a knowledge of poison. When the host has tasted from a dish he hands it to the guest at his right; he helps himself and then passes the dish in the order of rank. If anything remains on a dish it is passed back to the first, who gathers the remnants and puts them by to take with him on his departure. The meal finished, conversation begins, and when all the news has been exchanged dancing and singing are indulged in to the music of drums and rattles. Some don masks of grotesque patterns made of wood and painted. When the guests are dressed they are carried by the host to a large hut; this building resembles somewhat a temple of irregular and barbarous architecture. Here the real entertainment begins; as long as the guests remain singing and dancing and pantomime are continued; when tired they go to sleep, but when they awake the entertainment goes on, ending only with the termination of the visit. On taking leave both parties make presents to each other, and perhaps do a little trading. In these large buildings all of the councils, consultations, and assemblies are held; and whenever anything of importance is going on the female sex is excluded.

[The Kaniags and Chugach have one language, but the Kenaige are entirely different in both language and customs.] The people live in subterranean dwellings, the walls of which are lined with planks; the window-openings are on top, covered with bladders of various animals; the entrance is from beneath. They have no fire-places, and make no fire because it is warm enough without. Their bath-houses are similarly constructed, and heat is produced with stone heated in a fire outside; here the natives rub themselves with bundles of grass and twigs. These baths are very hot, but no steam is used. Each settlement has a common kitchen with doors or openings all around. Whoever steals most frequently and successfully is most respected. They do not have many wives—seldom a man has two, but the good-looking and active women sometimes keep two and three men without any appearance of jealousy among them.

They have no vehicle on land and no draught-animal, and though dogs are numerous they are not employed for this purpose.

They have not the slightest conception of a God, and though they say that two beings or spirits exist in the world—one good and one bad—they have no image or likeness of the same, and do not worship them. They are not idolators. Of the beings or spirits mentioned above they know nothing beyond the fact that the good spirit taught them to use bidars, taught them to make bidars; and the bad spirit how to spoil and destroy them. From this fact we can judge of the narrow limits of their understanding. They have, however, a great deal of sorcery and soothsaying among them; they have no law of justice, and everything tends to show that they lead a life differing but little from that of beasts. They are of an ardent nature, especially the females. They are enterprising and cunning by nature, and when insulted they are revengeful and malicious, though meek and humble in outward appearance. Of their faithfulness and honesty I can say but little, owing to my brief residence among them. I have seen examples of good faith and firmness, but also of the contrary. If they are told that they may derive profit from a certain undertaking they spare no spains and dare anything. Altogether they are a happy and harmless people, as is proved by their daily games and frolics; but as they live in constant enjoyment, and neglect their domestic affairs, it frequently happens that they suffer from want of food and clothing.

In ancient times the Kaniagmute settlements extended much farther both north and south than they do now. They carried on constant wars with the Aleutians of the Shumagin and Aleutian chains of islands, and in the north were found by Captain Cook half-way up Cook's inlet as late as 1778. In warlike disposition, strength of body, and treachery they appeared to the Russians very different indeed from the meek and humble Aleuts, but, once conquered, they became fully as manageable and as easily accepted the teachings of the Russian missionaries, who began their labors among them in 1795. The intermixture of Caucasian and other elements in this district has been so great as to leave but few of the original tribal peculiarities either in outward appearance or in manners and customs. The Kaniagmute and their eastern neighbors, the Chugachimute, are the only sea-otter hunters among the Eskimo of Alaska, and as such naturally become of greater importance to the Russians than their western neighbors, receiving a greater share of attention in every way. The manners and customs of the Kaniagmute have been repeatedly described since the days of Shelikhof. First after him came Davidof, a young officer of the Russian navy, who resided two winters on Kadiak island, in 1802–'03. They were next described by J. H. Holmberg, an ethnologist of some repute from Finland, who embodied much of Davidof's work in his own, which was published about the year 1850. Other Russian and German writers have touched upon the subject. The substance of these previous investigations, together with my own personal observations, are embodied in the following pages.

The Kaniags (Koniag, or Kikhtagmute) are the inhabitants of the island of Kadiak and surrounding islands. They were called Kadiak-Aleuts by the Russians, or briefly Kadiaks. Neither of these two appellations is strictly correct, as originally neither island nor people bore such a name. The name of Kadiak is evidently a corruption of Kikkhtak, a word signifying in the language of the Kaniagmute a great island, and which was naturally applied to the largest island of the group. What may have induced the Russians to call the Kaniags Aleuts, a name first applied to the inhabitants of the Fox islands, different entirely in language as well as in outward appearance from the former, is not easily explained, unless it was based upon the general similarity of outline existing among the natives of the northwest coast of America. In the course of time the name of Kadiak has been universally adopted even by the natives of the island, while the younger generation call themselves Aleut, which they pronounce Aleutik; only the aged still maintain that in the days of their liberty and independence their name was Koniag. We find in the Kaniags a people divided originally into commoners and hereditary chiefs. Among the Thlinket the commander or head man, who was much respected, was chosen among the families of chiefs. Under Russian rule this social organization had almost disappeared, but the chiefs or elders (*starshina*) were selected by the

Russian-American Company on account of their influence or wealth, and the company also took care to make these selections from families in which chieftainship had been hereditary. They received a salary from the company, and if they held their office for a prolonged period they were presented with a long tunic made of scarlet cloth. A starshina (or elder) dressed in this manner enjoyed among his people a greater respect than is accorded to European nobles with hundreds of ancestors.

The system of slavery was less developed among the Kaniags than among the Thlinket. They held slaves, but their number was small, and the wealth of individuals did not depend upon slaves entirely, as among the Thlinket. The sacrifice of slaves was unknown; they were looked upon only as laborers or servants, and their lot was a happier one than that of their Thlinket neighbors. Of prisoners of war only the women and children were carried into slavery; the men (according to the doubtful authority of Davidof) were killed at once, or perhaps preserved for some great festival, to be tortured in view of the whole settlement. The few who survived such torture were permitted to live. The principal mode of obtaining slaves was by barter with the other tribes; but no slaves have existed on the Kadiak group of islands for at least a generation. As soon as Shelikhof established himself at Kadiak the slaves began to flock into the Russian camp, where they found protection, and in return served as body-guard and scouts for the Russian traders. Later, when the Russians had become firmly established, they confiscated all the slaves and employed them as laborers of the company; at the same time the very name of slave seems to have disappeared, and they were designated by a word imported from Kamchatka, the "kayoor", which signifies day-laborer or servant. In course of time, when the original kayoors had decreased much in numbers, the company made a practice of replacing them with free natives who had committed crimes. It seems that the number of crimes committed always increased with the demand for labor, and finally the system of universal liability to labor for the company was adopted, from which even children and women were not excepted. In outward appearance a few characteristics distinguish the Kaniag from other tribes of the northwest coast of America. The posterior portion of his skull is decidedly flat, and his stature is considerably above the medium, making him the tallest among his neighbors. Occasionally individuals of gigantic stature are met with; for instance, Davidof claimed to have met with a chief in the bay of Igak who measured 6 feet and 9 inches in height. The dark or nearly copper color of the face or skin is considered by Davidof as not natural, but the consequence of a life of constant exposure; and at the same time he remarks that he saw many white females. The same observation was made fifty years later by Holmberg, but the white faces always appeared to him to be the result of mixture with foreign blood. The coarse black hair, the small black eyes, protruding cheek-bones, and brilliant white teeth are common to all the tribes of the Russian colonies. In former times both sexes wore their hair long, the men's in plaits and the women's in a rough knot or roll on the top of the head and cut straight on the forehead just above the eyes. On festive occasions it was smeared with whale-oil and a red powder made of burnt ocher, and finally strewn with white down, generally taken from the eagle. Of all these modes of ornamenting the hair, oiling alone has been retained, and nearly all the men, women, and children dress it in European fashion. The partition of the nose, the lower lip, and the external rim of the ear were pierced for the reception of ornaments, of which the one destined for the nose always consisted of a cylindrical pin of bone, five inches in length, sometimes replaced with the sea-lion whiskers. In lips and ears the ornaments or pendants consisted of small pieces of polished bone generally pierced and strung upon threads, but after the arrival of the Russians glass beads took the place of these. At the beginning of this century the lip and ear ornaments of the wealthy Kaniag women or a young dandy frequently weighed several pounds.

The dentalium was an ornament much prized by men and women. This shell did not exist in the Russian possessions, but was imported from the British colonies north of the Columbia river, and thence passed from hand to hand along the whole coast as far as the Aleutian islands. At the time of Davidof's visit to Kadiak, in the year 1802, the price of one pair of these little shells was a whole parka of squirrel-skins.

Davidof also relates a tradition of the Kaniagmute to the effect that in the country of the Thlinket, far to the southward, there was a lake from which the dentalium or hyqua shell was obtained, the mollusks being fed with bodies of slaves thrown into the water—a story evidently invented by the Thlinket to enhance the price of this commodity, of which they had a monopoly.

The most precious ornaments consisted of small pieces of amber that were washed up occasionally by the sea on the south coast of Kadiak, but chiefly on the island of Ookamak; these were pierced and strung and served the women as earrings or pendants. At certain times, after an earthquake, as a rule, the ocean seemed to be more lavish in bestowing this treasure, and then the amber formed quite an article of trade between the Kaniags and the people of Bristol bay and Nushegak; but as these larger harvests of amber only occurred at long intervals the value of the article always remained at a high standard.

The lower lip of the women was always pierced twice, but frequently five or six times; the men having only one such orifice. Some dandy in ancient times originated the fashion of making a long, horizontal slit in the under lip parallel with the mouth, but this mode had few followers, owing to the inconvenience of having their food come out at the artificial aperture.

At present only the oldest women of Kadiak island show traces of tattooing on the chin, though formerly this custom was universal. The mode of procedure was to smear a thin thread of whale sinew with a mixture of soot and oil, and then to draw the thread into the skin by means of a needle, thus forming certain primitive patterns. In ancient times the breasts were also tattooed, and frequently two parallel lines were drawn from the ear to the chin; and if a newly-married woman wished to give her husband a proof of great love she tattooed herself on various parts of the body and in the hands.

It was the custom of the Kaniags to paint their faces in various colors before festivities or games and before any important undertaking, such as the crossing of a wide strait or arm of the sea, the sea-otter chase, etc. The colors most commonly used were red and black, the pigments consisting of oxide of iron and graphite, which are found on various parts of the coast, mixed with whale- or seal-oil and applied with pointed sticks. After the face had been covered with one color the sticks served to scratch in the still moist foundation figures and stripes, which were either filled with other colors or allowed to retain the natural color.

In former times the clothing of both male and female Kaniags was alike, and consisted of the kamleika and the parka. Both of these names were introduced from Kamchatka; the native word for "kamleika" being *kanakhliuku*, and for the parka *atkuku*. The parka was a long shirt or garment with a small opening at the neck just large enough to allow the head to pass through, and with two short sleeves, which were intended more for ornament than for use, as under each sleeve there was a vertical slit through which the arms were thrust when needed, but commonly these members were kept concealed under the garment. The parka was made of the skins of birds or animals; of the former the cormorant, the duck, and the sea-parrot furnished the material, and of the latter those of the ground-squirrel, the sea-otter, the marmot, the bear, and the reindeer were used. After the birds had been skinned the women removed the fatty particles by sucking, and then smeared them thickly with putrefied fish-roe and let them remain in this shape for some time. After a few days they were cleansed and kneaded with hands and feet until dry. The skins thus prepared were sewed together with needles manufactured from the bones of small birds, and thread prepared by a very tedious process from the dried sinews of the whale. The most valuable of all the bird-skin parkas were those prepared altogether of the necks of the cormorant, worn only by the young women, and a single garment required the necks of from 150 to 200 birds. The feathers of these garments were worn on the outside, and were ornamented with the long hair of the reindeer, strips of ermine, sea-otter, and sometimes with eagle-feathers. Other bird-skin parkas were worn during fine weather with the feathers inside, and in wet weather these were turned out and served to shed the water. The skin was ornamented with figures and lines in various patterns traced in red pigments.

The ground-squirrel, or *spermophilus*, furnished the material most generally used for parkas. The animal does not exist on the island of Kadiak, but abounds on some of the smaller islands. The skins were first cut into squares and then sewed together so that the head and belly formed one side and the back and pendant tail the other; these double squares being then sewed together to make the parka, which consequently had fur both inside and out. The parkas made of bear-, moose-, sea-otter-, or reindeer-skin were always worn with the fur outside. The marmot-skins were obtained by barter from the Kenaitze and Chugach; the reindeer-skins from the inhabitants of the Aliaska peninsula, and exchanged for sea-otter skins or amber, etc. Reindeer parkas were always ornamented with feathers, beads, etc.

The kamleika is the most important article of clothing worn by the Kaniags, as it protects them against rain and moisture, and without it it would be impossible to undertake any extended voyages in bidarkas. It is made from the entrails of bears, sea-lions, or seals, occasionally also of those of the sea-otter. These are dried, cut into long strips, and sewed together into shirts with wide sleeves, and a hood which is drawn over the head until only a portion of the face remains bare. The entrails are prepared in the following manner: They are first turned inside out and all the fatty particles removed with a sharp fragment of a shell; then they are repeatedly washed in salt water or urine, and rinsed and allowed to dry slowly; when dry they are rubbed between the hands until perfectly soft, and then are cut into strips and sewed together. When one of these garments is completed the sleeves and neck are tightly bound and water is poured into the body in order to test its imperviousness. The kamleikas made of the entrails of the bear are considered the strongest, but the material is less plentiful than that obtained from sea-lions or seals. Lieutenant Davidof states that in ancient times the skins of the tongue and the liver of the whale were also used for the same purpose.

The garments of the Kaniags as they have been described may still be found among them. The squirrel and bird parkas and kamleikas are still universally worn, but they are now ornamented with red worsted and strips of cloth. When the Russians had obtained a firm foothold in these regions they prohibited the natives from wearing garments made of sea-otter, bear, or other valuable furs. At present the parka is worn only out of doors, while indoor shirts of cotton, dresses of calico and drill, and trousers of coarse cloth or linen are in common use; hats, and caps of American manufacture have almost superseded the hat plaited of roots and highly ornamented with beads, dentalium, sea-lion whiskers, and figures in black, red, and blue colors. A blue color, consisting of small fragments of ore which are ground to powder, is obtained by barter with the inhabitants of the Aliaska peninsula. In applying these pigments it was the custom to open a blood-vessel of the nose with a sharp piece of shell and to mix the color with the blood to the proper consistency, the Kaniags claiming that such a mixture was more durable than colors prepared with oil. In painting paddles or oars this method was generally adopted; if the bleeding did not cease speedily the cut was sprinkled with ashes. In ancient times the hat was ornamented with an elaborate piece of embroidery, the work of the women—sometimes representing a bush with birds; but this has entirely disappeared. Before the arrival of the Russians the inhabitants of Kadiak were barefooted, but they soon adopted the torbassá (boots of seal- or deer-skin), imported by the Russians from Kamchatka.

In his choice of food the Kaniag is still less particular than the Thlinket, and in addition to the articles composing the diet of the latter he consumes a number of disgusting and unclean things that no other tribe would look upon as food. As a sample of this I instance the fact that after killing a bear they empty the stomach and entrails of their contents and boil them with berries; this is done chiefly at a season when the bear also lives upon berries. This disgusting habit cannot be traced to necessity, as food of all kinds abounds at that time of the year. It may be stated briefly, but truly, that the Kaniagmute eats anything and everything from the toughest root to the most disgusting worm of land or sea.

The principal means of subsistence, however, is fish. During the summer season it is generally cooked before being eaten, but during the winter the air-dried fish is eaten raw more frequently than cooked. The drying of the fish is done in the open air, and nothing hinders flies and other insects from depositing their eggs therein, which speedily develop into maggots.

The dried fish is generally stored in the dwellings, being piled up along the walls; but if the supply is great it frequently happens that the floor is covered with them several feet high, and the family live on the top of their food until they gradually eat their way to the floor. Among the greatest delicacies of the Kaniag are the meat and blubber of the whale; no other article of food, be it fish or flesh, seems palatable to him without being dipped into oil, and if the supply is ample he drinks the latter pure. The capture of the whale always marks an epoch in the season, people hastening from distant settlements to assist in cutting up the animal. It is the custom to present such assistants with one-quarter of the whole animal, and consequently there are but few idlers, and the operation is concluded with astonishing rapidity. On the island of Afognak Holmberg witnessed the cutting up of a whale, and testified to the fact that in two hours nothing but the bare bones remained on the beach. The blubber as well as the meat is cut into long, narrow strips; the meat is boiled, but is seldom consumed fresh, being deposited in excavations in the ground, where it undergoes a process of putrefaction, and where, according to a Russian expression, it "becomes sour", before it is considered fit to eat. The blubber was formerly reduced to oil in the following manner: It was first cut up into very small pieces, then the old men and women and children who could not assist in the cutting masticated the fragments and spit out the juice into a large dish or kettle; subsequently this liquid was boiled and preserved for future use. Frequently the blubber is mixed with berries or with the boiled roots of the wild garlic, and put up in bladders for the winter.

It frequently happens that a long time elapses between the killing of a whale and the capture of the carcass, and under such circumstances the consumption of the meat causes disease and sometimes death. The Kaniags, however, claim to be able to decide whether the meat is still fit to eat by observing the gulls and other aquatic birds that swarm about the carcass; and if a certain species of bird is absent the Kaniag will not touch the meat.

A variety of wild celery (*cicuta*) also forms a favorite article of diet with the Kaniags; the outside of the stalk being removed with the teeth and the soft pulp inside eaten. Lieutenant Davidof also stated that the roots of certain ferns were preserved in oil and eaten.

In cases of necessity the Kaniags are able to go without food for a long time, and they never load their stomachs before exertion of any kind. After labor has been performed they give full sway to their gluttony, and their voracity borders upon the marvelous. The following incident, related by Holmberg, may serve as an example:

> While circumnavigating the island of Kadiak in a bidarka I was compelled by bad weather to remain in Killuda bay for three days with my six oarsmen, and occupied the house of a native who was engaged in fishing; the only occupation of my men at that time was to eat and to sleep. Before sunrise in the morning a kettle of "yukala" was on the fire, and each man devoured two fish; early in the forenoon our host gave another fish to each of the men; this was eaten raw with whale-oil; at noon a supply of fresh salmon was brought in, and sixteen of these were boiled and eaten by my crew; in the evening the morning meal was repeated, so that during daylight each man had devoured at least seven fish, and what they consumed during the night I could only surmise.

After returning to Pavlovsk harbor Holmberg related the incident to Mr. Murgin, the agent at that place, somewhat apprehensive of being disbelieved, but his story was received only with hearty laughter, and in return he was favored with a similar anecdote which threw his experience altogether in the shade. Mr. Murgin, during a bidarka journey encamped upon an island late in the evening, and immediately after landing an immense bear was killed by his men. Murgin went to sleep, and, after resting six hours, he was asked to embark again. Seeing no sign of the bear about the camp he asked what had become of it; the reply was, "We have eaten him up." Six men had devoured the huge bear within a single night. I myself, also, witnessed the devouring of two 50-pound halibut by six men between 10 a. m. and 6 p. m., while delayed by bad weather on Kadiak island.

As already mentioned, mussels are a favorite article of food with the Kaniags, but it seems that these also are poisonous in certain localities or at certain seasons. One instance is on record where a large number of sea-otter hunters perished from eating mussels in what is now called Peril strait, in the vicinity of Sitka. An old man named Arsenti, who was present at the time, gave Holmberg the following account of the disaster:

> Soon after the new fort had been built at Sitka I was one of a sea-otter party which had been ordered to winter in Sitka, but when they arrived there Medvednikof, the commander, informed us that he had provisions only for half the party, and that the other half must

return to Kadiak; I was among those who returned. When we passed through the straits we had no fish and were compelled to eat mussels, and a few hours later more than one-half of our men were dead. Death took hold of me also, but I remembered the advice of my father to eat raw sticklebacks; I did so, vomited, and was cured.

Previous to their acquaintance with the Russians the Kaniags undertook to make an intoxicating beverage by distilling alcohol from the fermented juice of raspberries and whortleberries, but this was prohibited by the Russian company. Now they all know how to distill alcohol from flour, sugar, and molasses. The use of tobacco has become universal, especially in the shape of snuff; and among other articles of luxury tea and sugar are the most important.

Holmberg expressed his astonishment when he arrived at a Kadiak settlement and learned that the inhabitants numbered from 200 to 300 and lived in only 10 or 15 dwellings; but when he entered one of these houses and beheld the crowded mass of old and young, the matter was easily explained. Each hut was inhabited by three or four or more families; the interior consisting of one common apartment, or cooking- or living-room, and three or four small partitions to form sleeping-rooms. The walls consisted of planks planted perpendicularly in the ground, slightly inclined inward. The rafters generally consisted of whale-ribs, which were covered with sticks of drift-wood, and a thick layer of sods placed over all. The floor was strewn with dried grasses, and in the middle of it was the fire-place, corresponding to an opening in the roof. Along the walls all the provisions and utensils were piled promiscuously; and all kinds of offal with a penetrating odor of whale-oil made the interior exceedingly disagreeable.

The sleeping compartments are generally so low that one cannot stand upright within; they are lighted up sometimes by a small bladder window in the roof. Small as these compartments are they serve as sleeping-rooms for several families to stretch out promiscuously upon the plank floor without covering of any kind. One of these little compartments is used as a steam-bath room, for which steam and heat are obtained by means of red-hot stones, over which water is poured; and after the Kaniag has been thoroughly steamed he runs into the sea or river to wash himself, in winter as well as in summer.

The Kaniag canoes are remarkable for fine workmanship and graceful form. They consist of a slight frame of light wood tied together with whale-sinews and covered with seal-skin, with the exception of an opening for the oarsmen, and are made with one, two, or three openings. Each kind has a different name, but are all known as kaiaks. The three-hatch kaiak is called the bidarka (*paitalik*); the two-hatch canoe is called *kaiakhpak* (big canoe), and the one-hatch canoe, *kaiangvak*. The two-hatch canoes are most generally used at Kadiak. Over each hatch a water-proof apron is fastened (called by the Russians *obtiashka* and by the natives *akvilivak*), which the inmate draws up to his arm-pits in bad weather, securing it tightly about his chest. The Kadiak bidarkas differ in form from those of other coast tribes, being shorter and broader than those of the Aleuts, and the paddles have but one blade. In addition to these canoes they have so-called "bidars" (*angiak*), much larger and of different grade. The frame-work for these is constructed similarly to that of the canoe, but is not covered on top, and resembles our boats in shape. They were formerly used principally in times of war and for long journeys, as they hold easily from 30 to 40 persons. Oars are used to propel them, and sometimes masts and sails. At present nearly all of these crafts are in the hands of the traders.

The Kaniags are possessed of great skill in carving figures and other objects from walrus-tusks, the material being obtained from the Aliaska peninsula. They also make very nicely carved snuff-boxes of whalebone. Formerly all these objects were worked with stone implements, but the use of iron has long been known to the Kaniags, who used it at the arrival of the Russians. The savages said that iron was occasionally cast upon the beach by the waves [*sic!*]. The stone implements consisted of hammering-wedges and axes made of hard graywacke, knives made of a hard kind of stone, similar in shape, and provided with wooden handles; and tools made of shells served to smooth or polish surfaces. We still find on Kadiak many stone lamps manufactured in ancient times, and roughly fashioned by partially scooping out a piece of large stone. Oil was poured into this excavation, and twisted moss and grass served as wick.

The women are equally skilled in handiwork, especially in all kinds of needlework, making and adorning garments, covering the canoes, etc. They also make bags of the entrails of seals and whales, and ornament them with feathers and beads of worsted. These bags are water-proof, and protect their contents against moisture. The Kaniag women also make baskets and hats, but do not equal the Thlinket women in this respect; they excel, however, in all kinds of embroidery.

The general mode of life of the Kaniags in former times much resembled that of all the coast tribes of northwest America. In the summer they occupied themselves with the chase and the fishery, and the winter was spent in idleness until hunger compelled them to renew their efforts. In former times all the great festivals consisted of gambling, dancing, and feasting in the winter, but the custom has become nearly obsolete. At the beginning of this century Lieutenant Davidof witnessed such festivals.

The sea about Kadiak island is exceedingly rich in fish, the most prominent among them being the salmon, of which six species are distinguished: the red-fish, the kishutch, the gorbusha, the chavicha, the khaiks, and the goletz, or salmon-trout. Each of these species throng the bays and streams at certain seasons of the year, and are easily secured with spears. The natives know so well the time at which each stream or river is visited by certain species of salmon that they rarely make a mistake of a day in their calculations, generally shifting their quarters to such localities just in time for the proposed catch. Of late they have begun to use seines made of whale-sinews. Halibut and codfish are caught with hooks similar to those of the Thlinket.

Their arms and implements consist of arrows and spears, the former propelled with bows and the latter from a board. All these articles are made of the wood of the spruce and the Douglas pine, the latter being quite common among the drift-wood. The bow is about 4 feet long and has a string of whale-sinew. The spear-board is about 18 inches long and serves to give an impetus to the spear in throwing it. I noticed among the Kaniags six different kinds of arrows and spears used for the chase of different animals.

Formerly the most important pursuit of the Kaniags was the chase of the whale. Only one species of this animal is known to visit this region, but according to their age the natives designate them by different names. The classification of whales adopted by the natives is as follows: First, the old or full-grown whale they call *annikvak;* the half grown, *kavoikhnak;* the third, the yearling, *agashitnak;* and fourth, the calf, *akhvak.* Of these the yearlings and calves are hunted almost exclusively.

In the month of July the whales begin to make their appearance in the bays, following up the small fish and mollusks upon which they feed. Some bays are visited several times during the summer, and the hunt continues sometimes as late as August. For a successful chase calm, clear weather is necessary. On such occasions the two-hatch bidarkas leave the beach at early dawn for the bay where whales have been observed. Of the two men in each bidarka only the one in front is a whaler, the other acting as his assistant or oarsman, having nothing to do but to propel the canoe in accordance with the other's orders. Having approached to within spear-throw of a whale the man carefully notes the direction in which the animal dives and calculates to a nicety the spot where he will probably emerge. If he is fortunate enough to come within 20 or 30 feet of the rising monster the whaler throws his spear, aiming at the middle fin at the back; and as soon as the spear has been thrown the canoe is propelled away as rapidly as possible, in order to escape the violent movements of the wounded whale. It is principally on account of the danger of capsizing that two canoes always go together.

The spear is about 6 feet in length with a slate point. As soon as this point strikes the whale it breaks from the shaft and remains in the wound. The contortions of the animal only assist in forcing the missile deeper and deeper into the yielding blubber. Upon the point of his spear each hunter carves his mark to enable him to claim his quarry. As soon as the whale is wounded he makes for the open sea, where, as the natives say, he "goes to sleep" for three days; on the fourth or fifth day the carcass is cast upon the beach, but if the waves and currents are unfavorable this may occur in a locality remote from the killing place; and it is stated that on several occasions whales that had been killed at Kadiak were secured by the people of Oonalashka. In ancient times the pursuit of the whale was accompanied by numerous superstitious observances kept a secret by the hunters. Lieutenant Davidof states that the whalers preserved the bodies of brave or distinguished men in secluded caves, and before proceeding upon a whale-hunt would carry these dead bodies into a stream and then drink of the water thus tainted. One famous whaler of Kadiak who desired to flatter Baranof, the first chief manager of the Russian colonies, said to him: "When you die I shall try to steal your body," intending thus to express his great respect for Baranof. On the occasion of the death of a whaler his fellows would cut the body into pieces, each man taking one of them for the purpose of rubbing his spear-heads therewith. These pieces were dried or otherwise preserved, and were frequently taken into the canoes as talismans.

These observances are no longer in use, but there is still much superstition connected with the pursuit, and the greatest secrecy is observed in regard to it. Only once had I occasion to notice anything of the kind. This was in the settlement of Killuda, where I entered a hut in the corner of which a young woman lay covered with bear-skins; I asked if the woman was sick, and learned that her husband had gone to hunt whales, and that the wife was obliged to remain prostrate without food until his return in order to give him good luck. These people are at least nominally Christians.

The sea-otter chase is now conducted altogether by large parties of from 80 to 100 two-hatch canoes, which assemble at the beginning of May and proceed to distant hunting-grounds. It is necessary to await a perfectly calm day, when all the canoes leave the beach together, forming a long line. As soon as an otter is sighted by one of the men he elevates his paddle as a signal, when a circle is immediately formed by 10 or 15 canoes around the spot where the sea-otter is expected to rise. When the animal has received the first arrow it dives immediately, but a new circle is formed and the otter is prevented from escaping until, weakened with loss of blood and exhaustion, it finally falls an easy victim.

The sea-otter arrow of the Kaniags is of fine workmanship, and consists of a shaft about 2 feet in length, with a head-piece of bone 6 or 7 inches in length, which by its weight keeps the arrow upright in the water. The point of the arrow is also of bone and is very sharp; it is secured to the shaft with long strings, but is not attached to the head-piece, being set only into a mere socket. When the sea-otter is struck the point remains in the body and the shaft impedes the motion of the animal in diving. These bone points are also marked by hunters, and as the otter is rarely killed by a single arrow, usually requiring as many as four or five, the rule is that he whose arrow enters nearest the head becomes the possessor of the skin.

The sea throws up on the shore of Kadiak a so-called sea-bean which was greatly prized by the sea-otter hunters and secured by them as a talisman. Holmberg once offered a man 40 paper rubles ($8) for one of these beans and was refused.

The spears used for hunting seals are larger than those just described, and are provided with inflated bladders to serve as buoys; and the bird spears and arrows have three or four thin prongs of bone.

The habits and customs of the Kaniags, their shamanism and religious views, have undergone great modifications. The introduction of the Christian religion and the rudiments of civilization, as well as the compulsory labor exacted by the Russian company, has done much toward eradicating the traces of former belief and amusements. Only a few old men and women preserve some confused recollections of the heroic age of the people, and these are not easily induced to communicate their knowledge to strangers.

Polygamy was formerly common among the Kaniags, a wealthy man frequently having five wives. Their marriages were accompanied with but little ceremony. The young man proceeded to the father of his chosen, and, after obtaining his consent, was obliged to carry wood and heat up the bath; then both he and his intended father-in-law bathed, while the relatives of the bride assembled for a feast. On emerging from the bath the young man adopted the name of his father-in-law and delivered his presents, taking away the bride to his own home. The first wife always had a preference above all others; and property descended first to the brother, and from him to the son of the deceased who had been previously selected by him as heir.

The position of the women at Kadiak was not as inferior as with most tribes of North America; they frequently enjoyed great respect, and had the power of maintaining "assistants" with the consent of their husbands. The "assistant" had no rights as such excepting in the absence of the original husband, and altogether his position was more that of a servant who carried the wood and water, gathered mussels, fished and hunted, etc. This custom was more common among the Kaniags than among the Thlinket.

We find among the ancient Kaniags the same cruel treatment of the young women at the age of puberty which prevails among the Thlinket. At this period the young girl was led into a hut, in which she was compelled to remain for six months in a stooping position upon her knees. After that the hut was enlarged sufficiently to enable the captive to straighten her back, but in this position she had to remain another half year, and was considered unclean and an outcast with whom nobody was allowed to communicate during all this period. At the expiration of the term of seclusion the parents prepared a feast and introduced their child as a marriageable young woman.

The dead were wrapped in seal-skins, and if they had been wealthy were buried with spears, arrows, canoes, and skins, and, with singing and weeping over the grave, were praised in accordance with their deserts. On such occasions the relatives cut short their hair and dyed their faces black. After the death of a rich man the widow gave a feast, frequently consuming all the property he had left, the people believing that every man became a spirit after death; and if such a spirit revealed himself to his relatives it was considered a sign of good fortune. The house in which a man had died could no longer be inhabited, and was torn down and a new one erected in its place. Dead shamans or sorcerers were laid with all their implements and insignia in bidarkas, these being generally deposited upon a steep cliff or occasionally in a cave. The memory of the dead was honored in a feast, during which distributions of presents were made and the praises of the deceased were sung.

The Kaniags were inveterate gamblers. They frequently lost all their possessions in a game they called "kaganagah", which was played as follows: Two seal-skins were spread out at a distance of 8 or 10 feet from each other, and a flat, round piece of bone about the size of a silver eagle was deposited upon each, the edge of the disk being marked with four black dots. The players, whose number was never more than four, but generally two, divided into two parties, and each put up some article of value. Each gambler had five wooden disks, and these he threw from the edge of one skin to the other, trying to cover the bone disk. When all the disks had been thrown the players examined their relative positions. If the bone disk had been covered the lucky thrower received from his opponent three bone sticks or marks; but if he had covered only one of the black dots of the disk he received two marks, and the wooden disk which had fallen nearest to the bone procured for the thrower one mark, and the marks were subsequently redeemed with valuables.

Among the Kaniags there were always a few individuals who possessed some knowledge of medicine, and knew certain herbs, which they applied in decoctions internally or externally. They were quite successful in blood-letting, which they accomplished with lancets made of shells; and they also performed more important operations, such as the cutting out of spear-heads, etc.

The festivals of the Kaniags began with certain secret ceremonies to which women and children were not admitted. Bundles of dry grass were ignited, and prayers imploring the spirits to give success to the hunters were chanted. Then the men emerged from the kashga (kashima, or council- or dance-house), and the whole population of the settlement ran about with lighted torches. This was the signal for the real beginning of the festival, which was open to all, and lasted as long as the provisions for entertaining the invited guests held out. Boys and girls could not attend until they had been introduced by their father, who on this occasion cut his best garment to pieces, giving away the fragments to the multitude in memory of the event. In the absence of the father the mother or other relative could take his place.

The council-house or kashga in which the festivities took place was the property of the whole settlement. At the end of the festival the building was sometimes destroyed, and erected anew the following year. Sometimes a Kaniag cut his best garment into pieces at the end of the feast, giving the fragments to the guests in recognition of the honor of their visit.

These festivals consisted chiefly of gorging, dancing, and singing. In the diary of Lieutenant Davidof we find the subjoined description of two of such festivals among the Kaniags:

> To-day, the 8th of December, 1802, we were invited to a festival, and at 8 o'clock in the evening we proceeded to the kashima, where several spectators were already seated in one of the side compartments. On entering we were struck by almost insupportable heat, there being 60 persons of both sexes seated upon the benches and floor of the small room. The men had all doffed their parkas on account of the heat, and some were entirely naked. The actors in the performances represented hunters about to set out on an expedition. About a large stone lamp that was burning in the middle of the room several men with drums were seated. These drums were of different sizes, the largest being in the hands of the one who acted as leader. On each side of the lamp sat two girls dressed in kamleikas and decked with ornaments. They had a long piece of bone through the partition of the nose, pendants of glass beads through the lower lips and ears, and the hair powdered with eagle-down. Beside these sat two men with rattles in one hand and a paddle in the other. The rattles consisted of double hoops to which the beaks of birds are fastened, producing a loud noise at every movement. Upon the blades of the paddles fish and marine animals were represented. The faces of these two actors were painted red, and the head as well as the back was powdered with eagle-down. They wore a head-dress of bent twigs; one of these twigs passing through the mouth like the bit of a horse. The faces were almost concealed with feathers and fern leaves. The men with the drums wore hats with feathers, arrows, and spears; a minute bidarka constructed of skins, and implements of the chase, were hanging from the ceiling above from the actors, and all these objects were set in motion occasionally by means of a spring in the hands of a man seated at a distance. This man was dressed only in a kamleika. The ceiling as well as the floor was covered with dry grass. The two men seated near the lamp began to beat their drums with sticks; the hunters with paddles in their hands and swinging their rattles in time, and all singing in good voice with but little change of tune. The leader managed the song; whenever the drums beat faster the singers began to shout, and all the spectators joined in. The two girls grasped their kamleikas in their hands and swayed from one side to the other. The leader occasionally shouted a few words, such as "Look there! The shore! Let us embark there! He who has not killed anything will see the animals now", etc. Whenever the word "animal" was pronounced all the spectators joined in the great noise, imitating the voices of the different animals. Boys were blowing whistles, and the noise was deafening. At every interruption of the song the hunters swayed back and forth and plied their rattles. In the meantime trays with food were carried into the kashima and placed around the lamps; the dishes consisted chiefly of berries and oil; a stone marked with red dots had also been deposited near the lamp; this was said to represent the coffin of the distinguished men in whose memory the festival was given. I could not wait the end of the performance, as I suffered with a splitting headache caused by the heat.
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> On the 18th of December I attended another festival in the kashima. At first five men, all in different costumes and masks, some of them adorned with ferns, appeared one after the other, the blue thistles attached with a thread to the partition of the nose, and went through the most wonderful contortions. One was painted red, another black; two were attired in parkas, and the fifth in a kamleika; all had rattles in their hands. The first two and the one in the kamleika also had a garment of feathers hanging down to the knees near the lamp; two men in their ordinary costume were seated. I could not ascertain the meaning of this performance. The interpreter said they were men who had devils who betrayed the men, but he did not appear very certain about it himself. All the knowledge of traditions connected with festivals and of the spirits is confined to certain men who are called by the islanders *kassiati*—that is, wise men, who invented such representations and occasionally relate instances oft he ancient history of Kadiak and adjoining islands, and the actions of spirits. If a Kaniag cannot or will not answer a question he says, "the kassiati knows." After the devils had finished their contortions and disappeared the men began to drive out the women and children. This is generally done after a feast to which guests from distant settlements have been invited in order to talk over matters of importance, but on this occasion this could not be the motive, and the expulsion of women and children could only be attributed to some superstition. When the house had been cleared a man dressed in a kamleika appeared with a peculiar mask before his face and rattles in his hands. He represented the evil spirit, and shouted and ran about in time to a song and beating of the drums.

The wars of the Kaniags in ancient times consisted altogether of ambuscades and surprises, and prisoners were sometimes tortured and sometimes kept as slaves. The wars were chiefly confined to their own tribe, and it is stated that at the time the Russians appeared these internecine quarrels had become so general that during the summer the inhabitants of small settlements entrenched themselves upon steep rocks surrounded by the water. I have seen several such fortified places, and this precautionary measure is easily explained when we consider that during the summer nearly all the able-bodied men are scattered over the hunting- and fishing-grounds, and those who remain in the settlements are not able to defend themselves against sudden attacks.

An old man named Arsenti Aminak related to Holmberg the story of the discoverer of the island of Ookamak as follows:

> The island of Ookamak belonged to my father. He was a very rich chief, as there were ground-squirrels on this island, in the skins of which he drove a profitable trade. But how he came into possession of the island I will tell you. Formerly our people celebrated festivals with songs and dances, during which the guests were feasted and presented with gifts. For these festivals we proceeded occasionally to the bay of Igats, and sometimes the people of Igats visited us at Ayakhtalik. Once we were preparing for a feast, many years before the arrival of the first Russians, and before I was born, and among others a relative of my father, with an only companion, set out from the bay of Igats in a two-hatch bidarka. When they had left the strait between Sitkhalidak and Kadiak islands behind a dense fog came up, and as the wind changed imperceptibly they became confused and paddled on day and night. When the weather cleared they saw before them an island that they had never seen before. They landed and named it Ookamak. The island was full of sea-otters and ground-squirrels, and quantities of amber were found on the beach. They remained there a month, and when they left the island the bidarka was filled with treasures. But where to go? They proceeded northward, paddled and paddled until they sighted the mountains of the Aliaska peninsula, which was strange to them. They arrived at Katmai, the people of which, being Ogalamutes, were hostile to the Kaniags, though they spoke our language. They threw themselves upon the strangers, robbed them of their treasures, and intended to kill them, but a chief saved them on condition that they should conduct them to the island containing such riches. They proceeded to Ookamak in two large bidars, and killed a great number of sea-otters with clubs in a very short time. They also killed

> ground-squirrels with spears, and gathered much amber; then they returned to Katmai. As a reward for their services the chief gave our lost men an escort to the crossing place of Yakolik, from whence they proceeded to my father's house at Ayakhtalik, after having been absent six months and having been mourned as dead. My father received his relative well, and in his joy to have escaped from such dangers he made a present of the newly-discovered island, with all its treasures, to my father.

Voluble as the old man was in relating the deeds of his people in ancient times he became mute when questioned concerning the old belief of his father. At first he would not speak at all, but finally he said, "I could tell you much, but I fear that it would cause you injury." This threat, however, did not frighten Holmberg, who pressed his demand, obtaining only brief answers to his questions. The little information he gathered is contained in the following:

> Shliam Shoa, that is, the master of the world, was worshipped by the Kaniags as the Supreme God; he created the earth and the heavens, but light was not there. He sent two human beings, a brother and a sister, upon the earth, and prohibited them to eat grass. The sister was curious to know what might be the result of breaking the command, and said to the brother: "Probably it will be light when we eat grass." The brother advised her to desist, saying that it might cause them injury, and that they would be ashamed to look upon each other's naked body. The sister, however, could not resist the temptation, and began to eat grass, and behold there was light. They became very much ashamed, and wanted to separate. The sister went in one direction and the brother in another, but they could not hide themselves, and finally returned to heaven. Upon the steps leading to heaven they met and began to love each other. Five children that were born to them all died, to their great sorrow. Just before the birth of the sixth Shliam Shoa came and asked, "Why do you grieve?" They replied, "All children born to us die." "Do not grieve any more," said Shliam Shoa, "I will sing you a song and you shall have children thereafter;" and thus it happened. He sent them again to the earth, and from them the human race sprang. At one time a flood (*aliak*) is said to have destroyed the whole human race, but how the earth again became populated the old man did not know. After a fortunate hunt an offering was made to Shliam Shoa, consisting of some animals, sea-otters or seals, but never of human beings. The offerings were also brought in advance to secure good fortune. Iyak was the god of evil. He lived in the earth and also listened to the prayers of men, but he chiefly favored the shamans. When Shliam Shoa is angry at the doings of men he sends out two dwarfs who make thunder and lightning. In the volcanic mountains of Aliaska there lived men stronger than the Kaniags, who, when they heat their bath or cook their food, cause smoke and fire to issue from the summits of the mountains.

An old man of the village of Kaguiak told me that when the first Russians landed upon their island his ancestors took them to be cuttle-fish, "on account of the buttons on their clothes."

A list of Kadiak local names from Shelikhof's volume will be of interest when compared with those of the present. He mentions:

Kyktag—now Kadiak.
Iliuda—now Killuda.
Oogashik—not changed.
Ooga-alak—now Oogak.
Chinnigak (big cape)—now Chiniatzk.
Agaiakhtalik—now Aiakhtalik.
Kerluta—now Karluk.
Yukutmak—now Katmai.
Katman—probably also Katmai.

The year began with the Kaniagmute in August, which was called *Kabiakhgun* (the constellation Pleiades was *Kabiakhtakh*).

September was *Tugakhgun* (from *Tugat*, the constellation of Orion).
October was *Kancha-oon* (when grass withers).
November was *Kangushanchak* (snow in the mountains).
December was *Kagliagvik* (rivers freeze).
January was *Agvinikh* (sixth month).
February was *Kypniakhchik* (dried fish in small pieces).
March was *Koigit annit* (river [ice] breaks up).
April was *Manikhchikhvak* (ravens lay eggs).
May was *Manikhchichak* (little birds lay eggs).
June was *Kaioog ya-at* (seals breed).
July was *Manag-khet* (porpoises have young).

THE CHUGACHIMUTE.—The Chugachimute (Chugach of the Russians), or Chughchil-shvit (their tribal name), inhabit the shores of Prince William sound (or the gulf of Chugach). They are at present the easternmost tribe of purely Eskimo extraction, numbering less than 500 in all. Their language is almost identical with that of the Kaniagmute, and in their habits, manners, and traditions there is an equal resemblance. Here, as well as among the Kaniagmute, we no longer find the kashga, or kashima; the dwellings are nearly always constructed of logs and planks, affording good shelter during the long, cold winter. Living as they do upon a narrow belt of timbered land surmounted by the inaccessible snow-capped alps of the Chugach range, the Chugachimute have become not only skillful sea-otter hunters and fishermen, but also expert mountaineers, hunting the mountain goat (or sheep) with skill, daring, and perseverance equaling those of any Swiss or Tyrolean chamois-hunter. These people are all Christians, in name at least, although they have been neglected for many years by the Russian missionaries stationed at Kadiak and Cook's inlet.

By their Athabaskan neighbors of Cook's inlet the Chugachimute are called Tatliakhtana, but, as one of their villages in the northern part of the sound is to-day Tatikhlek, this may have only a local significance. This tribe has always been in contact, both friendly and hostile, with its Athabaskan neighbors in the west and north, and with the Thlinket in the east, and this circumstance may have aided in making their character more warlike and repellant than that of other Eskimo tribes. Their first English visitors under Captain Meares and under Portlock and Dixon, had much cause to complain of the treatment received at the hands of these natives. The Russians also had many a battle with them before they could bring them into final subjection. These early visitors report, however, one custom, of which no trace has been found among any other tribes of Alaska, and which has been considered as belonging to the South Sea islands only. I refer to the exchange of names. Both Meares and Portlock report that they exchanged names with certain chiefs of the Chugachimute, and when Baranof visited Nuchek island an old man insisted upon exchanging names with the Russian chieftain's dog (Sargach). This was the last instance related of this curious custom, which seems to have been forgotten by the Chugachimute of to-day. In their intercourse with their Athabaskan neighbors, before mentioned, the Tinnats of Cook's inlet and the Atnahs of Copper river, this tribe does not seem to have indulged in intermarriage; but with the Thlinket, their eastern neighbors, such intermixture has been and is going on actively, forced, probably, by the latter strong and warlike tribe. Toward the end of the last century, when these natives first became known to us, another Eskimo tribe occupied the coast as far eastward as Mount Saint Elias. These were the Oughalakhmute (Ougalentze of the Russians), Wallamute and Lakhamute of earliest visitors. This tribe, owing to its position, exposed to the constant attacks and encroachments of the Thlinket, has become mixed to such an extent that at the present day the Thlinket element predominates. Thlinket customs and habits prevail; their houses are built of planks, and in the Thlinket style of architecture, with circular openings in front. The fur garments or parkas of the Eskimo have been supplanted by the blanket worn by the Thlinket, and even the manufacture of the kaiak has been abandoned and is now forgotten by this hybrid tribe, occupying the lowlands at the mouth of the Copper river and the coast eastward to Comptroller bay, cutting off the Atnahs or Copper River Indians from the coast. So complete has been the amalgamation that young men of the Oughalakhmute now employ an interpreter in dealing with their Chugachimute neighbors living at a distance of a few miles from them. The present custom among the Oughalakhmute, and the Thlinket further to the eastward, of obtaining wives from their western Eskimo neighbors, shows clearly how this encroachment has been accomplished.

The burial-places of the Oughalakhmute to-day exhibit the house-like sepulchers of the Thlinket, but as yet without the totem.

## II.—THE ALEUTS.

The Aleuts (or Unúngun of Dall, the Takha-yuna of the Kinnatz, or Oonángan, according to Veniaminof and my own observation) inhabit the northern coast of Aliaska peninsula, from cape Stroganof westward, and its southern coast from Pavlof bay westward, the Shumagin islands, and the whole group known as the Aleutian chain, extending from the Shumagins in the east to the island of Attoo in the west.

The term Aleut applied to these tribes and also to some others by the Russians is of an origin somewhat obscure. Various explanations of its derivation have been given by different writers, but it would seem that it can be traced to the river Olutora on the coast of Kamchatka. The people inhabiting the coast near the mouth of this river were called by the Russians Olutorsky. They were known as the only Kamchatkan tribe who hunted whales, and they were called "strangers" by their Koriak neighbors. It would seem quite natural in view of these circumstances that the Russian promyshleniks on first beholding the Aleutian natives in pursuit of whales would apply to them the name of Olútorsky. On one of the earliest maps of the Aleutian archipelago, published by Staehlin, we find two groups of islands, one named Aleutsky, the other Olutorsky, the latter being located near the mouth of the Olutora river. As no islands really exist in that vicinity, an equal right could be claimed for both terms as applicable to the Aleutian chain. The initial *O* of the Russian is invariably broadened into a sound almost equivalent to *a* in farther, and the transition from the Olutorsky to the Aleutsky of the later Russians would seem easy indeed. The term of *Oonángan* of Veniaminof I have ascertained to be as universally known to the Aleut people as Mr. William H. Dall has claimed for his version of the same, *Unúngun*. This apparent discrepancy may, however, be ascribed solely to an inability on the part of one or the other writer to distinguish between the finer inflections of pronunciation.

Various other appellations of the people have been collected and published by M. Alphonse Pinart, but they are evidently of local significance, and applicable only to the eastern, western, and central groups of the tribe, respectively.

Of the origin of the Aleut we have no very distinct tradition. The distance between the westernmost island of Attoo and the coast of Kamchatka and the Commander island is too great to permit of the theory of a general migration over this route from Asia. The two islands of Bering and Copper when discovered by the Russians were uninhabited, another point in opposition to the Asiatic theory. All such points of similarity between the Aleuts and Japanese as have been reported, as well as the general Asiatic cast of features observed in many of the Aleut settlements, can easily be explained by the constant intermixture of Aleutians with natives of Kamchatka and other parts of Asia in the employ of the Russian invaders. Certain articles discovered in ancient Aleutian burial-caves would indicate that formerly there must have existed a constant and more intimate intercourse between the Aleutian and the Eskimo of the continental coast, as kantags or wooden bowls have been found in such places exactly resembling those manufactured on the coast of Bristol bay and the Aliaska peninsula at the present time. Remains of huts built with whale-ribs, such as the coast Eskimo erect, have been discovered high upon the mountain sides of Oonimak and Atkha islands. These buildings were probably erected in the immediate vicinity of the sea-shore as it then was, the islands having since risen through volcanic action; and this also would militate against the theory of the original settlement of these islands from Asia. Another argument in favor of the American origin of the Aleut lies in the fact that the settlement of these islands would seem impossible without the aid of the kaiaks peculiar to the Eskimo tribes. The wide passages between the islands, which must have been still broader in the earliest times, preceding the gradual rising of this chain of craters, could not have been traversed by any craft less seaworthy than the kaiak, as the violence of storms prevailing throughout Bering sea and the fearful current of tides rushing in great bores through these passages would prevent any other craft from crossing from one island to another.

The theory advanced by Mr. William H. Dall, in the first volume of *Contributions to American Ethnology*, that the Aleutians built their present homes by passing from island to island on rafts, many thousands of years before the kaiak was invented, would seem altogether untenable in view of the fact that no material for making rafts exists or could ever have existed on the Aleutian islands and the adjoining portion of the continent.

Among the traditions of the Aleutian people concerning their origin we cannot find a single one pointing to immigration from Asia. The traditions on this subject, however, that have survived the transition from paganism to Christianity are very few.

We have many traditions speaking of warlike expeditions undertaken by Aleutian chiefs to the coast of the American continent, where they founded new communities; but in no instance do we hear of any communications with the west or the coast of Asia.

One of the traditions of the Aleutian people relating to the origin of sea-otters is of interest chiefly because it furnishes the only key to the curious superstitions of sea-otter hunters, who, when about to put to sea in search of their quarry, avoid most carefully all contact with women, or the use of any garments or implements that have been used or handled by women. The love of a chief's son for his sister resulted tragically in the drowning of both in the sea. They rose to the surface again, having been transformed into sea-otters; but, in remembrance of their progenitors' fate, these animals are said to hold in abhorrence anything that reminds them of the relations between man and woman.

The most careful observer of the Aleutian people was the Russian priest Veniaminof, who resided on the Aleutian islands and at Sitka between the years 1824 and 1838, and who wrote copiously and understandingly of their manners, customs, and traditions. I cannot do better than insert here a few extracts from his writings, in translation:

### THE ALEUTIAN PEOPLE.

Under the head of "Traditions" the Russian missionary writes:

1. The Aleuts say that in olden times the weather was clearer and warmer, the winds more moderate. This last assertion is confirmed by the first Russian explorers.

2. They say that their forefathers came from their original dwelling-places in the west, in the same great land, which was called also "Aliakhskha", that is, continent. In that country there were no storms, no winters, but constant pleasant atmosphere, and the people lived peaceably and quietly; but in the course of time quarrels and intertribal wars compelled them to move farther and farther to the eastward, until they finally reached the sea-coast. Later they were even compelled to take to the water. But even on the coast they could not remain in peace, being pressed by other people, and therefore were compelled to seek refuge on the islands; and finally, traveling from island to island, they settled in their present villages.

3. Before the war and dissension broke out among them here they were accustomed to travel (*agoulaghan*) peaceably to the westward and eastward, to make the acquaintance of other people and their customs; and one of these travelers (*agoulanam*) succeeded in reaching the northernmost cape of America, which he named Kigaditigan Kamga, that is, Northern Head, and of which he told his people on his return that it was covered with ice, and told of the products of the country and the habitations of the people, who were as much afraid of heat as we are of polar cold, and at the time of the summer solstice they left their villages, fearing to die if they remained. Subsequently the object and direction of these voyages were gradually changed; in place of inquiries into the customs of other people, they began to travel for the sake of trade and traffic, and finally for purposes of plunder and slaughter, and to go to war.

4. The Aleuts consider as their relatives the Kenaitze, Chugach, Yakutats, and Kolosh (but the Kolosh do not acknowledge this). In substantiation of their claim the Aleuts say that one prominent individual, the father of a numerous family, was from necessity compelled to leave his village on Oonalashka; in one summer he collected all his family and relatives, and departed in large bidarkas to the northern side of the Aliakhskha, with the intention to travel (agoulaghan) and to search for a better and richer country. He landed in the first at one of the Aglemute villages and remained, but the Aglemutes did not receive them as friends, but as enemies, and in a general attack put them to flight. The Aleuts, finding it inconvenient or impossible to settle near the sea-coast, proceeded to the headwaters of some large river, and having selected a convenient spot settled down for good. Their descendants made peace with the natives of the country and increased, but with their increase came a greater change in their former customs, appearing principally in the greater inclination to war and to hunt. After the lapse of much time a quarrel ensued between the descendants of the original Oonalashkans and the creoles or half-breeds, finally resulting in a war. Their village was situated on both sides of the stream, one half opposite the other. They had adopted the habit, for the sake of accustoming themselves to war, of making sham attacks one upon the

other, shooting spears and arrows without points; but during one of these sham attacks some one placed a head upon his arrow and hit an enemy in the eye. The attack was at once changed from sham to reality, but as the number of creoles was much larger the Oonalashkans were obliged to leave the place and move farther eastward, finally passing from river to river and emerging upon the shores of the gulf of Kenai, where they settled down once more. The present Kenaitze are their descendants. The creoles left behind increased more and more, and divisions of them were compelled to move to the northeastward, and finally became the founders of the Chugachs, Yakutats, and Kolosh.

5. The Aleuts say that in former times their ancestors constructed deep caves as a protection against sudden attacks of the enemy, and in doing so occasionally found the bones of a larger race of people, whom they called Shougaman or Itangikh-Taiyagoun—that is, the first men, or those who, in their opinion, lived before the flood. These bones and skeletons were mostly found in the third layer of earth, and were rarely found to be fossilized; and whenever such a bone was unearthed a very strong, disagreeable odor spread around, driving away all bystanders. They believe that some time ago there was a large flood, and that up to that time men were of larger size, but their philosophers asserted that half-dead people live everywhere under the surface of the earth.

6. They say that in their old country (they do not know of any other) there was also a very great flood in punishment of disregard of sacred customs and traditions. They express it in their language for "our evil doings the water came upon us".

7. In former times the sea-shore along the whole group of islands was more deeply indented (in some localities this is even yet perceptible); they also say that the grandfathers of the present Aleuts in their youth heard from their grandfathers that they found on elevated spots, and often far distant from the sea, signs of former dwellings, such as whale-ribs and large logs of drift-wood. Between these places and the shore-line they also found sometimes small pebbles tied with whalebone fiber, such as are now used for sinkers, fish-lines, and nets. From these indications the Aleuts came to the conclusion that at some time these elevated positions, showing the remains of dwelling-places, were on the sea-shore, and over the places where the sinkers are now found the sea once extended. But all this was subsequent to the flood.

8. With regard to the volcanoes, the Aleuts maintain in their traditions that in times gone by all the "fire mountains" on Oonalashka and Oumnak islands quarreled among themselves as to which had the largest body of fire inside of them, and after a prolonged dispute, in which not one of them would yield to the others, they concluded that a decision could only be made by a trial of strength. Immediately a most fearful conflict ensued, lasting for many days, the mountains throwing fire and rocks at each other in place of spears; the smaller peaks could not withstand the larger ones, and, recognizing their weakness, they bowed down and went out forever. Finally only two of their craters remained, one on Oonalashka—Makushin (Ayak)—and the other on Oumnak, the Recheshnaia (Ismak). These, having vanquished all the others, engaged in a single-handed conflict with the most disastrous consequences to their surroundings: fire, rock, and ashes were thrown in such quantities that all animals inhabiting the neighborhood perished and the air became heavy. The Oumnak crater finally could not keep up with its rival, and, seeing destruction impending, gathered all its strength, jumped up with a bound and collapsed. The Makushin volcano, being victor and but little injured, and seeing no more enemies around him, gradually calmed down, and now only smokes occasionally.

With regard to early estimates of the Aleut population upon the islands I cannot do better than again quote Veniaminof, who wrote as follows in 1840:

The number of native inhabitants of the islands of the Aliaska district, exclusive of Russians and creoles, has been of late very small. In 1834 all the Aleuts belonging to the district, that is, those living in the villages on Oonalashka and on the Pribylof islands, numbered 682 males and 812 females—a total of 1,494 souls. In 1806 the number had been 1,953—965 males and 988 females. Mr. Sarychef, in his voyage, writes that with the arrival of the Russians on these islands the number of native inhabitants decreased greatly, and during his presence in 1792 barely one-third of the inhabitants remained. A consultation of his tables, however, shows that then the males alone numbered 1,235; if we add to this the larger number of females, the inhabitants of Aliaska district in 1792, exclusive of those living on the Pribylof islands, were more than 2,500 souls. If, again, we take this number for one-third, as Sarychef says, the number of inhabitants in 1750, or about the time of the arrival of the Russians, must have been not less than 8,000.

The traditions of the Aleuts are to the effect that up to the arrival of the Russians their number was ten times greater than Sarychef found it. Old men relate that a long time ago, before the arrival of the Russians, the inhabitants of Oonalashka district were so numerous that every island and every convenient location was settled, and that in every village were from 40 to 70 bidarkas, with as many adult males able to propel a bidarka; and if we add to these as many females, and twice as many children and old men, it follows that every village contained from 150 to 280 souls, or an average of 215. From personal observations and from tales of the Aleuts I must suppose that in this district 120 villages were located, and thus supposing that each village contained a nearly equal population, it seems that the inhabitants of the Aleutian islands in their best times numbered 25,000. Doubtless this number is somewhat large, but as far as we can trust to the accounts of Aleuts, as well as of Russians who lived here at the end of the last century, and who saw with their own eyes the destruction of many villages, it seems very probable that the number of the Aleuts once reached twelve or fifteen thousand. Of the reasons of decrease we shall speak below, and only remark here that the decrease of the Aleuts in numbers began long before the arrival of the Russians, and continued steadily down to the year 1822. From that period to 1829 the decrease ceased; and from 1829 to 1838, until the appearance of the small-pox, the number of Aleuts began to increase. The smallest number of Aleuts we find in 1820 and 1821. In 1822 the registers showed 695 males, 779 females—a total of 1,474. From this it is evident that in 1834 the number of Aleuts had increased by 20 males, without counting the females then married to Russians and creoles, who represented at least an equal number. Glancing at the appended tables of births and deaths from 1822 to 1837 we see that during the first five years the number of Aleuts born average 34 per annum, and, exclusive of illegitimate births, 29. During the last nine years, however, the average was 40; exclusive of the illegitimate, 38. Consequently, of late the number of births has increased nearly fourfold. And here it is also necessary to take into consideration that the number of females who bore children, or were able to bear them, was, up to 1828, very much larger than after that period. This is evident from the fact that of 172 souls born from 1822 to 1828, 25 were illegitimate, that is, one-seventh of all the births; but in the last nine years only 17 out of 362 births were illegitimate—less than 1 in 21. The reasons why births were formerly less frequent than of late may be briefly stated as follows:

First. The absence of midwives and ignorance of managing women in child-birth. It is true that though a few who are more intimately acquainted with the Russians have adopted their customs before and after the birth of children, being convinced by example and persuasion, but at the present time there are still very many who proceed in their old way.

Second. The married women are still very dissolute, and their excesses interfere with their fruitfulness, but of late there has been great improvement observed in this respect.

Third. In former times the Aleuts were entirely at the mercy of vicious and ignorant hunters. It was quite common to force young girls into marriage with the strangers at too early an age. Of late, however, the teaching of Christian doctrines has counteracted this evil.

Fourth. The diseases of various kinds introduced by the Russians have also interfered with the fruitfulness of women, but this cause has now been nearly overcome.

Fifth. Another obstacle to more rapid increase of population will probably be found in the fact that the Aleuts suffer from temporary starvation every spring, the fathers and mothers on such occasions thinking only of their children, and forgetting themselves to such an extent that in some families the parents can scarcely be recognized as their former selves, while the children are fat and healthy.

These are the reasons why births were of comparatively rare occurrence among the women in former times (in no greater proportion than one to nine), and why they are now more frequent. It is necessary to remark that in their present mode of life the Aleut women cannot at all compare in fruitfulness with Russian women, because, having no milk beside their own, they must nurse their children not less than a year. It has been mentioned above that in the course of ten years the number of Aleuts increased only by 10 from a total of 1,474, that is one-fourteenth of 1 per cent.; but the increase of creoles in ten years was very much greater, showing 31 births among 120 married couples, or about 26 per cent. The reasons why the wives of creoles, who were nearly all Aleuts, are much more fruitful than the wives of Aleuts may be the following: The wives of creoles at the time of birth proceed not according to the Aleut but according to the Russian custom. All creoles are generally possessed of means to procure flour and tea, and keep on hand a sufficiency of provisions at all times. All creoles are also much better lodged than the Aleuts, at least in so far as they have warmer huts and more clothing and linen than the Aleuts, who are not in a condition to procure them. The causes of decrease in population are, in the opinion of Aleuts themselves, internal wars, the Russians, and diseases; the first, occurring previous to the arrival of the Russians, were conducted with such cruelty that in retaliation for the murder of one, whole settlements were destroyed; but the greatest decimation of the Aleut population they ascribe to the Russians, and especially to Sollovey, or Solovief, who was the direct or indirect cause of it, as, exclusive of those whom he and his companions killed during the course of two years, not one-third of those who fled before him returned to their habitations. It is supposed that a majority of those who did not return died from cold and hunger, while the younger and healthier Aleuts found means of subsistence and would not return, and these are the first fugitives mentioned here. In addition, it is said that even when the slaughter ceased, and the Aleuts, becoming accustomed to the later arrivals of Russians, began to live peaceably once more, the population not only failed to increase but decreased very perceptibly for some reason unknown to them. The causes of decrease among the Aleuts of this district may be divided into three periods: First, from the beginning of their internal wars to the first appearance of Russians among them—that is, up to 1760. Second, from the first arrival of the Russians on these islands to the arrival of the expedition of Billings—that is, up to 1790; and, third, from the time of the departure of this expedition until the present time. Each period, in addition to those causes common to all times, has its own proper causes entirely distinct from each other; that is, prior to the arrival of the Russians the Aleuts decreased from internal wars; after the arrival of the Russians, from violence and oppression, but subsequently from being compelled to fit out hunting parties and recruit their columns.

Each period presents a multitude of more or less important incidents, but I shall speak only of such as are best known and entitled to credence.

The first period.—A long time before the arrival of the Russians the Aleuts began to have wars with neighboring tribes—with the Aglemute, and principally with the Kadiaks. Thus it is told that the inhabitants of this district destroyed an Aglemute village on the Nushegak river, at the site of the present rédoute of Alexandrovsk. This victory was so overwhelming that not one of the Aglemute escaped, and a lake situated near the village was filled with blood and corpses. Several times they attacked the Kadiaks and destroyed their villages. However, though these enterprises were bold and frequently successful, it was but natural that sometimes the Aleuts should meet with disaster. It occurred several times that out of the whole contingent of islanders departing upon such expeditions not one returned, or only a few. Mr. Davidof relates that many Oonalashka Aleuts perished in Ooiak bay on Kadiak island, whither they had proceeded for the purpose of attacking the Kadiaks. Retaliation was the order of the day, and both sides suffered severely. Gradually these wars or warlike raids became of such frequent occurrence that the inhabitants of the Shumagin islands were compelled either to join the hostiles or to retreat to their fastnesses on inaccessible cliffs or outlying rocks. Locked up in their fortifications, not daring to leave them, they could not secure their winters' supplies and died of starvation. In addition to such wars and mutual attacks of different tribes there was also much internal conflict. It is known that the people of Oonimak attacked those of the Shumagin islands, Aliaska peninsula, Oonalashka, and even Oumnak and the Krenitzin islands. The Oumnak people made raids upon the Oonalashkans and others. In the course of time the raiders were raided in their turn, and general destruction, amounting almost to extermination, ensued. It is known that of an attacking party of Oonimak people on the island of Amaknak, in Captain's harbor, all remained on the field of action. Finally the internal dissensions increased to such an extent that not only the inhabitants of one island fell upon those of another, but the people of one and the same island made war upon each other, and inflicted upon each other every imaginable injury. Thus the Aleuts of Oonalga killed several men from a neighboring village on Oonalashka simply because they had threatened to kill one of them. There is no doubt that all these wars caused the destruction of a large number of Aleuts in addition to those slain in conflict. For instance, of the wives and children of the Aleuts who perished at Ooiak bay, on Kadiak, many who lost husbands and fathers suffered want, and the tradition that the Aleut population previous to the internal wars was twice what the Russians found it becomes probable. A few old Aleuts maintain that if the Russians had not made their appearance upon these islands the population would have entirely disappeared by this time. From this standpoint the arrival of the Russians, which had put an end to the internal war and strife, may be considered as a blessing to the hunters.

The second period.—When the Russians arrived the internal strife was discontinued, and one particular cause of decrease in numbers was removed, but the rate of decrease remained the same. The peace and good understanding established between the Russians who first visited Oumnak and Oonalashka islands under the leadership of Glottof lasted but a short time. It is not definitely known who gave the first provocation to quarrel—the Russians by oppression and violence of every kind, or the Aleuts by refusing to submit to the foreign yoke. The first is much more probable, but the last must not be entirely overlooked. Whatever the cause was, the first hostile measures were taken by the islanders, who during one winter destroyed three Russian ships and thereby gave the Russians a pretext for avenging the blood of their countrymen and for adopting stringent measures for their own protection. It devolved upon Glottof and Solovief to wreak unlimited vengeance. Glottof having returned from Kadiak to the island of Oumnak, previously discovered by him, found the friendship and good feeling formerly existing between him and the Oumnak people changed to hostility. In retaliation murder and fire took the place of peace and good understanding. Under the pretext of avenging the death of his countrymen, and partially from fear, he destroyed all the villages on the southern side of Oumnak and the inhabitants of the islands Samalgi and Four Mountains. Solovief, who had arrived on Oonalashka from Kamchatka, and anchored his ship in Koshigin bay, treated the poor Aleuts with excessive cruelty, also under the pretext of avenging the death of Drushinin, another trader. Mr. Berg, in his history of the discovery of the Aleutian islands, endeavors to underestimate the number of islanders slain by Solovief, but for all that he says that Solovief killed 100 men who had attacked the Russian station, and from one fortified village destroyed by fire 200 bodies were thrown into the water. Consequently, it appears from the testimony of this prejudiced witness that Solovief destroyed not less than 300 able-bodied males and youths. Nearly a century has elapsed since these dreadful times, and there is no longer any reason for concealing the deeds of the first Russian promyshleniks, nor to exaggerate their cruel treatment of the Aleuts. The facts cannot be changed or mended, and, though there is no necessity for parading the dreadful cruelties of ignorant and vicious people, especially as these men were Russians and my countrymen, I am compelled to speak of what I heard from very many who had been eye-witnesses, or heard the same from Solovief's own companions (I have personally interviewed many Aleuts who had known Solovief); this must be done in order to bring forward new evidence of what men will do when left to themselves with unlimited power and no fear of retribution. Without this my account of these people would be incomplete.

The Aleuts say that the Russians shot many of their number with their muskets only for sport, using them as targets, but others deny this; but it certainly occurred more than once, at least in this district, and particularly in the village of Koshigin. It was Solovief who conceived the idea of ascertaining how many human bodies a bullet would pierce, and to this end he ordered twelve Aleuts to be tied together (who were probably not altogether guiltless), and shot at them with his rifle. It is said that the bullet lodged in the ninth man. It is also known that he destroyed two bidarkas of Oumnak Aleuts who had come to visit their kin, and after many single wanton murders he finally found the inhabitants of several Oonalashka villages assembled on Egg island, Sprikin, and fortified. The second attack of Solovief was successful, and he destroyed all the besieged Aleuts, with their wives and children. This slaughter was so general that the sea in the neighborhood was covered with blood from the dead and wounded thrown into it.

Natrúbin, partner and worthy companion of Solovief, destroyed the Aleuts on Avatanok, unarmed and frequently innocent, and it is said that Solovief himself did not kill as many Aleuts as his companions on the neighboring islands. During this time, so terrible to the Aleuts, there were two Russian ships in the vicinity, one at Issanakh strait and the other at Makushin, the crews of which also destroyed many Aleuts. The Russians on the first vessel, from suspicion or in revenge of the Russians killed at Issanakh, destroyed the four villages on Oonimak island, sparing only the young females and a few youths. The Russians, under the leadership of their "peredovchik", who had with him a girl from Atkha, left a few men on the ship and proceeded to Oonimak, with the intention of exterminating the rebellious people. Secretly making their way to the first village they secured all the spears from the bidarkas, where they are always kept by the Aleuts, and broke them; then, suddenly falling upon the defenseless inhabitants in their dwellings, they slaughtered without mercy all who succeeded in emerging from the houses, while the remainder perished in the flames. In the same manner three villages were destroyed. On approaching the fourth, however, situated at the foot of Shishaldin mountain, they were overtaken by a severe rain-storm, and thoroughly drenched and disheartened. The inhabitants sighted them from afar and recognized them as Russians. The chief proposed to meet them outside of the village and kill them, saying that they did not come to them for nothing, but the other prominent inhabitants refused to agree, saying: "Why should we kill them when they have as yet done us no harm?" Consequently the islanders received the Russians kindly, warming them and providing them with food. The Russians were exhausted to such a degree that they could not descend into the subterranean huts without assistance. The poor Aleuts did not know what they were doing. The Russians, having recovered their strength, at once went to work. Having assembled all the natives under some pretext, they began to shoot them down without mercy. They then proceeded on their way to continue the work of death, but the inhabitants of the next village disputed their entrance into the village, and, making a sudden sortie, killed the peredovchik and his girl, wounded a few, and put the remainder to flight. The place was subsequently called "a dangerous village" by the Russians. It is not quite clear to which ship these Russians belonged—to that of Protossof or to that of Bechevin. It is also related that some Russians destroyed three villages on Ikatak island, and that they fired upon and killed a number of Aleuts who were coming to make them presents of fish.

The second ship at anchor in the bay of Makushin appears to have been the same mentioned by Berg as being under command of Brigin. The Aleuts of one of the villages in the neighborhood, being informed of the destruction of Drushinin's ship in Captain's harbor, made up their minds to imitate the example of another village; the Russians, however, being warned of their danger, turned the tables and annihilated the plotters.

Horrible as the deeds of these first Russian visitors were, some excuse may be found for them, and in some instances retaliation was absolutely necessary. The doings of later arrivals, however, cannot be excused upon any ground. The promyshleniks coming to the islands between 1770 and 1790 followed the example of their predecessors, and indulged in the most revolting cruelties. The names of Ocheredin and Polutovsky became especially obnoxious at this period. Of their followers, many are still held in dreadful remembrance by the Aleuts; among them are Lazáref, Molatile, Peter Katyshevtzof, Shabaief, Kukanof, Sitnikof, Brukhanof, and Malkof. The first two of these were on Akoon island, and the others farther to the eastward. These men placed not the slightest value upon the life of an Aleut. It is well known and authenticated that the first threw over precipices, cut with knives—which he always carried with him—and felled with axes a number of Aleuts for no other reason than that they dared to look at his concubine (who died only in 1838). One of those men named let out the entrails of an Aleut girl because she had eaten a favorite piece of whale-meat which he had set aside for himself. When we consider all these murders—I do not speak of such cases as are not fully substantiated—and take into consideration the consequences, it would seem that the number of Aleuts slain by Solovief, according to Davidof, is not exaggerated; he places it at 3,000, and even the number of 5,000, mentioned by Sarychef as that of Aleuts murdered by the Russians, is not without probability. Sarychef calls it a moderate estimate.

At last, in 1790, the arrival of the Billings expedition put an end to murder and cruelties, and a more peaceable life began.

Third period.—Though cruelties and murder ceased after the departure of Billings' expedition, the decrease in the Aleut population did not cease. Misfortunes of another kind, brought about by dangerous pursuits and voyages, formed a new reason for the decrease of the islanders. Thus at one time Merkulief, an agent at Oonalashka, sent eighty families to the Pribylof islands, of whom less than one-half returned; thirty-two of these were lost at one time in 1812, in a bidar commanded by Zakharof, and never heard from. A number of others were killed at various times by sea-lions.

The occupation of Sitka by Baranof made it necessary to push forward re-enforcements of men, and a hundred men with their families were dispatched to Sitka in their bidarkas, but only one-third of them ever returned. The rapid decrease in the number of sea-otters made a more active pursuit of the animal necessary, involving long voyages from one hunting-ground to the other. During such journeys many perished; in 1809 a bidarka with 40 people, in crossing from Oumnak island to the coast of the peninsula; in 1811 a bidarka with 30 men; in 1824 20 bidarkas which left the Four Mountain islands were lost; and, finally, in 1828, a bidar with 15 men in the Akutan straits. In addition to these disasters there were, of course, numbers of less importance. It is impossible to ascertain the whole number of lives lost in this way; it is certain that the number greatly exceeded that of deaths from natural causes. In addition to the causes of decrease already mentioned, there were others that may be called unavoidable and unforeseen causes, such as famine and infectious diseases, both of which were very prominent factors in decreasing the population. Famine made its appearance at the time of the internal wars, according to the traditions of the Aleuts, and it seems that its victims were more numerous than those of battle. Ever since that time famine has been a constant visitor among the Aleuts, before and after the arrival of the Russians, and even after the establishment of the present privileged company. The Aleuts never lay up great stores of provisions, and nearly every year they suffer at least a partial famine during the first months of the year. Their name for the month of March is Khissagounak—that is, "when straps are chewed." This expresses that about that time they had no proper food. It is evident, therefore, that at such a time the least misfortune in hunting may bring about the most dreadful consequences. But what must be the condition in those villages where only women and children remain—the men having perished, or gone away by order of the company? This was often the case in former times; indeed, numerous instances of wholesale starvation are known. Under the administration of Burénin all the inhabitants of one of the villages on the eastern coast of Akutan died of hunger, only one old woman remaining to tell the tale. Also, under Petroff's administration, in 1822, seven people died in Koshigin village of hunger, but, thanks to the efforts of the officers and chiefs, such disasters are likely in the future to be prevented, though scarcity of food may still be apprehended.

Of epidemic diseases we have but little information. They have occurred in this district, but the deaths have been less here than in other regions of the colonies. The nature of epidemics in early times is of course unknown, but in 1807 and 1808 there occurred on Oonalashka an epidemic called the "bloody fever", which began in the principal village and rapidly spread over the whole district, a very large number of men and young women dying of the same; old people seeming to have been entirely exempt. The greatest mortality was in the principal village. After the wreck of an American ship, under command of O'Kane, the virulent disease made its appearance, the origin of which was ascribed to the eating of wet rice. This disease began to spread, and attacked large numbers, in every case those who partook of the rice. In 1830, in the autumn, an epidemic began and continued until the spring of the following year; thirty people, mostly youths and strong men, died of this disease, but children, old men, and the whole female sex seemed to have been exempt. The greatest mortality from this cause was at Ounga, where the disease had appeared some time before, and extended to the Aliaska peninsula. On the other islands it was unknown. The last epidemic was the small-pox, which appeared here in 1838. The syphilitic disease was perhaps the most disastrous of all, but the extent of its ravages has not been ascertained. This disease appeared with the Russians, and committed its greatest ravages about 1798. At that time there were whole families and even villages, from the oldest to the youngest, marked by this dreadful disease. Such a family came under my own observation in Makushin village, but I believe that this family was the last victim of this plague, as since that time I have observed but rare instances, principally in the harbor village during the presence of ships.

### THE AGE AND ORIGIN OF THE ALEUTIAN PEOPLE.

To express a definite or authoritative opinion on the subject would be impossible, because there is no definite information concerning it; opinions must be necessarily based upon guess-work up to traditions of the Aleuts themselves and local indications.

Were these islands always inhabited, and who were the first inhabitants—Aleuts or another people? At the first glance upon the islands of the Oonalashka district, devoid of timber and poor in products of the land, it becomes evident that the present Aleuts must be the first inhabitants; and it would also appear that they did not settle here very long ago. The traditions of the formation of these islands are not very clear, but we encounter at every step the traces of volcanic revolutions of comparatively recent date. Traces of villages have scarcely been touched by time, and whenever the old men point to a spot where a village existed in former times we can still perceive the ground-work of the huts, and even the holes for seasoning the fish, and a luxuriant growth of grasses plainly indicating the extent of the former settlements; therefore we may conclude that the islands have not been inhabited very long, and that the present Aleuts are the first race that settled upon them.

From whence came the Aleuts to these islands—from America or from Asia? The traditions of the Aleuts, chiefly transmitted in songs, say that the Aleuts came from the west, near the great land, then Aliakskhakh, or Tnam Angouna, which was their original habitation, and that they wandered from there to these islands, and then gradually extended to the eastward and finally penetrated to the present Aliaska peninsula.

Tnam Angouna is now one of the Four Mountain islands, and in its present condition certainly does not deserve the name of "great land" when compared with any of the other islands. Perhaps it received its name from being the largest of the Four Mountain islands; but in spite of this some of the Aleuts believe that they originated there. This theory would only be admissible if we were to assume that the Four Mountain islands at one time formed one body of land together with the Andreianof islands, and perhaps was united with Kamchatka. But it is much more probable that the Aleuts really came from the west, from a great land—that is, Asia—and their descendants penetrating farther to the eastward, though preserving the tradition about coming from the great land situated in the west, lost any definite idea of the same, forgetting, perhaps, the very existence of Asia, and began to believe that the small island Tnam Angouna was the place of their origin.

The migration of the Aleuts from the westward may be accepted as a fact; and even if the mainland of Asia and the Aleutian islands were always at the same distance from each other that they are now, the island of Bering is visible in clear weather from Kamchatka, and from Bering the nearest Aleutian island can sometimes be sighted [?]. This would indicate the route of the migration; as to the mode of conveyance by which the Aleuts made their way from the continent, it is most probable that they traveled in canoes and bidarkas, since in former times the weather was very much finer during the summer and clearer than it is now. Such journeys from the Kamchatkan shore to the Aleutian islands were accomplished even after ships had commenced to make the voyage. We might add that if the Aleuts came from Asia they must have come from Kamchatka, or from Japan over the Kurile islands, and in that case there should be some similarity, in language and customs and mode of life, between the Aleuts and the coast people of Asia. At any rate, the Aleuts bear greater resemblances to the Asiatic than to the Americans; while, on the other hand, the Fox Island Aleuts, in their appearance, mode of life, and customs, resemble more closely the North American native, especially the Kadiaks. Their language, though differing from that of surrounding tribes, is constructed in the same manner as that of the Kadiaks, which is known to all the tribes inhabiting the coast of North America; and even the language of the Chugachs (Chukches ?) is a branch of it. There seems to be no similarity between it and the Japanese, as far as I can judge from questioning the Japanese who visited Sitka.

But even this theory could be overturned by the following question: Supposing that the Aleuts and other Americans speaking the Kadiak language had, some time before the settlement of America, lived in close vicinity, the latter to the southward and nearer to Kamchatka, and the former to the northward and nearer to cape Chukhotsk; but, in time, being pressed by other tribes, they were compelled to migrate to their present residence, the first from Kamchatka to Bering island and farther on; the latter probably much earlier crossed Bering strait to America, and perhaps continuing on their way southward and founding other nations, such as the Kolosh, the Indians, Mexicans, and others. In this case they should not forget the wars carried on, especially between the Aleuts and the Kadiaks. Was not this strife, which existed before the arrival of the Russians, the remnant of wars between them before migration?

We know now that Veniaminof misunderstood the meaning of some of the Aleutian traditions. The Tnam Angounam, or Four Mountain group, was formerly a center of population among the islands, as can easily be surmised from the large number of ancient village-sites and burial-caves found here; and from Tnam Angouna other islands were doubtless settled. The name Aliakshakh or Alakshak was always applied to the Aliaska peninsula.

## GOVERNMENT.

Veniaminof wrote as follows on this subject:

Before saying anything of the government of the Aleuts I must refer to their present condition and rights. At the present time all the Aleuts may be said to form a class of laborers, because even their tribal chiefs are only overseers, frequently laboring with their command, and not in any way distinguished from the others. Only of late years the head chiefs appointed by the commander of the colonies, and selected by the Aleuts from their own chiefs, have enjoyed a certain distinction, especially in their intercourse with the office managers.

In former times the Aleuts were divided into three classes—the chiefs, the common people, and kalgi or slaves; the chiefs and their children and relatives and their descendants composed the highest class, prominent in warlike exploits, and skilled in the chase. The class of common people consisted of ordinary Aleuts, not differing from servants or laborers, but the slaves were prisoners of war and their descendants.

The right of disposing of slaves was only vested in the upper class; the common people rarely had slaves, and no slave had any authority whatever over another. The power of the master over his slave was almost unlimited; he could punish him with death for crime without incurring any responsibility; he could sell him or trade him for goods; he could give him away, or set him at liberty. The price of slaves was nearly always at the rate of a bidarka and a good parka for a couple of slaves, that is, a man and a woman; and of a stone knife, bunch of beads, or a sea-otter garment for a single slave. The slave could hold no property; everything he acquired belonged to his master. He was always obliged to accompany his master and protect him in cases of attack, and, in consideration of this, the master was obliged to support not only the slave, but his family. A slave suffering want would bring dishonor upon his master. Good and kind masters maintained their slaves, and especially the industrious and faithful among them, like their own children, and the name of slave was the only distinction between them and the children of their master.

The form of government of the Aleuts may be called patriarchal. Every village consisted always of relatives and formed only one family, where the oldest of the tribe was named Toyone (*Toukhoukh*), and had power over all, but his power was very much that of a father over a large family; that is, he was obliged to look after the common welfare, and to protect his territory (every village had its grounds set apart); strangers were not allowed to hunt in grounds thus set aside; infraction of this rule often gave rise to wars. That chief was the leader in war, but he had no right to take from his command anything except the share due to his family of all food, furs, or drift-wood, whether he was present at the distribution or not; but his share was not greater than that of any other man. With regard to the affairs of the community his power extended far enough to enable him to send out anybody with sons or relatives to execute any errand that might benefit the community, but on his own business he could not dispatch anybody. No special honor or outward respect was shown to the chief. The Aleuts had punishments, and even capital punishment, but the latter could not be inflicted by the chief without the consent of all the nobles. The chief could not begin wars with neighbors without the consent of other chiefs living on the same island, and without the consent of the oldest among them.

A few villages, the inhabitants of which had sprung from one family, formed a state or community where the oldest chief descended in a straight line from their forefathers, who first settled the islands, was the ruler. If no direct descendant was available, the head chief was selected among the other chiefs for his bravery, wisdom, and skill in hunting. He had such powers over the other chiefs as were vested in the chief of the village over his own people. It was his duty to protect all and avenge insults; in case of war he commanded, all the force with the consent of other chiefs, and made peace in the same way. Without his consent no subchief could make war upon his neighbors, or undertake a raid against the Kadiaks, or set out upon any important hunting expedition. Of all that was cast up by the sea he had an equal share with the people of each settlement, and therefore such head chiefs became richer, and consequently stronger, than the others. The respect in which the head chief was held by the neighboring tribes depended entirely upon the influence which he wielded over his own subordinates. The principal chief, with such powers and rights, may be called the ruler of his island or district, but the Aleuts never had any chief or ruler who had the right to dispose arbitrarily of the whole community.

I have already remarked that the Aleuts have capital punishment. The murderer and the betrayer of community secrets were punished with death. When it had been reported that an Aleut had committed a crime worthy of death, the chief assembled the council, composed of all the nobles and old men and himself; he laid the matter before them and asked their opinion, and when all were unanimous in judging the accused as worthy of death, all the males seated themselves in an open space, armed with their spears. The culprit was also brought out, surrounded by a few young men at the command of the chief, and suddenly, at a preconcerted signal, they thrust their spears into him. If after this he was still alive one of the warriors was ordered to stab or cut him to death. It must be remarked that it was not necessary to keep the culprit guarded or to bind him during the punishment, because every criminal endeavored to make the greatest display of indifference in the face of death. He never wasted words in exoneration or in appeals for mercy; he walked upright and fearlessly to the place of execution, in order to make his name famous among his people. Many of such executed criminals are still praised in the songs transmitted to their descendants.

Other less important crimes were punished at first by reprimand by the chief before the community, and upon repetition the offender was bound and kept in such a condition for some time. This was a great disgrace; in rare instances the men thus tied were beaten. The law with regard to slaves was more strict and better defined. For disobedience the ears were cut off; for insolence to the master, lips were severed; and if any evil resulted from indiscretion on the part of slaves, such as war or quarrels, the offender was put to death. For the first attempt to escape they received corporal punishment; for the second, their hands were tied at their back, and in such condition they were kept a long time; for the third attempt they were hamstrung; and for the fourth attempt the punishment was always death. The mode of putting slaves to death was entirely different from ordinary executions. They were not speared, as other people, but killed with clubs. For the first theft (which was considered a very disgraceful crime, especially when the slaves stole from strangers), corporal punishment was inflicted; for the second offense of the kind some fingers of the right hand were cut off; for the third, the left hand and sometimes the lips were amputated; and for the fourth offense the punishment was death.

The power of the chiefs and all the rights of the Aleuts were in full force at the time when the population was greatest. Interior wars decreased the number of Aleuts, and at the same time the power of the chiefs and their own privileges, but with the arrival of the Russians the latter were entirely extinguished, and even the power of the chiefs remained only a shadow. Solovief and his companions, who undertook the work of pacifying, or rather exterminating, the Aleuts, first lessened the influence of the chiefs over their people. The Russians who followed in their wake also adopted this policy, until the chiefs were distinguished in no way from other Aleuts, being exempt neither from labor nor from punishment. In course of time the Aleuts began to look upon the chiefs as their equals in every other respect. Our government empowered the commanders of naval expeditions that visited this region between 1792 and 1823 to confer bronze, silver, and gold medals upon the chiefs, and the new regulations of the Russian-American Company provided for the distinction of chiefs from common people, restoring to them a portion of their former power. It is difficult, however, to restore or establish what has no stability in itself. Of late years (1832) the colonial government found it necessary to set up in this region two or three head chiefs selected by the Aleuts themselves from the number of tribal chiefs and confirmed by the chief manager of the colonies. And thus the present government and management of the Aleuts depend altogether upon the Russian-American Company, acting through the manager of the Oonalashka district, who, on the strength of his office, gives directions and orders to the "bidarshiks" for transmitting the same to the Aleuts through their chiefs; or the manager consults with the head chief and a few others, and explains to them his orders concerning hunting, and similar subjects, asking them how many bidarkas they can furnish for the sea-otter parties, and how many men for shooting birds, etc. The present rights and duties of the Aleuts are as follows: They enjoy the protection of the law equally with the serfs, but they are exempt from all duties and taxes. As an offset to this, they are obliged to serve the company from the fifteenth to the fiftieth year of their age, receiving pay from the company for their services. All furs which they may obtain must be sold exclusively to the company at certain prices established by the government.

It may be asked, is the present government of the Aleuts and their present condition good? I answer, it is good; because the Aleuts aside from their service with the company, enjoy complete liberty, and their service is only temporary and always for pay. The company takes good care that the man appointed as the manager of the Oonalashkan district be a man of good intentions and executes strictly the directions of the colonial government. The Aleuts have not recovered their former liberty, but there is no necessity for changing their present condition for any other. Any change could only be injurious and even disastrous. It would be perhaps desirable that the Aleuts should receive for their furs prices somewhat commensurate with those charged for goods, and also that their head chiefs should have the right to look at the accounts of the Aleuts kept at the various offices, and that all the chiefs be furnished with written rules and instructions for their guidance. Such changes as these might prove beneficial to the various communities.

## RELIGION AND BELIEFS.

The religious belief of the early Aleuts was an outgrowth of shamanism as found in the Asiatic possessions of Russia. The Aleuts believed and acknowledged that there is and must be a creator of everything visible and invisible, and who was called by them Agoughoukh, that is, creator; but having only a limited understanding, they did not connect him with the management of the world, and showed him no particular respect. Worshipping no one being, they soon came to worship everything that seemed of importance to them. As rulers of everything in their surroundings they have acknowledged two spirits, or two kinds of spirits, who regulated the fate of man in every respect. The first they called Khougakh, and the second Aglikhaiakh. Some of these worked blessings to man and others only evil, but how far their influence extended and the limits of their power, even their best theologians could not define.

Among the earliest Aleuts there may have been worship of the light and of celestial bodies. The first may be surmised from their custom of saluting the light. (*a*) The second supposition is based upon the fact that they were always afraid, and still show reluctance to say anything bad of the celestial bodies. The old men told the youths that anybody speaking ill of the sun—for instance, complaining of its heat or glare—would be struck blind and never see its light again. The moon was supposed to kill its slanderers with stones; and whoever censured the stars would be compelled to count them or else lose his life. If, in the summer time, upon a clear and calm day, some youth would complain to his companion of the heat, and regret the winter with all its storms and famine, such carelessness was always punished by the sudden appearance of violent gales and storms, and if the offense was repeated the winter would always make its appearance earlier and with greater severity than common. In this way the young Aleuts learned to display the greatest indifference to all changes of weather and temperature.

The Aleuts believed that there were three worlds, each with its separate beings and doings. The first world—which was called Akaean Kughoudakh, that is, the highest world, where there was no night or evening, and where a multitude of people live forever. The second world was our globe. The third was subterraneous, and called Sitkoughikh Kouyudakh, where there was also a multitude of people, whether mortal or immortal was and is not known. They had no temples, but there were sacred or hallowed localities called Aoudeagadakh, and also sacrifices to invisible spirits. The first could be found in every village, being generally some rock or cliff or other prominent place. The females and young men were strictly prohibited from visiting such places, and especially from gathering the grasses and weeds growing upon them. Any infraction of this prohibition on the part of bold or curious youngsters was sure to be followed by disease and speedy death. In a few instances insanity was the consequence. The adult males could visit these spots at certain times, and only for the purpose of sacrificing.

The offerings (*âkhakhilik*, that is, "All his to him he gave") were of two kinds, one optional and the other defined. The first sacrifice consisted of almost any object, principally the skins of animals, which were brought to the sacred spots with trifling ceremony and prayers for assistance in war or the chase. The second sacrifice consisted of the tail-feathers of cormorants and a few other birds only vorn by men. These sacred places were protected only by prohibition. The *modus operandi* consisted of the votary's taking a certain umber of feathers, smearing each of them with some paint, generally green or red, and throwing them to the four winds and uttering his equest to the invisible spirits every time that the feathers escaped from his fingers. When the sacrifice was completed the man simply id: "Now give me what I ask."

The early Aleuts had shamans and shamanism, but what their sorcery consisted of is now difficult to ascertain, beyond the fact that was accompanied with the usual accessories of songs, dances, beating of drums, and contortions. The shamans here as elsewhere led themselves mediators between the visible and invisible world—between men and spirits; and the mass of the people believed that y were acquainted with demons who could foretell the future and aid these sufferers, and therefore turned to them for aid in dangerous kness or misfortune, asked them for good luck in hunting, long life, rescue from danger at sea, the calming of gales; and also those were not accoucheurs called them into their houses in cases of difficult birth.

Concerning their knowledge of the future the old Aleuts assert that some of the more prominent shamans had foretold, long prior e arrival of the Russians, that white men with strange customs would come to them from the sea, and that subsequently all the ts would be transformed to resemble the new arrivals and live according to their customs. They also asserted that at the time of irst appearance of the Russians they saw to the eastward of their islands a bright light, or large star, containing many people bling the new-comers, but in the lower world few people remained, and impenetrable darkness set in.

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[a] This early custom is described as follows:

The grown men were in the habit of emerging from their huts as soon as day was breaking, naked, and standing with their face to st, or wherever the dawn appeared, and having rinsed their mouths with water saluted the light and the wind; after this ceremony ould proceed to the rivulet supplying them with drinking water, strike the water several times with the palm of their hands, saying: not asleep; I am alive; I greet with you the life-giving light, and I will always live with thee." While saying this they also had ces turned to the east, lifting the right arm so as to throw the water, dripping from it, over their bodies. Then throwing water e head and washing face and hands, they waded into the stream up to their knees and awaited the first appearance of the sun. ey would carry water to their homes for use during the day. In localities where there was no stream the ceremony was performed ea-beach in the same manner, with the exception that they carried no water away with them.

In spite of all their knowledge and power, and their efforts to impose upon the ignorant, the shamans were not held in much respect, being scarcely distinguished from other people; though helping other people, they frequently were themselves in want of assistance, and were forced to apply to others. They perished from hunger and accident like their fellows. It was a very rare occurrence that the son of a shaman adopted the trade of his father; probably the shaman on his death-bed forbade his son to do so, explaining to him the worst side of his position, and turning his desires into another direction. Many of the shamans called their occupation "service of the devil", and told the young men that nobody who had any fear or apprehension must lay claim to the title of shaman; and that they themselves had not adopted the profession voluntarily, but because they were powerless to resist the devil. The Aleutian shamans said they could not summon spirits (as the Kolosh do), but that the spirits made them their servants. They claimed that from the age of fifteen years the devil begins to trouble them with constant apparitions and delusions; while hunting at sea they would constantly see an island rise before them, or immense cliffs bar their way to the shore; traveling on foot they would be tempted from their path by other kinds of apparitions in the shape of animals or marvelous beings, until they were bewildered and willing to submit to their inevitable masters. It is known that the Aleutian shamans have nothing whatever to do with marriages, births, or the bringing of sacrifices.

The Aleuts had an indefinite belief in the immortality of souls and in a future life. This becomes evident from the fact that prominent individuals on their death directed the killing of slaves to serve them in the other world as they had done here. They could not say what the condition of souls was in the future world, but the slaves considered it a favor and an honor to be sent with their master, and therefore we may conclude that they expected to live pleasantly in the coming life.

They all believed that the souls of the dead, or, as they called them, "shadow," remained invisible among their people, accompanying them on land and sea, especially those whom they had loved, and that they were in a condition to do good as well as evil. Therefore the living called upon the dead in times of danger, especially in wars undertaken for avenging insults to the tribe.

With regard to the origin of the first man the Aleutian theologians are not unanimous. Of all their various theories, either very absurd or grotesque, or very similar to our sacred history, I present here only two. One says that at the beginning the earth was vacant, inhabited by nobody; but at one time there fell from heaven to the earth two beings somewhat resembling man, but they had long fur all over their bodies. From them sprang a couple of similar beings, but without the fur; and from this couple again came all the people, and began to spread out to the east and north (they do not mention the south, they did not suppose the people could live there;) the place where these people originated was warm—there was no winter, no gales, but a perpetually pleasant climate. The first human beings were long-lived, strong, and hardy. At the beginning the people lived peaceably and in friendship, knowing no dependence or independence, no quarrel, and no wants; but with the increase of people want and necessities appeared, and in their train the art of making arms, or hunting animals; then came dissensions and wars, and the arms were turned against men. Want and the oppression of the weaker by the stronger compelled the former to migrate from their original habitations, and thus the world was peopled.

Others say that before any people appeared on Oonalashka or other parts of America there was on the island of Unaska one man (his name is not known), who, having lived for a long time in utter solitude, began to think that perhaps somewhere in the world there might be other people like him, and therefore, with the intention of searching for his fellows, he concluded to travel. He constructed a boat—a kind of bidarka—called oulilitak. At first he circumnavigated Unaska, and, finding nobody there, he went on to the island of Four Mountains; there also he found nobody. Finally he proceeded to Oumnak, and, landing upon its western extremity, went ashore and at once saw a human track. A short time elapsed and a woman walked up from the beach in grass boots. He was not long in making her acquaintance, and as she suited his taste he made her his wife. From this couple sprang all the people inhabiting the northwestern part of America. The first fruit of this union was a dog; the second, a very strange being of the male sex with wings, who, when he grew up, began to say to his parents, "I am not like men; you have no share in me." The mother, having heard this remark several times, and seeing that he actually was not like them, nor apt to propagate the human family, and consequently would only work evil, proposed to her husband to kill him, and the father consented. When they had killed him with their own hands a son was born to them, and then a daughter, perfect human beings, and from these last couples people began to multiply. But their children moved away from them, and some spoke different languages. The difference of speech induced them to scatter all the more in all directions; those speaking one language settling together, and those migrating to the eastward founded the various nations of the mainland of America.

The superstitions of the Aleuts were innumerable. Every action or undertaking or every step required its own observances and talismans. Of the latter the most common was a girdle plaited of sinews and grasses under invocations; and certain pebbles, called by them "chimkikh", cast out by the sea occasionally. (This pebble resembles in shape a turnip, but is hollow inside, smooth on the outside, and of two colors, one entirely white with yellow rings, and another red with white rings. The first were called male and the other female pebbles.) The first talisman was worn on the naked body as an unfailing protection from death during hostile attacks or encounters with animals. Possessed of this charm a man would conquer everybody and everything without injury to himself. In spite of the fact that the material of these girdles was of no value whatever, they were by no means plentiful, and passed as heirlooms in families from father to son, or from uncle to nephew, with certain ceremonies. The second talisman was exceedingly rare, and, therefore, very highly valued. The fortunate individual that found such a one preserved it in some secret and clean place, and never looked upon it until the house was quiet, and after having washed his hands, and never unless some dreadful danger threatened. This pebble was only taken from its resting-place on sea-otter expeditions, when it served as a charm to attract the coveted game. The lucky possessor was always fortunate in the chase; he did not hunt the sea-otter, the sea-otter gathered around him and gazed at him with loving eyes.

To secure success in fishing they attach charms to the line and hook, consisting of small fragments of roots, weeds, or anything green or colored.

The pursuit of whales was encumbered with many observances and superstitions. The spear-heads used in hunting the whale were greased with human fat, or portions of human bodies were tied to them, obtained from corpses found in burial caves, or portions of a widow's garments, or some poisoned roots or weed. (*a*) All such objects had their own special properties and influence, and the whalers always kept them in their bidarkas. The hunter who launched a spear provided with such a charm upon a whale at once blew upon his hands, and having sent one spear and struck the whale, he would not throw again, but would proceed at once to his home, separate himself from his people in a specially-constructed hovel, where he remained three days without food or drink, and without touching or looking upon a female. During this time of seclusion he snorted occasionally in imitation of the wounded and dying whale, in order to prevent the whale struck by him from leaving the coast. On the fourth day he emerged from his seclusion and bathed in the sea, shrieking in a hoarse voice and beating the water with his hands. Then, taking with him a companion, he proceeded to the shore where

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*a* Aleuts assert that some of the corpses found at the present day in caves on one of the Four Mountain islands were in the same condition in their earliest times as they are now. They are lying together, one beside the other, clothed in dog-skin parkas: their bear and hair are reddish, the skin of the body black; and from these corpses the hunters endeavored to detach some pieces of the body, o perhaps a fragment of clothing. The hunters who obtain such charms are always fortunate in their pursuit, but meet with an untimel and painful death. They begin to putrefy while yet in their prime.

he presumed the whale had lodged, and if the animal was dead he commenced at once to cut out the place where the death-wound had been inflicted. If the whale was not dead the hunter once more returned to his home and continued washing himself until the whale died.

For hunting the sea-otter such poisoned spears were not used, but as the Aleuts believed that the sea-otter was a transformed human being, they endeavored to ornament their bidarkas, their garments, and their spears as much as possible, in the belief that the sea-otter would be attracted by the beauty of the outfit.

Of the many superstitions concerning health, long life, etc., I know only of their fathers and uncles endeavoring to obtain the viscid expectorative matter from the throat of some old man famous for his achievements, and of irreproachable character, who had been healthy, and compelling their children or relatives to swallow it as a preventive against all violent and epidemic diseases, and as a general strengthener of the body. Such old men, in dying, frequently blessed their relatives, and gave them some of their gray hairs, or fragments of their clothing, or arms which they had carried in wars, and ordered them to preserve them as charms against misfortune and disease.

The females had their own observances and customs at times of birth, etc., of which I do not know the particulars, and perhaps they are not worth knowing.

It is remarkable that with their talismans, and invocations, and other superstitious ceremonies it is a rule to admit no female and to impart no knowledge of these ceremonies to the other sex, the greatest disaster being threatened in case of infraction of this rule. For instance, a whale-hunter who had violated this law would be seized, before the stricken whale had yet expired, with violent nose-bleeding and swelling of the whole body, often ending in insanity or death. The sea-otter hunter was not subject to such terrible punishments, but he met with misfortune in the chase, and, though surrounded by sea-otters, could not kill a single one—the animals laughing at him, gathering around his bidarka, and throwing water into his face in sport. The same happens to sea-otter hunters whose wives prove unfaithful during their absence, or whose sister is unchaste. The same strange conduct of the sea-otters was sometimes observed toward the lazy, evil-disposed, or disrespectful toward the aged. It is impossible for any belief to exist without some moral lesson contained in it, and we may consider that even the superstitions of the Aleuts led toward cleanliness of body and a careful execution of their duties, no matter how absurd and respectful the demeanor.

I will endeavor to give here briefly the moral code, which I believe is evidently contained or hidden in the mass of superstition among the early Aleuts:

First. The old men said it was necessary to respect parents because they gave us life and nursed us in sickness and brought us up with great trouble, full of kindness, and deprived themselves for our sake without knowing what we would do for them, and, therefore, we should sincerely love them, do all we could toward their support, remain with them, and care for them until their death; if they should become blind or feeble we should take them by the hand and lead them. To disregard one's parents was considered the greatest and most dishonorable of crimes.

Second. If one had no father he should respect his oldest brother and serve him as he would a father, and a brother himself must always aid his brother in war as well as in the chase, and each protect the other; but if anybody, disregarding this natural law, should go to live apart, caring only for himself, such a one should be discarded by his relatives in case of attack by enemies or animals, or in time of storms; and such dishonorable conduct would lead to general contempt.

Third. Feeble old men must be respected and attended when they need aid, and the young and strong should give them a share of their booty and help them through all their troubles, endeavoring to obtain in exchange their good advice only; and whoever acts thus will be long-lived, be fortunate in the chase and in war, and will not be neglected when he becomes old himself.

Fourth. The poor must not be neglected, but assisted; not only not abused, but protected against abuse, because man does not always remain in the same condition, and even in the richest and most powerful tribes, as well as in the lowly and poor, sometimes quite unexpectedly their condition changes, and the rich will become poor and the poor rich, and therefore:

Fifth. During poverty they should be humble and respectful, and not offend the rich who divide with the poor.

Sixth. We should be hospitable; every visitor should be received as liberally as possible, and feasted, in order that he, on his return to his people, may speak of us with praise.

Seventh. All who move to another village are called strangers during the first year, and such must not be abused, but aided and assisted in every way, and considered as of the people. Under such they will sooner forget their own home and become accustomed to the new; and in case of need will be defenders of the village.

Eighth. We must not be forward; it is better to listen than to speak in every condition of life. That is what made people in olden times long-lived and strong, because they talked but little. Every evil and misfortune springs from the tongue; therefore in olden times those who caused common misfortune by imprudent talk were frequently punished with death.

Ninth. The children were instructed to be kind in their intercourse with others; to refrain from selfishness; to be bold in case of hostile attacks, and disdain death, and to strive to accomplish some famous deed, such as avenging the death of their relatives, and so forth.

Tenth. The following offenses were considered as worthy of death or punishment: for instance, to abuse a companion without cause by word or deed, or to kill him (but to kill an enemy was quite another thing); to take another's property; to steal or rob (theft was not only a crime but a disgrace); to betray secrets of the councils of war; to grumble at severe weather, cold, wind, or heat of the sun; to talk unnecessarily and unfavorably of stars and clouds; to defile in any manner a sacred spot, or a stream of running water, so as to prevent fish from coming up, or to disturb the sea in the vicinity of the village, and thereby drive away the fish or game. Girls or unmarried females who gave birth to illegitimate children were to be killed for shame, and hidden; their children were called "anikshoum agoucha", that is, "hidden children." (*a*)

Incest was considered the gravest crime, and was punished with great severity; it was believed always to be followed by the birth of monsters with walrus-tusks, beard, and other disfiguration.

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*a* The Aleuts said and still maintain that illegitimate infants killed from shame would begin some time after being buried to cry and weep like new-born babes, and finally they would begin to walk around at night in the villages, appearing like little clouds, weeping also, and when many such children were observed the fathers of families assembled and tried to find out the guilty persons, and if the culprit would not confess they sometimes proceeded to torture. The kindest father would not screen his favorite daughter in such a case; but when the guilty person was discovered she was smeared with paint and placed in a dark and bleak hovel. Here she was seated in a corner and covered with a grass mat with two slits so as to expose the breast, and then she was obliged to sit in that position night after night in order that the hidden child might come and nurse and not disturb the virtuous women. Whenever there was evidence that a woman had nursed an infant during the night, her sin was forgiven. Sometimes a woman thus locked up would cry out in the night, and the men, with arms in their hands, would hurriedly enter the hut, when in her arms was found not a babe, but a small black bird. This bird was killed with certain ceremonies, and torn into small fragments, and the nightly disturbance ceased forever.

The Aleuts still maintain that a failure to observe the customs of their forefathers, and especially a willful neglect of the same, is attended with all kinds of disasters and punishments. They always return good for good and evil for evil. It was considered praiseworthy to go to sea in times of gales and to make difficult landings. As a proof of such achievements they would mark their bodies in some way to indicate that they had been on some inaccessible cliff, or that they landed unassisted with their bidarka at some spot where nobody had yet landed before. But still more praiseworthy it was to be brave in war. The first duty was to be kind to strangers, because their forefathers had been travelers, and they had all sprung from one father and one mother.

The light the life-giving principle; running water gave strength to the body, but the sea-water was still stronger, making men fearless and invincible. Therefore, whoever was in his youth afraid of the sea would be forced to bathe, and thereby be made strong and brav

One of their sayings was, "The wind is no river;" that is, the river runs always and never stops, but the wind sometimes stops. Another saying was, "A bear is not a man;" by which they meant that a bear is not so revengeful and bloodthirsty as a man. Another saying was, "Not out of every sweet root grows a sweet plant;" that is, good children do not always come from good parents.

The teachings of their faith and all customs were transmitted in two ways, either from father to son, or, more frequently, from uncle to nephew. This teaching may be called domestic. Another manner of propagating their doctrines was communal or public, when the teachers were not shamans but old men who had lived to a great age and become famous for their achievements and disinterested life. Such old men considered it their duty to teach the young on every occasion, and this was done nearly every day, in the morning and in the evening; that is, when all were at home. The old man would go to the middle of the barabara for this purpose and seat himself, and all the young people would surround him and listen attentively to all he said; even if he repeated the same advice for the hundredth time they would listen to him with respect, because they considered it their duty to do so.

Now let us speak of their present faith. The Aleuts, as well as the Kadiaks, are baptized Americans (*i. e.*, natives), and are of the Greek-Russian faith, which they adopted from Russia. The Aleuts may justly be called exemplary Christians, because they abandoned shamanism as soon as they received Christianity; not only the outward signs of it, such as masks and charms, which they used in their dances and invocations, but even the very songs in which they transmitted the deeds of their ancestors, and their former belief and customs, were all forgotten without any compulsion. The first to convert and baptize them was the Iërodiakon (or holy monk) Makar (a member of the Kadiak mission), who had been sent to the Aleuts from Kadiak in 1795. He did not have recourse to any violent measures in inducing them to be baptized, and if he had been inclined to forcible means he had not the power. The Aleuts received the new belief very willingly. The best proof of this lies in the fact that Father Makar traveled from place to place, to the most distant villages, without having any protector with the exception of one Russian servant. The Aleuts themselves transported him from place to place, fed him, and protected him on his errand of baptism. And from that time to the present the Aleuts have been God-fearing and religiously inclined. They willingly assemble for prayer wherever there is an opportunity for service, and especially when they are visited by a priest. During service of prayer they stand in rapt attention and admiration, without turning to one side or the other, and without shifting from one foot to the other, no matter how long the service. At the end one may look at the prints of their feet and count how many there were; and though they understand but very little of the teachings of the church they never slacken their attention during the service. All religious observances required of them they fulfill to the letter. I need not mention that they strictly observe the fasts, because hunger goes for nothing with them for two or three days at a time. But nothing pleased me so much as the willingness, or rather the ardor, with which they listened to the word of God, their ardor being so great as to fatigue the most earnest teacher. This I can assert from personal experience. During my journeys among them, whenever I arrived at a village, all at once left their avocations, no matter how important to their immediate or future comfort; they collected around me at the first signal, all listening to me in rapt attention, forgetful of everything else; even tender mothers sometimes disregarded their crying children, whom they had left behind in their huts. The strong and healthy would carry the old and feeble to the place of meeting.

When we compare the Aleuts with the Kadiaks, their neighbors, in a religious sense, there seems to be a great disparity. The Kadiaks practice shamanism to the present day, and all their former superstitions are still in full force, while among the Aleuts the former does not exist at all and the latter have almost disappeared. Only about one hundredth part of the Kadiaks fulfill these observances to any extent, and very few show any ardor or interest, while the Aleuts are, in that respect, not behind the best Christians of our time. Such a difference is all the more astonishing because the Kadiaks have enjoyed the benefits of missioniaries among them since 1794, but the Aleuts have had a resident priest among them only since 1824, having up to that time seen only Father Makar, their baptizer, once, and for a very short time; and also two chaplains of naval vessels, in 1792 and 1821, also for a very short period, and then only at the principal village. This is not a place to decide why the Kadiaks, with every facility for christianization, have remained only half Christians, but it would be very curious to find a reason why the Aleuts so commonly and almost suddenly changed their belief—their simple and easy belief—for the very strictest, and why they show so much more interest than their neighbors. The principal reason for this I believe to lie in their character. The Oonalashkans have more good qualities than bad, and consequently the seeds of the word of God find better and deeper soil and grow with greater speed. It must be acknowledged, however, that the contempt in which the shamans were held facilitated the work of the mission. Any other stronger reason inducing the Aleuts to accept their faith I cannot find. It is true we may say the Aleuts accepted Christianity because they had only a very vague and unsatisfactory belief that did not satisfy the demands of their souls, and that they had reason to fear the Russians and were eager to please them; and, third and last, because the acceptance of Christianity exempted them from the payment of tribute. All these reasons may have induced them to change their faith, but certainly could not make them the earnest observers of its rules that they are; but when we come to scrutinize these reasons they appear but weak. It is true that their former religion was unsatisfactory, but could the Christian faith be any more so to them at first? In the absence of good interpreters they could have but incomplete understanding of God and his attributes; and could even that Christian faith be satisfying to their hearts when the first preacher of the same could not express himself sufficiently well in their language to explain its most beneficial mysteries, and forbade their own custom of polygamy? The Aleuts are very subservient, but we must acknowedge that the Russians never attempted to compel them to baptism in any way. As the most powerful reason may be considered the exemption of new converts from the payment of tribute, especially since they thereby escaped the dreaded oppression of tribute-gatherers; but if we consider the trifling value of such tribute, which they pay only at their option, and also that the exemption only continued for three years, even this reason appears insufficient to account for their earnestness in accepting the new faith.

The Christian faith was carried to America (I mean only Russian America) by the Russians. The commander of the first vessel which discovered the Aleutian islands, Glottof, and his companions, were the first propagandists of Christianity in America. Glottof, during the first time of his stay at Oumnak, in 1759, established such friendly relations with the native inhabitants that the chief allowed him to baptize his son and to carry him away to Kamchatka. He lived here several years, and learned the Russian language and grammar, and then returned to his country in the capacity of supreme chief over all the islands. This convert, who may be considered the first among all our Americans, was named Ivan, with the surname of Glottof. He assisted greatly in spreading Christianity among the Aleuts. It is unknown that Glottof and his companions baptized anybody except the son of the chief, but we know that they erected at that place a large cross, on the site of which a chapel was subsequently erected in honor of Saint Nicholas, and in 1826 was replaced by a new one. (*a*)

For some time after Glottof's visit to the island the Russians in the Oonalashka district forgot to baptize any more Aleuts, being occupied solely with their "pacification", as they called it, or rather extermination, and not before 1780, when the so-called pacification ceased, did the Russians once more begin to think of this subject. It was not so much Christian ardor as business considerations that induced the Russians to persuade the Aleuts to the acceptance of baptism, since the converted natives became more manageable, and attached, to a certain extent, to their god-fathers, giving their trade exclusively to them. Whatever the reasons were, the fact remains the same, that the first Russian hunters were the first baptizers of the Aleuts, and subsequently of the Kadiaks, thus paving the way and facilitating the work of the missionaries coming after them.

Shelikhof, the founder of the present company, included in his plans for the development of the Russian colonies the spread of Christianity and the erection of churches, and therefore on his return from Kadiak, in 1787, he petitioned the government for the appointment of a mission, which he promised to transport to the field of action and maintain at the sole expense of himself and his partners. His petition was answered, and a mission was detailed by the holy synod, under the command of the archimandrite Ioassaf, for preaching the word of God to the tribes annexed to the Russian dominion. A mission was fitted out with everything, and even with more than was necessary, by Shelikhof and his partners, and departed from St. Petersburg in 1793, arriving at Kadiak in the following autumn, where they began their labors at once. (*b*)

Juvenal first visited Kadiak and baptized all the inhabitants; in the following year, 1795, he went to Nuchek, where he baptized 700 Chugachs, and then proceeded to Kenai and baptized all the people there; in 1796 he crossed over to the Aliaska peninsula and penetrated to the lake Ilyamna, where he ended his apostolic services with his life, having done more service to the church than all his companions. The cause of his death was his strong opposition to polygamy. It is said that when he was attacked by the savages Juvenal did neither fly nor defend himself, which he might have done successfully, but delivered himself unresistingly into the hands of his murderers, asking only for the safety of his companions, which was granted. The savages relate that after the missionary had been killed he rose up once more, walked toward his murderers, and spoke to them; they fell upon him again, but he repeated his miracle several times. At last the savages became exasperated and cut him into pieces, and then only did the preacher of the word of God become silent. Father Makar proceeded to Oonalashka in 1795, and traveled over the whole district from Ounga to the Four Mountains, and baptized all Aleuts without exception. The other members of the mission confined their activity to holding services in the churches at their respective locations and teaching children in the schools, but Herman began from the very first a secluded life on a small island (Spruce island), devoting himself to prayer and agriculture. Subsequently he taught a few girls, orphans, in the Russian language and manual labor, and this small establishment was in a very good condition when visited by Baron Wrangell. Among the work of the Kadiak mission must be mentioned that in 1806 the monk Gideon, who visited the island in the ship Neva, translated the Lord's prayer into the Kadiak language, and it was sung in the churches after that time. Subsequently, however, it was neglected and finally lost. Mr. Shelikhof, who considered such a man not equal to the work of spreading the word of God in such a vast region, represented to the government the necessity for additional action, but the drowning of the bishop appointed and the death of Shelikhof himself put an end for the time being to the enterprise.

Baranof, having established Sitka, asked for a priest, and in 1816 the priest Alexei Sokolof arrived there. Subsequently, when the charter of the Russian-American Company was renewed, in 1821, they were ordered to maintain a sufficient number of priests in the colonies. The company petitioned to have them sent out, and the prayer was granted. Veniaminof arrived in Alaska in 1823; Frumenty Mordovskoi entered Kadiak in 1824, and a creole, born at Atkha, Yakof Netzvetof, was assigned to his native island in 1825. This last-named worthy pastor did much toward the spread of the Christian faith; he subsequently transcribed my translations of the Evangel and catechism from the Oonalashkan into the Atkhan dialect.

At the present time we have in our American colonies four churches, one at Sitka, in honor of the archangel Michael, established in 1817; the second at Kadiak, in the name of the elevation of the cross, established in 1795; the third at Oonalashka, in honor of the resurrection of Christ, established in 1824; the fourth at Atkha, in the name of Saint Nicholas, established in 1825. Nushegak and the Rédoute Saint Michael in the north have remained thus far without priests, since the priest of Kadiak, to whom the former properly belongs, finds it impossible to visit it, and the Oonalashka priest can do so but rarely. Many converts have been made in that region, and a church or mission will doubtless be established there before long. The following translations have been made in the Aleut tongue to assist in the spread of Christianity: A brief catechism that was printed by permission of the holy synod in 1831, at the instance of the American-Russian Company. The Evangel of Matthew, which the holy synod allowed to be used in manuscript, and a pamphlet entitled "Guide to the Short Road to the Heavenly Kingdom" was also used in manuscript. To the honor of the Aleuts it must be stated that they eagerly read these books as soon as presented to them in their own tongue.

### DESCRIPTION OF FORMER CUSTOMS AND BELIEFS OF THE ATKHA ALEUTS. (*c*)

The Atkha Aleuts, or the inhabitants of the Andreianof, Rat, and Bering islands, situated between the Oonalashka district and Kamchatka, are of the same tribe or nationality as the Oonalashka Aleuts. This is proved by their language, customs, character, and outward appearance.

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*a* This cross was in course of time used by some Russians in the construction of a house for the posts of a sleeping platform, very unnecessarily; but old men and eye-witnesses assert that as soon as the men began to sleep on the platform an unknown disease broke out among them, and one-half of those living in the house died, while the Aleuts living around them remained in good health.

*b* The *personnel* of this first mission was as follows:

1st. The archimandrite Ioassaf. He returned to Irkutsk in 1797 for promotion to the grade of archierey, and in returning from there to Kadiak he was drowned with all the occupants of the ship Phœnix.

2d. The archimandrite Iëromonakh Juvenal (who had once been a mining engineer) was killed by the natives in 1796 near lake Ilyamna.

3d. Archimandrite Makar, the christianizer of the Aleuts, returned to Irkutsk in 1796, and on his return, in the suite of the bishop, was drowned with him.

4th. Archimandrite Afanassy filled the office of priest at Kadiak until 1825, and then returned to Irkutsk.

5th. Iërodiakon Stefan (also a former officer) was drowned in the suite of the bishop.

6th. The archimandrite Iërodiakon Nakar returned to Irkutsk in 1806, and died there eight years later.

7th. The monk Ioassaf died at Kadiak in 1823.

8th. The monk Herman died at Kadiak in 1837—the last member of the Kadiak mission.

*c* Communicated to Veniaminof by Father Yakof.

The Atkhans believed that all the inhabitants of the islands known to them originated from one couple that came from heaven to the island named Tanaga, one of their group. The Atkhans, like their brethren of Oonalashka, believed in shamanism; that is, though they acknowledged a creator, they also believed in powerful spirits. The Supreme Being they called Kouyudam Agougou and also Achidan Agougou; the first signifies creator of heaven, and the second creator of the lower regions; to intervene between mortals and spirits, and to decide which of them was to be most respected, was the business of the shamans. The demonology of the Atkhans was very complicated. They also believed in certain birds, fishes, and other creatures, together with the sun, the heavens, and other inanimate objects, thinking that spirits lived in them. As communication with spirits was carried on only through the medium of shamans, they imagined that these spirits looked as the shamans appeared during their ceremonies and dances, with masks or disfigured countenances. Such masks and faces were still seen by the priest above mentioned. He says that they are generally well executed, representing the heads of animals in an exaggerated form. Some of the Atkhans ascertained that in certain inaccessible localities there were colossal beings of human shape, called Taiagouligouk, to whom sacrifices or offerings were brought, consisting of paints, skins, pebbles, and fine sinew thread, but there was no open idol-worship, and even this approach to it was considered dangerous among the people. They believed that idols might occasionally be of assistance to those who had made them, but though they complied at a certain time with the wishes and demands of their worshippers they finally proved their destruction, and sometimes a whole family or tribe was annihilated for daring to visit the locality where the idol was kept, and therefore it was strictly forbidden to make such figures. But the shamans continued to foster the worship, and instances of the same have been discovered often since Christianity was introduced in the Atkhan district. Especially was this the case among the inhabitants of the island of Attoo, where the last secret orgies were held. Idol-worship was finally broken up by the priest during his visit in 1827. The Atkhans relate that on one of their islands, named Sagougamak, on a bay named Ousamkoukh, about half way up the mountain, there had been erected an idol by some shamans which destroyed at sight all who passed by. They all had seen it and knew that it destroyed their brethren, but they did not know where and how they were destroyed until finally one of them sacrified himself for the purpose of ascertaining the place where the Aleuts disappeared. Having resolved upon his undertaking he went to the dreaded vicinity, taking with him his wife, whom he hid in the interior of his bidarka. Arriving on the spot he sat down his wife in a place of concealment and told her to watch him while he himself went on farther and camped; his wife saw that something emerged from the idol, proceeded toward her husband, killed him, and carried him off to a cave. She returned home and related the occurrence. The Aleuts at once collected in large numbers, proceeded to the idol and killed the spirit operating the same, and after that the bay was safe. They also said that about the year 1814 an idol was found on the island of Kanaga which gave signs of life; and in 1827 a similar discovery was made on Adakh island by two Aleuts, who saw the spirit come out of the cave. The first idol was destroyed by being borken up, but the second was killed with a gun and then shattered and burned.

The Atkhans also believed that the souls of dead people did not die, but separated from the body and lived, scattering everywhere, without any permanent place of abode. The Atkha shamans, as a rule, were men, but a few women have been known in the profession. According to the belief of the people the shamans had intercourse with spirits, and the power to summon them in cases of necessity; they foretold the future; they threatened those who showed them disrespect with various punishments; cured the sick, and assisted the hunters in their pursuits, etc., consequently the more prominent or skillful among them were held in considerable respect. For curing diseases or bringing good luck to hunters the shamans generally employed the roots of plants, and sometimes of dwarf willow and birch, pieces of which were considered as valuable gifts. If the prophecies or assistance of shamans proved successful they demanded from their clients offerings to the spirit most respected by them, while they themselves were satisfied with what their clients were willing to give. One of the common occupations of the shamans was the manufacture of masks and faces, and sometimes of charms and nostrums. They also superintended games and dances, composed songs, etc. For all such doings they had certain localities where no unclean person or woman was allowed to enter. In order to keep themselves and their belongings beyond the influence of any unclean being the shamans frequently washed themselves, their clothing, and their implements in the water of running streams.

The Atkhans, like their brethren of Oonalashka district, strictly prohibited the betrayal of secrets to other tribes as leading to quarrels, murder, and war. They also prohibited laziness, theft, willful abuse; to avenge a wrong even by the most violent means was not only considered praiseworthy, but an unavoidable duty; respect for parents and for the aged and gratitude to benefactors were considered virtues. To kill a man for cause was considered just and allowable. Such causes were a violation of the marriage-bed, a refusal to fight for the community, treason, or secret intercourse with other tribes. The punishment for these crimes was sometimes carried so far as to include the wife of the offender; but children, especially small children, were always spared. They had no general punishment for crimes; each one was supposed to deal with his own enemies. Theft was not suffered among them at all; a house in which theft or robbery had been committed was at once leveled to the ground and rebuilt in another place with certain ceremonies; then a shaman with a few other men entered the new building, burning certain herbs and going through various ceremonies, in order to find out the guilty one. It was believed that the ashes of the burned herbs would fly into the face of the thief. Once discovered, the guilty man was stripped and beaten. A very remarkable custom among the Atkhans is the "purification", which they call *alhag*. Sodomy, and too early cohabitation with a betrothed or intended wife, are called among them grave sins. The manner of purification was this: The offender desirous of unburdening himself selected a time when the sun was clear and unobscured; he picked up certain weeds and carried them about his person; then deposited them and threw his sin upon them, calling the sun as a witness, and, when he had eased his heart of all that had weighed upon it, he threw the grass or weeds into the fire, and after that considered himself cleansed of his sin.

The Atkhans, like other savages, did not know the value of their lives, and, therefore, in disasters they were easily overcome by their feelings and deprived themselves of their lives. Grief over the death of relatives—a son, cousin, husband, or wife, etc.—often led to suicide; but there were no examples of children depriving themselves of their lives from grief over the death of their parents, no matter how dearly they had loved them. This was probably considered as a law. It occurred also that men committed suicide from disappointment at the failure of an undertaking, fearing that they would become the laughing-stock of the village. Sometimes they preferred death to capture among their enemies, for all prisoners of war were slaves for the remainder of their lives.

The Atkhans allowed intermarriage between all relatives, with the exception of a brother to a sister, father with his daughter, and a son with his mother; and in case of the death of one brother the other was obliged to marry the widow. Marriage was contracted at ten years of age, the time when a boy was considered able to manage a bidarka and throw a spear, and consequently was counted among the hunters, while the girl was able to sew. Sometimes the parents betrothed their children to each other. As soon as such an engagement had been resolved upon the parents presented the children with household utensils, clothing, hunting-gear, etc., but the marriage was only considered as binding when the young couple had brought forth children. At that time it was the custom to present them with slaves; and the refusal of an offer was considered a great insult, for which the most severe measure of vengeance might be instituted, even to death. Men were allowed to have two or more wives, but only very few had more than two. They were very jealous of their wives, and adulterers were subjects of cruel vengeance, and this crime often led to intertribal wars. The love of parents for their children and of children for their parents was as exemplary as among the Oonalashkans. The parents managed their children strictly, teaching them everything necessary for their comfort without permitting them to follow their own inclination, even setting apart certain hours when they might leave them temporarily. Brothers and sisters were not allowed to play with each other. For disobedience and trifling offenses the punishment was only a reprimand, but for a graver infraction of rules the children were made to fast a day or more. The parents were always willing to intrust the education of their children to relatives, or even strange people. It was also the custom to give away children for adoption, sometimes without consideration, but generally expecting some return. These adopted children were accorded all the rights of real children of their new parents.

The mode of burial differed in accordance with the social condition of the deceased. The nobles, the wealthy, or prominent, distinguished hunters were buried with special ceremonies. A corpse of this class was clothed in its best garments and deposited in a small structure of earth, ornamented as much as possible with mats and flowers; the deceased was seated with his knees drawn up to the chin; then the structure was covered over and closed. If the deceased had been a hunter all his hunting utensils were buried with him. The poor and common people were simply thrown into holes, but also in a sitting posture. Men who died at sea were generally eviscerated for the purpose of postponing decomposition. The entrails were burned separately. Relatives of the deceased individual killed slaves in his honor, or as proof of their love for him or their violent grief—customs observed by other American tribes. Near relatives of the dead continued a general lamentation for several days; during this time they fasted; they did not partake of meat or oily food such as fish-heads, and they kept themselves clean; and even husband and wife did not cohabit during the time of mourning. Those who were very much attached to the deceased, if they did not commit suicide during the first paroxysm of grief, often fasted almost to starvation, and frequently visited the place of burial to mourn and lament, giving away to the people large quantities of valuables in memory of the dead. When children died the parents did not weep, with the exception of cases where children died before having any teeth; in that case the father fasted ten days and the mother twenty. The wife at the death of her husband, and the husband at the death of his wife, kept a fast and lament for sixty days, beginning from the eleventh day after the death; but if the husband died or perished at sea the days of mourning and fasting were reduced by half. At the conclusion of the mourning period the widows or widowers might contract a new marriage.

The government of the Atkhans was patriarchal and liberal. They had no laws or rules; customs and traditions were their only guide. They had hereditary tribal commanders, like other American nations, but their power was limited and conditional; they were only obeyed by those who chose to listen. Their power consisted principally in the office of selecting men to perform certain labor for the common welfare; to divide whales cast up by the sea, to collect the forces in cases of emergency, and act as leaders during battles with the enemy. But on such occasions it was necessary that they should conduct themselves bravely and be ahead of everybody; if one acted otherwise some "brave" was at once selected to replace him, and such individual was at once invested with all the prerogatives of a chief. Chiefs who displayed extraordinary cowardice were deprived not only of rank, but of their property.

Special days or periods of repose they did not know, but whenever there was any occasion for feasting, such as the arrival of strangers, the return of parties from long voyages, victories over an enemy, or uncommon success in hunting, a season of rejoicing was at once instituted. Their celebrations consisted generally of scenic representations, with songs to the accompaniment of drums; masks were also used at such times, and other ornaments according to the subject represented by the actors. Frequently shamanism entered into such solemnities; shamans were always present on such occasions, and were consulted in the shaping of masks or disguises. These festivities began and frequently ended with feastings. The fare consisted only of local products, all marine animals except the "killer" whale, all birds with the exception of the hawk, eagle, and gull. All fishes and all known berries and roots were consumed as food, but the most luscious morsel was a mixture of *sarana* roots and berries with blubber.

The Atkhans had also special games for evenings, during which personal encounters or trials of endurance took place. The contests sometimes were of songs, sometimes of dances, and, rarely, a rude kind of wrestling; formal challenges were sent and accepted on such, occasions, and a failure to be ready at the appointed time was considered a disgrace. The whole proceedings were of a friendly nature, and were generally accompanied with feasting, always with songs and dances. In course of time abuses entered into this custom, and contestants and enemies made use of such opportunities to inflict injury upon each other. Open breaches of the peace and murder were of exceedingly rare occurrence on such occasions.

The Atkhans, as well as the Oonalashkans, maintain that there was a time when they all lived at peace with each other and with their neighbors, but subsequently quarrels broke out, and finally it became customary for inhabitants of different villages to attack each other and destroy houses and property. Only the permanent residence of Russians among them put an end to internal strife and murder, and the adoption of the Christian religion only changed their character, and united as brethren those who had formerly been engaged in strife. The bloodiest wars previous to the arrival of the Russians were carried on by the Atkhans with their neighbors of Oonalashka; the latter, being the more numerous, were generally victors.

They say that the first cause of war between them was the following occurrence: One of the Oonalashkans had married a native of Atkha, and had a son by her, who, unfortunately, had only one hand at birth. At one time the relatives and brothers of the wife came to the village and stopped. The husband at this time was away at some distance; the uncles and relatives noticed their one-hand nephew, and began to make fun of him. They tied to his body an inflated bladder, or drum, and told him to dance. To the mother such sport, though perhaps innocent in itself, appeared an insult, but she did not exhibit her anger. The guests departed in peace, without suspicion of coming evil. When the husband returned she told him everything—that her relatives had made sport of their unfortunate son. The husband became very angry, and, collecting a few of his relatives, he set out at once to seek revenge. He carried out his intention very easily, as his former guests had no inkling of being pursued. This first errand of vengeance gave rise to continued hostilities between the Atkhans and Oonalashkans, and to a repetition of the first attack. The Oonalashkans, of course, considered themselves as insulted and injured, and in their turn attacked the Atkhans. In course of time it became impossible for members of the two tribes to meet without a bloody conflict, but the Atkhans suffered much more, because they were weaker; and, not daring to attack the villages of their enemies, they were obliged to watch their opportunities when the Oonalashkans were on journeys at distant hunting-grounds. These conflicts generally took place on Siguam, Amlia, and Amukhta islands. The Oonalashkans, on the other hand, raided upon the Atkhans every year in numbers of from fifty to one hundred bidarkas. This was carried on to such an extent that the Atkhans were obliged to shut themselves up during the summer in secluded and inaccessible fortified places, but even then they were often besieged and compelled to surrender. The islands of Siguam and Amlia were generally the theater of war.

Though unable to return the attacks of the Oonalashkans, the Atkhans occasionally made war upon the Rat and Near islands as far as Attoo, and only with partial success. They used the same weapons as the Oonalashkans—lances and knives. The prisoners, especially the males, were treated by the Atkhans with great cruelty, and those who were made slaves were fortunate indeed; the others were burned alive in fire, roasted on heated rocks, and beaten with straps.

The Atkhans, as well as the Oonalashkans and other tribes, believed, until the arrival of Europeans, that they were the only people in the world, and therefore the first appearance of the Russians created great consternation. All such acts of the Russians as were incomprehensible to them were ascribed to supernatural qualities, and in the early times the Russians were classed with spirits or with devils. This character was maintained by the Russians subsequently by their cruelties and violent treatment of the Aleuts. Any article of Russian manufacture found upon the beach was considered as unclean, and was at once thrown into the sea or burned. At first the use of iron or copper was strictly prohibited by the shamans; but where there is a rule there is always violation of the rule. The Aleuts became more bold, and convinced themselves of the superiority of metals for spears and arrow-heads, knives, etc., and subsequently they became better acquainted with the Russians and their customs, and iron and copper became the most valuable objects in their eyes, though the belief continued that they were manufactured with the assistance of the devil.

### DIVISION OF TIME.

The Aleuts had twelve months in their year, the eleventh of which was longer than the others, to complete the full year. Their seasons were:

*Kanakh*, winter; *kanikínga* (after winter), spring.
*Sakoódakh*, summer; *sakoodikinga* (after summer), autumn.

The milky way was called *inim sighidá*, from *sighidak*, *linia alba*, (from the navel downward).

Their months were as follows:

1. March—*Kadoogikh* (first month), or *Khisagoonakh* (when straps are eaten—starvation).
2. April—*Aglioöigikh khisagoonakh* (end of eating straps), or *Sadágan kagikh* (time for leaving houses).
3. May—*Ichikh khookh*, or *Chigūm tugida* (month of flowers).
4. June—*Chagalílim tugida*, or *Chagaligim tugida* (month of breeding and hatching).
5. July—*Sadignam tugida* (when animals grow fat).
6. August—*Oognam* (or *Ŭkhnam*) *tugida* (warm month).
7. September—*Chugūlim tugida* (when furs are good).
8. October—*Kimadgim tugida* (hunting-month, when seals come from the north).
9. November—*Kimadgim kangin* (after hunting-month).
10. December—*Agalgūgakh*, or *Agalgūlukh* (when seals are hunted in disguise).
11. January—*Tugidigámakh* (long month).
12. February—*Anulgíliakh* (cormorant month).

## III.—THE ATHABASKANS.

The Athabaskans, or Tinneh, include a large number of tribes generally classed as "North American Indians", extending from the mouth of the Mackenzie river in the north to the borders of Mexico in the south. The northernmost tribes of this stock extend in a westerly direction nearly to the coast of Bering sea and the Yukon delta, touching the sea-coast at one point only in the northern part of Cook's inlet. At every other point they are separated from the ocean by a belt of Eskimo population. The reasons for adopting the term Athabaskan in preference to that of Tinneh have already been given.

Closely allied as these tribes are to our own well-known Indians of the interior, they will probably share in the fate of the latter, disappearing rapidly before the first advances of civilization, until scarcely enough may be left to accommodate themselves to the new state of affairs. While the Eskimo tribes of Alaska, especially those living to the southward of Bering strait, have the faculty of assimilating with races of a higher type, the Athabaskans of the far north have thus far displayed no traits which would warrant us to hope for their speedy civilization. The territory which furnishes the Athabaskan tribes, numbering a few hundreds, or perhaps thousands, with a scanty living equals in superficial area many of our states or territories. With the exception of the Tinnats or Kenai people, on Cook's inlet, these tribes have not been in direct contact with Caucasians until quite lately, and with the one exception before mentioned they have not taken kindly to the invaders of their vast domain. Nearly all the Athabaskan tribes of Alaska add to their tribal name proper the word *khotana*, *kokhtana*, or *tena*. A few tribes on the upper Yukon have the term *kutchin*, with the same meaning. It is very probable, however, that this *kutchin* may be traced to the same root as the above-mentioned *kokhtana*, and perhaps to the *khuilchan* (*kolchan* or *golchan* of the Russians). The latter expression means "far-away people" with the natives of Copper river, and also with the Tinnats or Kenai people.

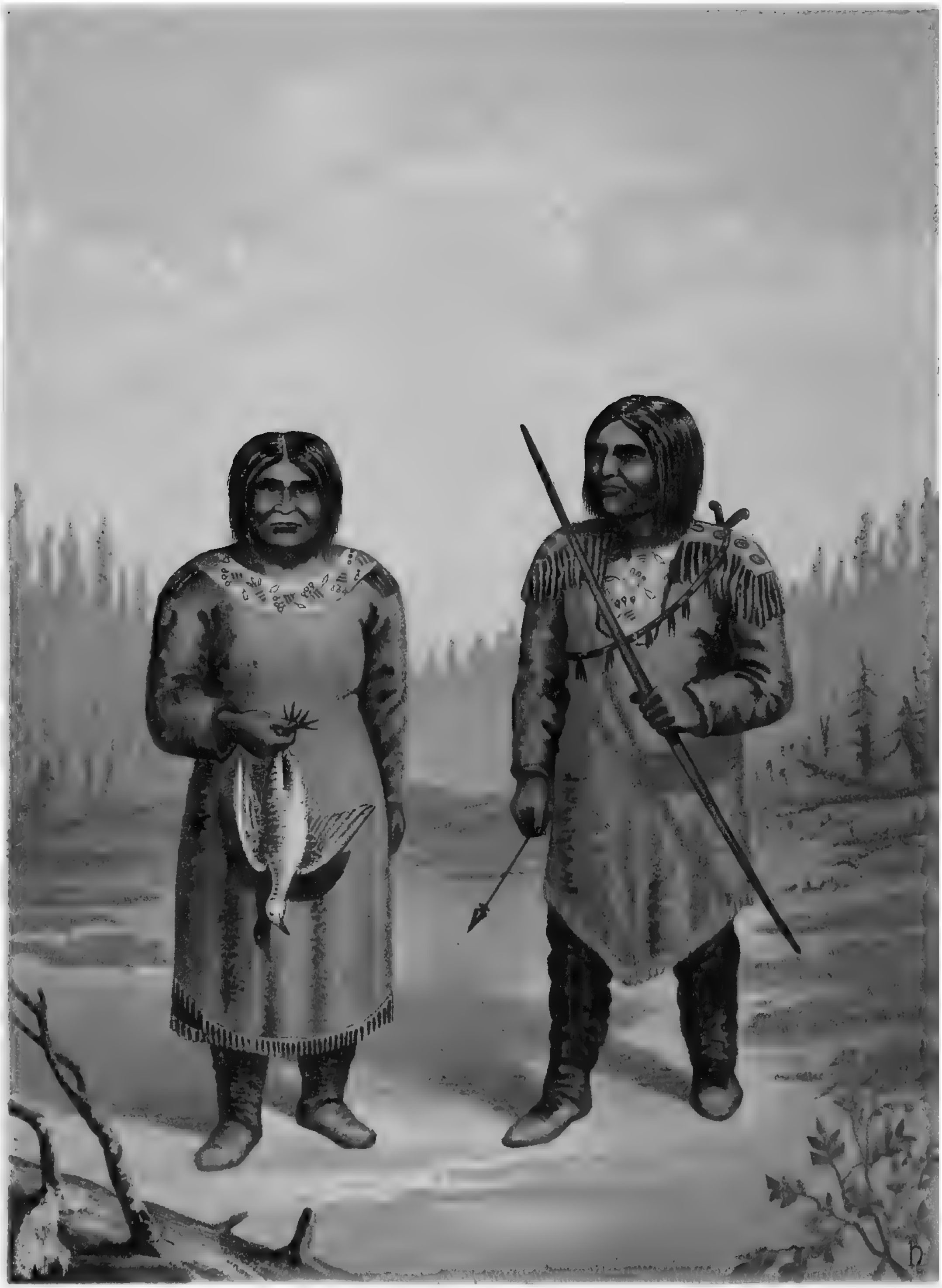
In enumerating the Athabaskan tribes of Alaska we begin with

### THE NATSIT-KUTCHIN.

The Natsit-kutchin (Natsikkutchin of Dall, and Natchekutchin of Ross) are known to the traders as *gens de large*. The word *natsit* signifies strong. They are nomadic, not numerous, and occupy the banks of the Porcupine river, above its junction with the Yukon, and the country between the latter river and the Arctic divide. They are but little known, and carry on a traffic with the Kangmaligmute of the Arctic coasts. Their dwellings are rudely-constructed log shelters, and during the summer they live in tents.

### THE HAN-KUTCHIN.

The Han-kutchin, living on the upper Yukon river, between the British boundary and Fort Yukon, embrace several of the subdivisions made by Mr. Dall, such as the Tutchonekutchin (Kolchane) and Nehannees. To traders they are known as *gens des faux*. They also lead a nomadic life, and trade with the natives of Copper river and those of the upper Tennanah river.



A. Hoen & Co. Lith. Baltimore

TENNANAH TRIBE—MAN AND WOMAN

### THE YUKONIKHOTANA.

This tribe, comprising the Yunakhotana and the Kutchakutchin of Dall, inhabits the banks of the Yukon river from fort Yukon westward to Nulato. The people are less nomadic in their habits than their eastern neighbors, but are by no means numerous. Their dwellings are built of logs and roofed with bark, and their summer garments are of tanned moose- and reindeer-skins, while those for winter use are made of reindeer-, wolf-, and fox-skins. They trade at various points along the Yukon, but prefer to assemble at Noyakakat and Nuklukaiet. Their tribal name signifies "men of the Yukon". The existence of totems among them has not been definitely ascertained, though we have many indications of their division into clans. In distinction from their neighbors of the west and north they do not use their dogs as draught-animals, but only for hunting. In winter and summer alike they carry such loads as they wish to transport upon their shoulders. They are, as a rule, tall and of spare habit. Their women are worn out and faded at an early age, having in true Indian style to bear most of the household burdens. They are polygamists, in spite of the fact that the males outnumber the females considerably in the majority of the settlements. They have no marriage ceremony, but the custom of purchasing wives, found among so many of the Athabaskans, does not exist among them. They are not copper-colored, being rather of an ashy hue, and they are less hairy than their Eskimo neighbors.

### THE TENNANKUTCHIN.

The Tennankutchin (Mountain men), or Tennan-tnu-kokhtana (Mountain River men) as they are called by the Tinnats, occupy the mountainous basin of the Tennanah river. But few white men have penetrated into their domain, as they have always borne the character of a treacherous and warlike tribe. They number, perhaps, seven or eight hundred, living chiefly in villages near the headwaters of the river, which they descend during the summer in birch-bark canoes to trade on the neutral ground of Nuklukaiet, at the junction of the Tennanah with the Yukon river. Their common dress consists of moose-skin shirts and pantaloons for both sexes, the difference consisting only in the shape of the skirt of the upper garment, which is rounded with the females and pointed with the males. Both sexes are fond of bead and porcupine-quill embroidery. They paint their faces, and on festive occasions powder their unkempt locks with eagle-down, after the fashion of the Kaniagmute, in the far southeast. In summer the men wear no head-covering but a narrow band of skin for the insertion of feathers. The accompanying plate represents two individuals of this tribe, who were the first to visit the sea-coast, in the year 1880. They have been known to trade with the Kenai people in ancient times, and are reported to possess a system of totems.

### THE YUNNAKAKHOTANA.

The Yunnakakhotana, first named by Zagoskin, inhabit the Koyukuk river, the northern tributary of the Yukon. Their name signifies "far-away people", and was probably given to them by their southern neighbors, but Mr. Dall calls them Koyukokhotana. Zagoskin is the only white man who has ever visited them in their homes. He made a winter journey along the river and across the divide to the headwaters of Selawik river, which empties into Kotzebue sound. He describes them as living in small communities of one or two log houses widely scattered. The Yunnakakhotana trade alternately at Nulato on the Yukon, and with the Eskimo of Kotzebue sound. Mr. E. W. Nelson reports that he saw natives belonging to this tribe on the coast of Kotzebue sound, who had mixed with their Eskimo neighbors to such an extent as to have adopted their language while still retaining their distinctly Athabaskan physical features.

Misled, probably, by his imperfect knowledge of the Russian language, Mr. Dall has mentioned Zagoskin (and upon his authority Wrangell and Baer) as classing these people with the Innuit or Eskimo. In this he is mistaken, as Zagoskin drew a very distinct line between his Tinnai and the Kngyulit or Eskimo everywhere, locating the boundaries between the tribes with remarkable correctness.

### THE KAINHKHOTANA.

The Kainhkhotana, comprising the people of both banks of the Yukon from Nulato down to Paimute (the eastern boundary of the Eskimo tribes on the Yukon), as well as the tribes living upon the banks of the Chageluk, Innoko, and Thlegon rivers, formerly classed as Ingalit or Inkalik, are the westernmost of the Alaskan Athabaskans, almost impinging upon the sea-coast at the headwaters of the Anvik river. The tribal name means "lowlanders". Like their eastern neighbors, the Kainhkhotana live chiefly by hunting, and engage in fishing only to eke out scanty supplies. They live in permanent villages and make use of dogs as draught-animals, having adopted in addition many customs of their Eskimo neighbors on the west. In traveling on the river and on the lakes they make use of both the birch-bark canoe and the kaiak. The latter, however, is not manufactured by themselves but purchased from the Eskimo, who in their turn, as before mentioned, have adopted the birch-bark canoe for certain purposes. The Kainhkhotana have also adopted from the Eskimo the frequent celebration of festivals and the rites of shamanism. Their dwellings are large and partly underground, with a superstructure of logs and sods. The kashga or council-house of the Eskimo is absent here, and festivals are held in the larger dwellings. No traces of the totemic system have been found. During one of their festivals, connected in some way with hunting reindeer, which the writer witnessed on the Chageluk river, the following representation took place: Two men, who had been donning their costumes behind a screen of deer-skins, suddenly appeared in the center of the house, the sides of which were lined with spectators. One man was attired in a fantastic hunting costume, richly ornamented with beads, fringes, and tassels, and wearing a band around the head studded with eagles' feathers, and with bow and arrows in his hands. The stuffed skins of several animals and birds were drawn forth from some corner in rapid succession by means of strings, and as each animal appeared the hunter made an attempt to kill it. Every attempt, however, was foiled by the other man, who was dressed up in imitation of a raven, with the appropriate mask and with wings fastened to his arms. With these wings he would spoil the hunter's aim, and then hop about, imitating admirably the awkward jumping of the crow, while he kept chattering away in derision of the awkward hunter. This was kept up for some time, until a shaman or sorcerer appeared upon the scene, dressed up in a long hunting-shirt nearly covered with strings of bears' claws, eagles' beaks, beads, etc., and with rattles in both hands. The shaman pressed upon the hunter the acceptance of a charm or amulet, for which he received in payment nearly everything the hunter had about him. Then the animals began to appear again, the hunter slaying them one after another without any further interference from the raven. It was evidently unnecessary to look for any deep meaning in this performance, as it was only the shaman's advertisement of his charms and services pure and simple. In such festivals as are celebrated in memory of the dead the performances are more varied and of greater interest.

The Kainhkhotana, like most of their Athabaskan neighbors, deposit the bodies of their dead in boxes raised on posts somewhat above the ground. Flags and streamers of white cotton are frequently attached to these structures. The burial-places are generally located upon some prominent bluff overhanging the river, where the graves can be seen from a distance.

### THE KHUILCHAN.

The Khuilchan, or Kolchane of the Russians, occupy the vast interior mountainous region bordering upon the upper Kuskokvim, the divide between the latter river and the Tennanah in the north, the main Alaskan range in the east and south, and the country of the Nushegagmute in the west. They are nomads, roaming about at will from river to river, and from one mountain chain to another, selling their skins at the trading-posts nearest their hunting-grounds. This last custom has given rise to an overestimation of their number, as the same tribes have been accounted for as trading at three or four different stations. Their whole number at present probably does not reach 200. The many traditions of their treacherous and warlike character handed down to us by the Russians may safely be looked upon as fabulous. Living as they do, they could never have been a numerous people or the cause of danger to their neighbors. It is said that they have some permanent villages on the headwaters of the Kuskokvim, but no white man has ever beheld them. Such of the women as have been seen at the various trading-stations were of repulsive appearance, and gave evidence of a life of hardship and abuse. The Khuilchan use birch-bark canoes, and do not make use of the dogs as draught-animals.

### THE TINNATS- (OR KINNATS) KHOTANA.

The Tinnats-khotana (Kenaitze of the Russians), named Tehaninkutchin by Dall, are the only tribe of Athabaskans occupying any portion of the sea-coast in Alaska. They came into contact with the Russians at an early date, but were subjugated only after much fighting. As early as 1789 permanent trading-stations were established among them on the coast of Cook's inlet by the Russians, and from that time they have been nominally Christians. Their regular missionary station is now located on the mouth of the Kaknu river. The settlements of the Tinnats-khotana extend from Kuchekmak gulf on the Kenai peninsula around the inlet northward and westward, including the valleys of the Kinik and Sushetno rivers, and reaching to the great lake of Ilyamna, and down to the vicinity of cape Douglas, where the Kaniagmute territory begins. The Tinnats-khotana are taller than their Eskimo neighbors; their skin is a shade or two darker, with the exception of those living in the neighborhood of former Russian settlements, where they have intermingled with the invaders. Their women are generally much more prepossessing in personal appearance than those of the other Athabaskan tribes of Alaska. In the coast settlements their mode of life has been much changed. They have adopted to a great extent the customs of the semi-civilized Kaniagmute and creoles, but in the interior, especially in the Sushetno and Kinik valleys, we find them still dressed in deer-skin shirt and trousers, men and women alike; a practice clearly indicating their kinship to the northern Athabaskans. Many of their garments are tastefully embellished with porcupine-quills, beads, and grass plaiting. The ears and noses of the men are pierced for the insertion of pendants of dentalium or hyqua shell, this being almost the only section of the territory where the trader still finds a steady demand for these shells. In the interior these people use the birch-bark canoe exclusively for coast voyages and for the purpose of hunting the beluga; purchasing the bidarkas they use from their Eskimo neighbors. They build their permanent dwellings of logs. These logs are so fashioned that the under side, hollowed out, fits down tight, almost air-tight, upon the rounded surface of the timber next below. Some of their houses are from 15 to 20 feet square, and have regular rafters, giving a pitch to the roof sufficient to shed rain and melting snow. The covering of the roof is the bark of spruce trees. The fire-place is in the center, with a smoke-hole directly above it. The entrance to the house consists of a low, square aperture scarcely large enough to admit an adult person. The floor consists of the natural earth trodden hard, and along the sides of the inclosure are rude platforms, erected a foot or two from the ground, covered with grass mats and skins, and serving as sleeping- and lounging-places in the evening. In the houses of the well-to-do hunters we find wings or box-like additions to the main building, tightly framed and put together, opening into the main room. These little additions are furnished with the luxury of a rough plank floor, and in many instances with a small window covered with fish-gut. They are used in winter as sleeping apartments, and as reception-rooms during visits of ceremony, and also as bath-rooms, being heated during the winter with hot stones carried in from the fire outside, thus enabling the natives to dispense with clothing during the night, which they consider a great luxury. Wherever the Tinnats-khotana are under the influence of the Russian mission they bury their dead under ground, but in more remote settlements we find the bodies deposited in boxes set upon posts, as before noticed in speaking of other Athabaskan tribes. The bodies of chiefs and prominent persons are frequently placed in a structure resembling a small house with door and window, and gifts are deposited at graves and burial-places. At the death of a chief it is the custom to carry all his belongings into the hut that shelters his remains. In the vicinity of Toyonok I saw such a burial-house nearly filled with articles most valuable in the eyes of the natives, among them several Russian *samovars*, worth from $50 to $60 apiece, breech-loading arms, rifles, large numbers of blankets and deer-skins, richly-ornamented garments, etc. The deceased who had been thus honored was a Christian, and not long after my visit the Russian missionary proceeded to the burial-house and carried off all articles of value and sold them at auction for the benefit of the church. No opposition was made at the time to this summary proceeding, but it is very probable that the resentment naturally caused thereby in the hearts of the natives will rankle there for years, until some opportunity presents itself for vengeance. The men of this tribe are of a taciturn disposition, but they are indefatigable hunters, and spend most of their time in the chase of fur-bearing animals and game, making long journeys into the interior through the mountain defiles and over passes, nearly always on foot, using their birch-bark canoes chiefly for crossing rivers and lakes. They build along their routes of travel here and there temporary shelters or sheds open in front, with sloping roof, thatched with grass. Each traveling individual or party, on leaving such a place, deposits in a certain nook a small bundle of dry moss, birch bark, resin, or twigs, to enable the next comer to kindle his fire without difficulty. This hospitable and thoughtful custom is never omitted.

The Tinnats-khotana also have their festivals and dances on certain occasions, during which presents are given away to those who attend. The giver of the feast alone appears masked and dressed up in fanciful costume. The *modus operandi* of one of these festivals, celebrated on the occasion of a beluga-hunt at the village of Chkituk, was as follows:

The invited guests who were to participate in the feast arrived in canoes late in the afternoon, and were received on the beach by the chief of Chkituk, accompanied by nearly all his people chanting a song in slow measure. The guests took up the song, and both parties walked up to the village, the hosts carrying all the baggage and belongings of their visitors. The party proceeded at once to the house of the chief, where they were entertained hospitably during the remainder of the afternoon. Etiquette did not permit a single question to be addressed to the new-comers until they had satisfied their appetites. The greatest delicacies, berries preserved in rancid oil, beluga-blubber, dried moose-nose, and fish-spawn were pressed upon them without a word and partaken of in silence. At last their hunger was appeased and conversation began, which was kept up until darkness had set in. Then the chief retired into a corner of the apartment, and with the aid of his two wives attired himself in his best costume, consisting of an immense hat trimmed with bears' claws and beads, and a loose robe of white cotton richly embroidered with beads. In his hands he had rattles, inflated bladders filled with pebbles. He advanced to the center of the room and began to dance, two of his sons chanting and beating time with sticks. The measure increased in rapidity as the dance proceeded, involving a corresponding change in the movements of the chief, who wound up his performance with the most violent contortions. When he was thoroughly exhausted he ceased dancing, and threw upon the floor a number of articles he wished to give away. The spectators, excited by the song, also produced gifts and threw them upon the others. The whole was then distributed among those present in accordance with the directions of the oldest woman present, the chief lifting up each article and the woman calling the name of the person who should have it. After this the chief changed his costume four times, performing as many dances, and after each there was a distribution of presents. This ceremonial was kept up for three successive afternoons, until the hunters departed on their journey, chanting a canoe song and keeping time with their paddles.

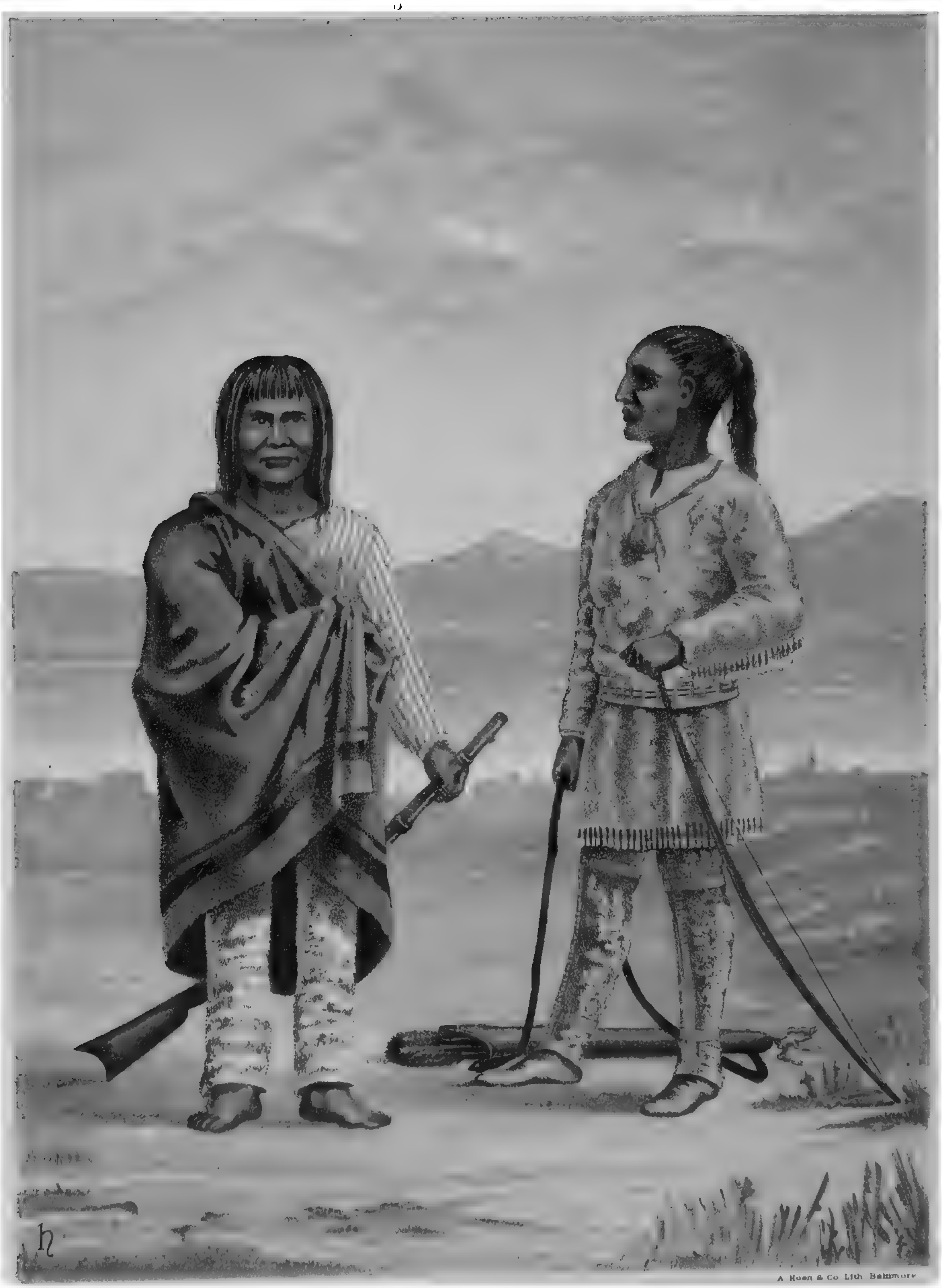
The Tinnats-khotana, though nominally Christians, still observe many of their old customs, one of which is the driving away of evil spirits from the couch of a dying person. I witnessed a scene of this kind in a village situated within a few miles of the missionary establishment. A woman was lying upon a wretched couch in her last moments, while her husband stood in the entrance or doorway of the house, loading and firing his gun, and shouting between the discharges at the top of his voice, accompanied by a chorus of yells and groans from the other members of the household, his neighbors joining. The action appeared to be cruel and savage, but the intention was good, being to frighten away the evil spirits from the dying woman.

The Tinnats-khotana have many traditions of gigantic races, living to the northward, who in ancient times invaded their territory, killing many people. One old man assured me that during the life-time of his grandfather one of these giants came down from the mountains, and as he strode through the villages he would pick up an unfortunate individual in each hand, swing them by their feet, and knock their heads together, after which summary proceedings he would deposit them in the breast of his parka. It is of course out of the question that these savages should ever have heard how Polyphemus treated the companions of Ulysses. The same old man, in speaking of the tribes adjoining the Tinnats-khotana in the north, said that after crossing the mountains the traveler would first come to the Khuilchan, who were cannibals, easily distinguished by a blue ring around the mouth caused by their horrible practice. Beyond this tribe lived the giants heretofore mentioned, and still beyond them a very small race of people, almost black, but exceedingly skillful in the use of bow and arrow. Beyond this dwarf tribe again there was only water and big fish, as big as mountains. One might almost imagine from this fantastic description that the Tinnats-khotana knew of the under-sized Eskimo of the Arctic coast and the whales in the Arctic ocean. Their superstitions with regard to the various smoking and rumbling volcanoes in their country are numerous. They do not like to approach such localities, and until the Russians settled among them the immediate vicinity of volcanoes served as a refuge for the reindeer, moose, and other game, which were never molested there. They tell of an eruption of the Ilyamna volcano, during which lava and rock in huge masses were thrown across the inlet, covering up whole villages with débris. It is of course impossible to locate with accuracy the time of this fearful eruption, but all along the eastern coast of Cook's inlet are yet found blocks of lava and conglomerate that invest the tradition with some probability. The natives also say that a pestilence followed this eruption, nearly destroying the people. This also we may believe when we glance at the large number of village-sites almost hidden from view under a dense covering of sphagnous growth.

The following are the names given by the Tinnats to other tribes:
Their own name: Tinnatz or Kinnatzkokhtana.
Kaniagmute: Ultz-chna (slaves).
Chugachimute: Tatliakhtana.
Copper river: Otnokhotana.
Thlinket: Totkoliushok. [?]
Aleut: Takhayuna.
Aliaska peninsula: Nieskakh-itina.
Prairie or tundra people: Ghuil-chan.
Ilyamna people: Ktzialtana.
People of the sea-coast with long spears: Tutna.
Dog-drivers (in the north): Tyndysiukhtana.
Russian: Kaziakhtana (Cossack).

### THE AH-TENA OR AHTNA-KHOTANA.

The Ah-tena (of Dall), a name signifying "big men", or Otno-khotana, as they are named by the Tinnats, occupy the whole basin of the Copper or Atnah river and its tributaries. Their permanent villages are located on the headwaters of the river, a hundred miles or more from the sea. They do not number over 300 all told. Their position is that of middlemen between the Eskimo tribes of the sea-coast and the Athabaskans of the far interior, their trading operations extending as far as the headwaters of the Yukon and Tennanah rivers. The men are tall, straight, and very active, with features resembling closely those of the typical North American Indian; aquiline noses are the rule among the Atnah people. The men do not possess any beard, or perhaps remove all hair from the face after the custom of other well-known tribes. The females of this tribe have not yet come under the observation of any white men who lived to describe them; two or three Russians who ventured to penetrate into the Copper River country were killed by the savages, and the only white man (a miner) who has made an attempt since the acquisition of Alaska by the United States, though suffered to reside in the lower Copper River region for nearly two years, was not permitted to visit the permanent villages or to ascertain the mineral resources of that region. The name of the river from which this tribe has taken its name is properly Ahtnu, or "Big river," *tnu* being the word for river in their language as well as in that of the Tinnats. The party of Copper River natives who made their annual visit to the Nuchek trading-post in the year 1881 gave to me, as their tribal name, Ahtnu-khotana, or "Big River people". For the purpose of visiting the sea-coast these people purchase large skin-covered boats of the Chugachimute or of the traders. The return journey up the river is exceedingly difficult, as at two different points glaciers have crossed the river, making long portages over the ice necessary. The men claim that they must spend from three to four weeks on their return voyage. This assertion is probably true, as they abstain from purchasing any article of weight or bulk for the purpose of their trade, confining themselves entirely to beads, a few light packages of cotton prints, and tobacco. The beads are purchased by them only for the purpose of selling them again, as they do not themselves make use of any kind of bead ornaments. Their deer-skin garments are trimmed with porcupine-quill embroidery and fringes alone. They wear their hair long, either hanging loose or tied in a single scalp-lock at the top of the head. The accompanying plate represents one of these Atnah warriors, together with an individual from their nearest neighbors in the east, the Chilkhat Thlinket. For the reasons above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THLINKIT AND MAN FROM COPPER RIVER

mentioned, nothing is known of their domestic life or their beliefs and superstitions. By the Eskimo of Prince William sound the Copper River people are called Yullit, according to the same authorities, but it is probable that this term signifies "one people".

### IV.—THE THLINKET.

The Thlinket, numbering perhaps somewhat over 7,000 people, and inhabiting the coast and islands from the intersection of the one hundred and forty-first meridian to the southern boundary of Alaska, are perhaps the most interesting among the native tribes of the country from an ethnological point of view. The curious totemic system is more fully developed here than it has been found with any other tribe. The ties of the totem or clanship are considered far stronger than those of blood relationship. The principal clans are those of the Raven, the Bear, the Wolf, and the Whale. Men may not marry in their own clan, and children belong to the clan of their mother. The Thlinket are strictly confined to the sea-coast by the natural barrier of stupendous mountains that rise everywhere within a short distance from the shore along the whole length of their territory; hence they are emphatically a maritime people, skillful in the construction and management of their huge wooden canoes fashioned out of a single log. Nearly all their subsistence is drawn from the sea and from the rivers, with the addition of deer and mountain goat from the mountains. Their country is thickly wooded, and as a consequence their dwellings are large, being constructed of huge planks and logs, some of the latter of such dimensions as to make us wonder how these savages could handle them without mechanical appliances. In all the villages where the Thlinket live in their primitive manner totem-posts, from fifty to one hundred feet in height, rise up in front of nearly every dwelling, elaborately carved with the totem in all imaginable variations, and indicating in some obscure way the pedigree of the owner. The Thlinket excel in all manner of carving in wood, bone, or stone; they shape pipes, rattles, and masks with all fantastical forms, from the hardest material. The women are equally skillful in plaiting baskets from spruce roots split and soaked in water. The fibers are dyed in different colors and worked into tasteful patterns. In former times they also made a practice of weaving the long hair of the mountain goat into cloaks and blankets, in the most gorgeous colors and patterns, but since the introduction of woolen blankets and manufactured clothing this art has been neglected until now it is almost lost, but a few of these garments now existing as heirlooms in the more prominent families.

The Thlinket, like their near relatives, the natives of British Columbia, have always owned slaves, and the custom has not been abolished among them since their transfer to the United States. The slaves were always in the first place prisoners taken in war, and sold from one clan or tribe to another, but the descendants of these slaves also remained in the condition of their parents, liable to be given away, traded off, or even killed at the pleasure of their masters. The former custom of killing slaves on the death of a chief in order to furnish him with servants in the other world has become obsolete or exists only nominally, as for long years previous to the sale of the territory the Thlinket of Alaska were in the habit of accepting presents from the Russian authorities in consideration of releasing the intended victims of this practice. They resorted to the same extortion during the first year of American occupation, when the military commander at Sitka, with 200 or 300 soldiers at his back, was weak enough to comply with it, and to bribe the insolent chiefs into abstaining from murder. They think any insult or injury can be repaired by payment of money or goods. The murder of a relative can be atoned for by a certain number of blankets (their common currency since their first acquaintance with Caucasians); wounds and injuries are assessed in proportion; a refusal to marry a widow of an uncle or elder brother can also be settled by the payment of blankets; wars are frequently avoided by an indemnity arrangement, and they go so far in this system of compensation that they demand payment for losses from parties who have been in no way instrumental in causing them. For instance, an Indian of Sitka broke into the room of two miners in their absence, emptied a demijohn of liquor, and died in consequence, and the relatives of the robber demanded and received payment from the unfortunate Caucasians. If a man be attacked by a savage dog, and kills him in self-defense, he must pay for the dog to the Thlinket owner. A small trading-schooner, while running before a furious gale, rescued two Thlinket from a sinking canoe, which had been carried to sea. The canoe was nearly as long as the schooner and could not be carried or towed, seeing which the natives themselves cut the worthless craft adrift. When the humane captain landed the rescued men at their village he was astonished by a peremptory demand for payment for the canoe, backed by threats of retaliation or vengeance.

The observations of the priest Veniaminof, who labored patiently among the people in the cause of Christianity, and those of several subsequent explorers, are embodied in the following summary:

The tribe or race who call themselves Thlinket (that is, *man* in their own language), but who received from the Russians the names of Kaliushi, Koliushi or Kolosh, inhabit the coast of North America from Mount Saint Elias to the Columbia river, or from latitude 60° to 45° north. The subject of my investigation, however, has been that portion of the race living north of the Nass river or of the British boundary. Veniaminof estimated the number of the whole race at from 20,000 to 25,000 living within the Russian lines, but the estimate was made in 1840, and if it was once correct a remarkable decrease in numbers must have taken place since.

The term Kolosh, applied to the Thlinket by the Russians, is not recognized by themselves. It is a term perhaps derived from the Aleut word *kaluga*, signifying a trough or wooden dish. When the first Russians encountered the Thlinket in the vicinity of Sitka the Aleutian hunters were struck with the remarkable lip ornament of the Thlinket women, consisting of a trough-shaped disk inserted in an incision of the under lip. In speaking of these natives they probably described them as people with "kalugas", of which latter word *kalushka* would be the diminutive, and thus it is supposed the Russian name of the tribe originated. It is difficult to determine the authenticity of this derivation, as we meet in all sections of the former Russian colonies with provincialisms of Yakutish, Kamchatkan, and Aleutian origin. It is a significant fact, however, that the oldest authors on the subject used the term Kaliushi or Koliushi, while only the later writers adopted the word Kolosh. In Sitka at the time of the transfer of the country the ancient form had become altogether obsolete.

Holmberg noticed that in Sitka it was the practice to address a native with the word *shniaga*, and claims that this also had become a term signifying the whole race. The Russians claimed that this expression is of Thlinket origin, but this seems to me not supported by evidence. When a Thlinket addresses a Russian he also uses the word *shniaga*, which seems to signify "friend, or good friend, listen," or something equivalent. But as there is no similar word in the Thlinket language expressing the same meaning, we may surmise that the Thlinket adopted the word from the Russian, modifying it probably to suit their own idiom. The Thlinket themselves state that the term was adopted from the Russians; it is only too probable, therefore, that the word *shniaga* sprang from the Aleutian or some other native tongue of Alaska or Kamchatka. The Thlinket themselves adopt names from their principal places of residence, such as Sitkakhoan, Chilkhatkhoan, and Stakhinkhvan—that is, people of Sitka, Chilkhat, and Stakhin. Russians and other European nations with whom they have come in contact were named by them Kusskhakhoan, but to the Americans, with whom they always carried on a clandestine traffic in fire-arms and powder, they applied the name of "Whashtankhoan". As the roots of these two names we easily recognize the words Cossack and Boston. The first word probably sounded at first Kussakekhoan. Among the Eskimo of the west the same word is in use as Kossage and Koshage.

The Thlinket tribe is divided into two branches or clans, the Raven and the Wolf family respectively. Their myths or traditions speak of two heroes or gods who at the beginning of time, through deeds of valor and supernatural power, procured for mankind the advantages and comforts they now enjoy, and to these heroes the Thlinket think they trace their origin. The names of these beings or demi-gods were Yeshl or Yehl, the ancestor of the Raven clan, and Khenookh, the ancestor of the Wolf family. In spite of this theory of their origin, the raven and the wolf, considered as animals, do not take an important place in the Thlinket mythology. In discussing the mythology or beliefs of the Thlinket we shall find that Yeshl (or Yehl) during his frequent transformations occasionally adopted the form of the raven, and in this way the name of the god may have come to be applied to the bird. It may have been the same with Khenookh, though the traditions make no mention of his appearance in the form of a wolf.

Both the Raven and the Wolf clans have many subordinate divisions. Thus in the Raven clan we hear of the Raven, the Frog, the Goose, the Sea-lion, the Owl, the Thlukhu (a species of salmon), and in the Wolf clan the family of the Wolf, the Bear, the Eagle, the Porpoise, the Shark, etc.; and each of these subfamilies is again divided into branches in accordance with the locality occupied by it.

The Raven clan, which claims to have sprung from Yeshl, the benefactor of mankind, enjoy perhaps the greatest respect, but the Wolf clan has acquired renown through its greater courage, large numbers, and successful warlike expeditions and heroic deeds.

The most renowned of the subdivisions of the Wolf clan is the Khawakhashthan or Ḳokhanthan, living on the Chilkhat river, which formerly held but little intercourse with other clans and maintained a reputation for courage and ferocity. Each clan or family displays in every possible way the totem or coat-of-arms in the shape of some easily-recognized part of the animal or bird that has given the name to their division. We find such representations carved or painted upon canoes, utensils, blankets, shields, wooden helmets, and even on their horses; and on solemn occasions, during dances and feasts in memory of the dead, cremations, or other funeral ceremonies, we frequently find individuals dressed up altogether in the form of the totem of the clan.

Without reference to clan or subdivision all the Thlinket are divided into two classes, one containing the chiefs or the nobility, the other the common people. The chieftainship is hereditary in the families, but the authority connected therewith is entirely dependent upon wealth, which until of late consisted chiefly in the possession of slaves. The latter, if they belonged to the Thlinket tribe, formed a third class, as the children of a slave always remained slaves, but the majority of this class were originally prisoners, acquired by purchase or by war from other tribes to the southward, in the British possessions.

Veniaminof's opinion of the division of the Thlinket clans was that at the beginning only two families existed, the oldest and most prominent members of which were Yeshl and Khenookh. Their children adopted the names of various animals, and still live together, though in separate houses. Each house was described by name in accordance with its position (on a hill, or on the shore of a river or lake); but when in course of time the descendants increased in number they were obliged to seek other dwelling-places, carrying with them, however, the name of the abandoned locality and the proud title of a "son of Yeshl" or a "son of Khenookh". These names have descended to modern times, while the progenitors, whose memory is carefully preserved, were finally worshiped as god-like beings to whom the Thlinket owe all they possess of earthly happiness.

The traditions of the Thlinket unite in the theory of their common origin in the interior of the American continent, whence they migrated northward and westward until they emerged upon the coast of the Pacific in the vicinity of Queen Charlotte island. An apparent similarity between the languages of the Apache and Aztec tribes and that of the Thlinket, and perhaps also of the Athabaskan tribes of the north, has been hinted at by many ethnologists and explorers since the days of Wrangell, who first called attention to the circumstance.

The outward characteristics of the Thlinket tribe may be enumerated as follows: The coarse, stiff, coal-black hair, dark eyebrows, but faintly delineated over the large black eyes full of expression, protruding cheek bones, thick, full lips (the under lips of the women disfigured by the custom of inserting round or oval pieces of wood or bone), and the septum of the men pierced for the purpose of inserting ornaments; beautiful white teeth, ears pierced not only in the lobes but all around the rim. To these may be added the dark color of the skin, a medium stature, and a proud, erect bearing (this only applies to the men). The hands of the women are very small, and large feet are rarely met with.

Before their acquaintance with the Russians the only clothing of the Thlinket consisted of skins sewed together, which they threw around their naked bodies without regard to custom or fashion. In addition to this they wore on festive occasions blankets woven out of the fleeces of mountain goats. From time immemorial they have possessed the art of dyeing this material black and yellow by means of charcoal and a kind of moss called *sekhone.* The patterns of these blankets wrought in colors exhibit an astonishing degree of skill and industry; the hat, plaited of roots, is also ornamented with figures and representations of animals.

By nature the Thlinket are indolent, those inhabiting the coast frequently living upon the refuse of the tide upon the beach that can be obtained without exertion. As long as they lived in their primitive state, and before the creation of artificial wants, the men of the Thlinket tribes were urged to exertion only by the rigorous climate, which compelled them to hunt fur-bearing animals and to use their skins as clothing. As their wants increased, however, they overcame their natural indolence, and now they labor faithfully and cheerfully for the sake of increasing their means of purchasing whatever takes their fancy.

The male costume is but little distinguished from that of the females; each wearing now (unless they have adopted the garments of civilization) one cotton shirt or garment reaching to the knees, a woolen blanket of various colors, white, red, green, and blue, and ornamented in front with rows of brass or pearl buttons. These blankets they wear much in the manner prevailing among the Indians of the United States and Mexico, throwing one end over the shoulder; occasionally the garment is tightened around the waist with a gorgeous belt. As a rule, the Thlinket of both sexes go barefooted.

Both men and women paint their faces black and red with charcoal or soot and vermilion (cinnabar), which are their favorite colors. They are mixed with seal-oil and rubbed well into the cuticle; subsequently figures and patterns are scratched upon this surface with sticks of wood. The wealthy Thlinket paint their faces every day, while the plebeians indulge in this luxury only occasionally.

The men pierce the partition of the nose, the operation being performed in early childhood, frequently within a few weeks after birth. In the aperture thus made a silver ring is sometimes inserted large enough to cover the mouth, but the poorer individuals insert other articles, such as feathers, etc. They also pierce the lobes of the ear for the purpose of inserting sharks' teeth, shells, and other ornaments, while through the holes around the rim of the ear they draw bits of red worsted or small feathers. Veniaminof states that each hole in the ear was pierced in memory of some event or deed.

The ornamentation of the under lip of a female (now almost obsolete) marked an epoch in her life. When she came to the age of puberty the lip was pierced and a small cylindrical piece of bone or silver was inserted. As long as she remained single she wore this, but as soon as she was married a larger piece of wood or bone was pressed into the opening and annually replaced by a still larger one, the inner side being hollowed out. Old women could frequently be seen with such labrets two inches in diameter. It was of course impossible for these individuals to close their mouths, the under lip protruding, distended by the disk of wood or bone, in the most disgusting manner—the failure to close the mouth causing an incessant flow of saliva, and often offensive pus.

The Thlinket, like most of the tribes of the northwest coast of North America, may be called marine nomads, as they occupy fixed dwelling-places only during the winter, roving about during the summer in search of food for the winter. They derive their principal nourishment from the sea; a few roots, weeds, and berries forming luxuries only of the summer season. The sea that washes the shore is extraordinarily rich, not only in fish, but in all kinds of mollusks and algæ. The ebb-tide bares the shore twice each day and leaves behind an abundance of such food in pools and on the rocks, enabling a Thlinket to pick up his dinner without much exertion. He refuses no kind of mollusk and consumes nearly every species of marine plant. His favorite articles of food are clams and mussels (*cardium* and *mytilus*), *echinus*, cuttle-fish, the roe of herrings, and all kinds of fish; the herring's spawn is collected together with algæ, upon which it has been deposited, and preserved in boxes for the winter. This delicacy is not considered fit for the table until it has gone through a process of fermentation. Oil is pressed out of this preserved spawn of a higher and "finer" flavor than that of seal-oil. Of the cuttle-fish only the arms are eaten, and these are boiled until the slimy particles coagulate. In contradistinction from the Eskimo the Thlinket do not eat their fish raw; the cooking is now done in iron kettles, but in former times they used for this purpose water-tight baskets into which heated stones were thrown. The fish intended to be kept for the winter is not dried in the sun, as is done by the Eskimo, but suspended in the smoke of the house.

The larger marine animals, such as the seal, otter, and porpoise, are much hunted and furnish abundant food to the Thlinket, but the meat of the whale is held to be unclean, being despised by all the Thlinket as pork is by the Jews, with the exception of the Yakutats living in the vicinity of Mount Saint Elias. This change in habits may have been caused by the vicinity of the Yakutats to Eskimo tribes, a supposition which is strengthened by the fact that the Yakutat females do not wear the horrible ornament in the under lip.

The Thlinket dwelling within the boundaries of Alaska live in fixed settlements, but in the summer they leave their villages and roam about at will, erecting temporary shelters with poles and bark wherever they remain for a time. The winter house is erected with great care and is frequently built strong enough to serve as a fortification against the attacks of other tribes. The height of the Kolosh or Thlinket house is from 6 to 8 feet, and consists of a parallelogram of heavy logs; rafters joined at an angle of 45 degrees and covered with bark form a roof. The entrance consists of a small aperture, generally circular, but occasionally square in shape, at some distance from the ground. Each of these apertures can be closed from within by a ponderous door. In the center of the roof there is a large square opening which affords an entrance to daylight and an exit for the smoke. A screen of planks is always placed on the weather side of this opening and shifted about in accordance with the wind. Immediately under the opening in the roof is a large fire-place sunk a little into the ground. The floors in the houses of the wealthy consist of plank, but commonly of the bare soil. On two sides of the interior of this edifice are partitions for storage of provisions and utensils, while in the background opposite the entrance there is a number of small box-like partitions serving as sleeping- and reception-rooms for individual members of the family. These latter apartments are not high enough to permit the inmate to stand erect, and rarely large enough to allow him to stretch out.

The Thlinket display the greatest skill in the manufacture of their canoes, each being carved out of a single log. The war canoes differ from those in common use only in size, the former being intended to carry from 40 to 50 people, while the latter do not hold more than 10 or 12. The shape is substantially the same, and all are ornamented in bow and stern with gaily-colored figures and carvings, the war canoes frequently bearing the totem of the owner. The handles of paddles or oars are also similarly ornamented.

Long before the first meeting of the Thlinket with the Europeans, and consequently before they became acquainted with the use of iron, they possessed the art of forging copper, which they obtained from the inhabitants of the Copper River region. A tradition exists to the effect that an old woman of Chilkhat invented the art of forging, and that she was worshiped in consequence as a benefactress of her kind. For long years this art was a hereditary secret with certain families. Daggers and spears are now manufactured chiefly of iron. The dagger is very broad and has two blades, one on each side of the handle, the upper one generally much shorter than the lower, and the handle is wound with leather thongs and provided with a long strap which is tied around the neck during combats to prevent the dropping of the weapon. Both blades have leather sheaths, also fastened to the person. This dagger is the inseparable companion of the Thlinket; wherever they go they carry it concealed under the blanket; in the market of Sitka, where they dispose of game and fish, they are seldom seen without it. The iron-pointed spear was used only in war and has been almost entirely superseded by fire-arms.

The greatest ingenuity is displayed by the Thlinket in their carvings in wood, bone, and slate, but chiefly in the manufacture of tobacco-pipes, cups, etc. This work is now done altogether with implements of steel.

In the modes of hunting a great change has naturally taken place since the introduction of fire-arms, and the sea-otter, formerly in the greatest abundance, is now almost extinct. Superstition interferes with an active pursuit of marine birds, as it is generally believed that the killing of the albatross and several other species causes bad weather. The bear was formerly rarely hunted by the superstitious Thlinket, who had been told by the shamans that it is a man who has assumed the shape of an animal. They have a tradition to the effect that this secret of nature first became known through the daughter of a chief who came in contact with a man transformed into a bear. The woman in question went into the woods to gather berries and incautiously spoke in terms of ridicule of the bear, whose traces she observed in the path. In punishment for her levity she was decoyed into the bear's lair and there compelled to marry him and assume the form of a bear. After her husband and her ursine child had been killed by her Thlinket brethren she returned to her home in her former shape and narrated her adventures. Ever since that time women, on observing tracks of a bear, at once begin to speak of him in terms of greatest praise, and continue in this strain until they are "out of the woods".

Of greater importance than the chase, perhaps, is the fishery of the Thlinket. The herring catch is conducted in the following manner: A pole about 10 feet in length is armed with iron points or nails at one end, at intervals of an inch from each other; the Thlinket fisherman propels his canoe into the midst of a school of herrings and beats the water with his pole, bringing forth a herring transfixed by each iron point at nearly every stroke. The canoe is speedily filled in this manner. The halibut is caught in very deep water with wooden hooks pointed with iron or bone, the line consisting of kelp. A small fish named ssakh (the eulachan or candle-fish), the oil of which is very highly prized by the Thlinket, is caught in baskets. A Thlinket chief, when asked whether these baskets were their own invention or introduced from abroad, related the following story:

> A long time ago there lived on Thlamshashakhian (Cross sound) a Thlinket named Khakhekhuthe, who with three companions undertook a long voyage in his canoe. They could not make a landing at night, and laid themselves down in the bottom of the canoe to rest. Khakhekhuthe lay with a paddle under his head, and dreamed that various birds were flying about him, screaming. He seized a paddle and struck about, and at every stroke a bird fell. When he awoke he found his companions dead in the boat, so that he was compelled to return homeward alone. Here again a sorrowful spectacle met his eye. All his people and all the inhabitants of the place

> had died during his absence. Then he concluded to go in search of people at some other place. On his journey he arrived at a river, the mouth of which was full of small fish. While deliberating on the best way of securing some of these fish without hook or line he invented a basket of pliable willow twigs, and this art was transmitted to all the Thlinket he met.

This is the trivial ending of a promising tale transmitted to us by Holmberg.

The marriages of the Thlinket are without any religious ceremonies or observances, but a very strict rule exists preventing the contraction of marriage within one and the same clan; or, in other words, a Thlinket of the Raven clan must marry a wife of the Wolf clan, and *vice versa.* Polygamy is universal, especially among the wealthy, but the first wife always preserves a supremacy over the others. Veniaminof stated that he knew a chief on the Nass river who had 40 wives.

When a Thlinket youth has selected a maiden to his taste he sends a middleman to the parents or to the nearest relative of the woman; if the answer is favorable he sends to the future father-in-law as many presents as he can buy, borrow, or steal, and then proceeds to the spot in person. The father of the betrothed invites for a certain day all the relatives of the bridegroom, as well as his own, and when all the guests have assembled the young man advances to the center of the floor and seats himself with his back to the door; the guests then begin a song, accompanied with dances, in order to coax the bride from her hiding-place in some corner of the room. After the song, which is composed only for this occasion, is finished the floor is covered with cloth, furs, and other articles of value from the hiding-place of the bride to the seat of the groom, and the maiden in festive array is led over this costly pathway and seated beside her intended.

During this and all the subsequent ceremonies it is of the greatest importance that the bride shall not raise her head, but keep it in a bent position. Dances and songs follow, which are participated in by all present except the young couple, and when the dancers are tired, refreshments are served to all except the bride and groom; as in order to secure good fortune the latter are obliged to fast two days. When this period has elapsed they are furnished a small quantity of food, but this meal is followed by another fast of two days, and only after four days of fasting are they allowed to remain together, but the marriage is not considered accomplished until four weeks have elapsed. If the bridegroom is rich he gives a similar feast at his own residence, and when the festivities come to a close he is at liberty to live with his wife's parents or at his own home. In the latter case the bride receives a dower equal in value to the presents made by the bridegroom. This marriage can be dissolved at any time by mutual consent, but in that case the presents and dower must be returned. If the man is dissatisfied with the woman he can send her home, returning the dower without any claim for a return of his presents, but if the woman proves unfaithful the man has the right to reclaim his presents and to send her away without her dower. In all such cases the children remain with the mother.

Veniaminof states that among the Thlinket, as well as some of the people of Kadiak, the married women are permitted to have what are called "legitimate lovers" or "assistant husbands", who are maintained by the wives and enjoy marital rights only in the absence of the original husband. At all other times they act as servants, carrying wood and water and providing food. Among the Thlinket the office of vice-husband can only be filled by a brother or near relative of the husband.

After the death of the husband his brother or a son of his sister must marry the widow, and a neglect of this rule has frequently caused bloody wars. If no such relative of the husband is in existence the widow has the right to select another from a strange clan.

If the seducer of a wife escapes the dagger of the husband he must buy the forgiveness of the insulted man; but if the seducer is a relative of the husband he must at once assume the office of "assistant", as described above, and contribute his share to the support of the woman. The lot of the women among these savages is not to be envied; they are treated with the greatest cruelty before as well as after marriage. The special suffering imposed upon all womankind by nature is increased here a hundredfold by ancient custom and superstition. At the time of child-birth, when women more than at any other time are in need of assistance, the Thlinket females are driven out of the house and left to their fate, shunned by everybody as unclean. The child is born in the open air, no matter at what season, and only some time after the birth is the mother allowed to enter a rude shed, erected for the purpose, where she is confined for ten days.

Holmberg relates the following:

> When I was on the point of departure from Sitka for California, at the end of December, 1850, I was detained for several days by bad weather and contrary winds, the ship being anchored directly opposite the Thlinket village. On several occasions I noticed a heart-rending cry of distress from the hills back of the village, and upon inquiry I learned that these were the cries of several women about to give birth to children, and who had been driven forth from their homes. There they lay during a violent storm of rain and snow, deprived of all assistance.

A new-born child is not allowed to taste its natural food until it has vomited, and if this does not occur naturally its little stomach is pressed and squeezed until the desired effect is secured. At the age of a few weeks the babe is wrapped in furs and strapped upon a board, and is always carried about by the mother. The infants are given the breast from ten to thirty months, but they are accustomed to other food after they are a year old. The first strong nourishment given them is generally the raw blubber of marine animals, except that of the whale. As soon as the child begins to walk it is bathed daily in the sea, without regard to the season, which accounts to some extent for the robustness of the body of the Thlinket after he has once passed the tender age. On the other hand, this custom explains the decrease in numbers, as only a comparatively small percentage of the children survive the ordeal. All the men of the Thlinket tribes preserve the custom of bathing frequently in the sea both in summer and winter.

Each Thlinket has one name from his mother and another from his father. The first is applied immediately after the birth by the mother or her relatives, and is generally the name of some distinguished ancestor of the mother. The other name is taken from a deceased relative on the father's side, but this is applied only on some festive occasion or during some great memorial feast. Such Thlinket as are unable to provide a feast of this kind remain without the second name. A wealthy chief has the right to apply such a name at the time of birth of a son, but in that case the son is bound in course of time to celebrate a feast in memory of the paternal ancestor after whom he has been named. If a father possesses a son who has distinguished himself the father is named after this son, as "the father of such and such a one". Holmberg relates that among the principal chiefs of Sitka there was one whose name from the mother's side was Shighakhu, but during a great festival he received the name of an uncle, Kuk'han; he was subsequently baptized and received the Christian name of Michael. As the most powerful and distinguished among the chiefs he ought to have had a distinguished son, and thereby derived the fourth name, but as he had no son the other Thlinket, in derision, called him after one of his dogs, and spoke of him as "the father of such and such a dog".

As soon as a young girl arrives at the age of puberty she is confined in a dark shed with not room enough to move about. For a whole year she has to remain secluded here, being regarded as unworthy to enjoy the light of heaven, and during the whole time she must wear a broad-brimmed hat, so that she cannot even look heavenward. Only the mother and a female slave have the right to bring food to her. It is easy to imagine the inexpressible misery this long imprisonment must cause. In the immediate vicinity of Sitka and other settlements, however, the Thlinket have reduced the period of seclusion to six, and in some instances to even three months. During the first weeks of this imprisonment the operation of piercing the under lip takes place. Female slaves are excepted from all such ceremonies and observances.

All observers and visitors at Sitka have noticed that the Thlinket women have a waddling, crooked, and sometimes even a limping gait, which seems all the more remarkable in view of the proud and erect bearing of the men. It would be a natural conclusion to ascribe this defect to this long period of imprisonment at a time when the female body is developing most rapidly; but we find the same custom to exist among Eskimo tribes, with even stricter rules, without causing a similar change in the gait and bearing of the women.

After the period of seclusion of a wealthy female Thlinket has expired the relatives provide a feast, during which the girl, richly clothed, is presented to the assembled guests, who have been feasted and treated to all the delicacies of the Thlinket cuisine. The female slave who assists in dressing the girl for this festivity generally receives her freedom, and the garments worn during imprisonment are destroyed.

The Thlinket consider corporal punishment as the greatest disgrace that can be inflicted upon a free man, and consequently they do not, as a rule, make use of it. On one occasion, however, it may be employed: when a boy refuses to bathe in cold water he is compelled by beating with a stick to do so; but this is looked upon not as a punishment, but as a means of hardening the body. Theft is in their opinion not much of a crime; and if a thief is caught he is only required to return the stolen article or pay its value. For murder the law is, "blood demands blood."

The wars of the Thlinket, now of rare occurrence, were either general or private in character. The general wars were conducted with great cruelty by means of ambush or surprise, and the captives were made slaves. Early English and American visitors to the Thlinket coast reported the existence of the practice of scalping, and that scalps were used on festive occasions to ornament the legs of the dancers. It is impossible to ascertain whether the Thlinket ever were cannibals, and nothing has been stated on this point by early explorers. Only the English Captain Meares, who sojourned for some time at Nootka sound, states that the natives there, who are closely related to the Thlinket family, acknowledged to cannibal practices.

When a Thlinket warrior prepared himself for a war he painted his face red and powdered his hair with the white down of the eagle. The last-mentioned decoration is always an indication of great solemnity in the undertaking.

The private wars consisted only of quarrels between subordinate clans or families, and occasionally such disputes were settled by single combat. In this case each party to the contest chose one fighting man from their midst; the two families or clans were drawn up in order of battle, while the two combatants, provided with thick armor made of moose- or bear-skin, and with wooden helmets, carved in the shape of the family totem, protecting the head. The only weapon used on such occasions was the dagger, and the contest was accompanied with dancing and singing on both sides. When peace was made an exchange of hostages took place, and it was the custom for the latter to eat for several days only with the left hand, the right having borne arms too recently. To each hostage two companions from the opposite side were assigned to watch him, and these companions had to be of equal rank with the hostage.

The Thlinket burn their dead upon funeral pyres, with the exception of the bodies of shamans or sorcerers, which are deposited in boxes elevated on posts. The dead slave is not considered worthy of any ceremony whatever; his corpse is thrown into the sea like the carcass of a dog. When a Thlinket dies his relatives prepare a great feast, inviting a multitude of guests, especially if the deceased has been a chief or a wealthy and prominent member of a clan. The guests are chosen only from a strange clan; for instance, if the deceased belonged to the Raven clan the guests must be from the Wolf clan, and *vice versa.* No certain time is set for the cremation or for the festivities; this depends altogether upon the magnitude of the preparations, and it frequently occurs that the corpse is in an advanced stage of putrefaction when the time arrives. Poor people, who are unable to defray the cost of such ceremonies, take their dead to some distant cove or bay and burn them without any display. When the guests have assembled and the pyre has been erected, the corpse is carried out of the village by invited guests and placed upon the fagots. The pyre is then ignited in presence of the relatives, but these latter take no active part, confining themselves to crying, weeping, and howling. On such occasions many burn their hair, placing the head in the flames; others cut the hair short and smear the face with the ashes of the deceased. The Thlinket of Prince of Wales island boast of torturing themselves in the most reckless manner at the time of cremation, slashing and tearing their arms with knives and beating and bruising the face with sharp rocks. When the cremation of the body has been accomplished the guests return to the dwelling of the deceased and seat themselves with the widow, who belongs to their clan, around the walls of the hut; the relatives of the deceased then appear with hair burned and cropped, faces blackened and disfigured, and place themselves within the circle of guests, sadly leaning upon sticks with bowed heads, and then begin their funeral dirges with weeping and howling. The guests take up the song when the relatives are exhausted, and thus the howling is kept up for four nights in succession, with only a brief interruption for refreshment. During this period of mourning, if the deceased had been a chief, or wealthy, the relatives formerly killed one or two slaves, according to the rank of the dead, in order to give him service in the other world. This is the only indication of the existence of a belief in a future life by the Thlinket. At the end of the period of mourning, or on the fourth day following the cremation, the relatives wash their blackened faces and paint them with gay colors, at the same time making presents to all the guests, chiefly to those who assisted in burning the corpse. Then the guests are feasted again, and the ceremony is at an end. The heir of the deceased is his sister's son, or, if he has no such relative, a younger brother. I have already mentioned that the heir was compelled to marry the widow.

The festivities of the Thlinket consist almost exclusively of singing, dancing, gorging, and a distribution of presents. The dance consists of very rapid motion and passionate action, according to the wording of a song or the significance of the feast. All the festivities I have thus far mentioned belong, with the exception of cremation, to the occasions of minor importance; of the same class are the festivities on the occasion of moving from one dwelling-place to another, which form a parallel to the house-warming of civilization; so also are the sorceries or incantations. This subject, however, will be more properly discussed with the religious views of the Thlinket. It sometimes occurs that dancing and singing are carried on without any apparent motive, and on such occasions imitations of the actions during the greater festivities are given, apparently with the object of keeping them fresh in the memory of the people by repetition.

The festivity in memory of a deceased relative is by far the most important celebrated among the Thlinket. They call it "to glorify the dead", and frequently monuments are erected during such occasions, not so much in honor of the deceased as in memory of the feast and its giver. However, as only the wealthy are able to celebrate such feasts, and the expense is exceedingly great, they are of rare occurrence. Guests are invited from many distant settlements, and all these must not only be fed, but also loaded with presents. It frequently happens that the giver of a feast thus squanders not only his whole possessions, but also the dower of his wife, the result being a life of the greatest penury for himself; but he is satisfied with the honor of having celebrated the memory of his deceased ancestor in a dignified manner.

Sometimes these festivities are confined to one family, sometimes a whole settlement is invited. Long before the period agreed upon arrives messengers are sent out near and far to call the guest from distant clans or tribes, not by name, but simply saying that all may come who wish to do so. Frequently women and children accompany the guests. The house designated for the celebration is cleansed as much as possible, or perhaps a new house is erected for the purpose, ornamented within and without with the totems of the possessor. When the guests arrive the feast begins with dancing and singing, lasting until the following morning; then comes the grand repast, of which only the guests, who always begin the festivities, have a right to partake. For many days and nights singing and dancing are only interrupted by eating, and the whole celebration continues as long as the giver of the feast is able to feed the visitors. On the evening of the conclusion of the ceremonies the host retires to a corner of the house accompanied by a slave, and there is adorned with garments used only on such occasions and kept as heirlooms in the family. These garments vary in the different clans, and consist chiefly of parts of the animal represented by the totem of the clan. This dress formerly was ornamented with sea-otter teeth, ribbons, strips of ermine-skin, etc. The slave who assists his master in dressing for this feast always receives his liberty.

As soon as the host emerges from his concealment in gorgeous array, surrounded by slaves, the whole assembly breaks out into the cry of the animal representing the family totem. (Holmberg states that in accordance with the peculiar tone or inflection of his cry one or more slaves were killed.) Upon completion of this sacrifice the relatives of the host begin the traditional songs of their clan, singing of the origin of the family and the deeds of their ancestors. Then the host seats himself on the floor, and the presents intended for distribution are deposited before him. The distribution is by no means equal, the wealthy and the most prominent individuals receiving the greater number of presents of the greatest value, often consisting of slaves, while the poor have to be satisfied with worn-out blankets or even fractions of the same. This virtually ends the festivity, but frequently a repetition of the whole affair occurs in the next house, and so on until the whole settlement has contributed to the splendor of the occasion. As has already been mentioned, the giver of such a feast has the right to adopt the name of an ancestor on his father's side.

Another festive occasion must be mentioned, which also belonged to the more important feasts, and was intended to give social standing to children. Great expense in the shape of presents was connected with this feast, but at present it is rarely observed. It is very similar to those already described, differing only in a few minor ceremonies. No slaves were killed on these occasions, but on the contrary a number of them, equal to the number of children in whose honor the feast was given, were liberated. For this occasion a new house was erected with the assistance of the invited guests as well as of the people of the clan. All who participated in the labor, without regard to family, received presents, while at all other feasts only the guests were thus remembered. After singing and dancing and the distribution of presents the children were introduced one by one and subjected to the operation of piercing the ears. As soon as the awl was introduced and the puncture made all persons present gave forth a hissing sound, probably with the intention of smothering the cries of the children. After the operation presents were again distributed and a final repast indulged in.

Before turning my attention to the religious views and myths of the Thlinket I must say a few words of the unfortunate beings who were considered by their masters as merchandise, and given away or killed at their pleasure. The slaves of the Thlinket all sprang from prisoners of war (but frequently the prisoners of one clan were purchased by members of another), or they were born of female slaves. Though under the Russian rule wars among the Thlinket tribes became of rare occurence, the number of slaves did not diminish. The supply was kept up by barter with the more southern tribes, and at that time a majority of the slaves belonged to the Flathead Indians of the British possessions.

The slave enjoyed no civil rights whatever among the Thlinket; he could not possess property, and if he acquired anything by labor or by gift it was still the property of his master. He could not marry without his master's consent, and very rarely was he allowed to do so at all. As already mentioned, slaves were killed on festive occasions or liberated. The liberated slave was invested with the rights of the lowest grade of the Thlinket, and was counted with the clan to which his mother belonged. This rule held good with the slaves from the British possessions, as there also the natives are divided into the Raven and the Wolf clans. Rarely an able-bodied slave was slaughtered on festive occasions, as he was looked upon as merchandise of the greatest value, difficult to replace. If an intended victim managed to escape or to conceal himself he was allowed to live, and might return after the conclusion of the festivities at the house of his master without incurring punishment. It frequently occurred that powerful chiefs assisted favorite slaves on such occasions to make their escape. The universal rule was, however, to select for the sacrifice only the old or diseased slaves who were more of a burden than profit to their masters. Of the honor of cremation after death the slave was deprived.

In the Thlinket mythology Yeshl or Yehl occupies the place of creator of all beings and things, and his power is unlimited; he created everything in the world, the earth, man, plants, etc., and assigned the sun, the moon, and the stars to their places. He loves mankind, but in times of anger he sends disease and misfortune. He existed before his birth; he does not grow old and does not die, and with the east wind the Thlinket receive tidings of his existence. His dwelling-place is at the place nearest where the east wind blows (called by the Thlinket *Ssannakhe*). The Thlinket locate this place about the source of the river Nass, which enters the sea near the British boundary. This locality is still called Nass-Shakiyeshl. Yeshl has a son, but his mother and the circumstances of his birth have remained unknown. The son loves mankind still more than his father, and it frequently occurs that he intercedes with the latter in his wrath, and supplies mankind with food. That Yeshl is the origin, the ancestor of the Raven clan, has been already mentioned. The life and deeds of Yeshl form the only thing in the shape of dogma in the belief of the Thlinket, and their whole moral code is comprised in the doctrine, "As Yeshl lived and acted, so must we live and act." There was a time when the world was not and man lived in the dark; at the same time there was a Thlinket who had a wife and a sister; the former he loved so much that he would not allow her to do anything; she sat the whole long day in her cabin, or outside upon a little hill, just as the Thlinket love to do now. She had always eight little birds about her with a bright red color, such as come up to this part of the coast from California, and are called *kun* by the Thlinket; and whenever she indulged in the most innocent conversation with any other Thlinket the birds flew away and thus informed the jealous husband. His jealousy, however, went still further; every time that he went to the woods to build canoes, in which art he was a great master, he placed his wife in a box, locking the same. His sister had several sons—it is not known by whom—but the suspicious uncle killed them all one after the other. As soon as he noticed that the nephew was approaching manhood, and perhaps cast his eyes upon his wife, he invited him to go fishing in his canoe, and as soon as they were at a distance from the shore he upset the canoe of the nephew, and thus got rid of a possible rival. At length the mother, inconsolable over the loss of her child, walked along the shore weeping; she observed a number of large dolphins or whales passing by the shore, and one of them hastened to enter into conversation with the mourning mother. When he learned the cause of her sorrow he advised her to go into the water, pick up a small pebble from the bottom, swallow it, and then drink copiously of sea-water. As soon as the whale had left she followed his counsel, and the consequence was that in eight months later she gave birth to a son whom she considered a common mortal, but it was Yeshl. Previous to his birth the mother concealed herself from her brother. When Yeshl grew up to boyhood his mother made him a bow and arrow and taught him their uses. Yeshl soon became an expert and a successful marksman, so that no bird could escape his arrow, and as proof of his great skill it is narrated that the mother had a long garment made entirely out of the skins of humming-birds shot by the son. One morning when Yeshl arose he saw seated before the door of the hut a large bird with a tail as long as that of a magpie, and provided with a long strong bill with a metallic luster. This bird the Thlinket named *kutzghatushl*—that is, a crane who can reach heaven. This bird Yeshl killed and carefully removed its skin, which he put on himself, and immediately expressed not only the desire but the power to fly. He rose at once into the air and flew so far that he struck against the clouds with this bill with such force that he remained hanging, and only with difficulty succeeded in extricating himself from his disagreeable position. As soon as he had freed himself he returned to his hut, doffed the bird's skin, and concealed it. At another time he killed in a similar manner a gigantic duck and thereby procured for his mother the power to both swim and fly.

When Yeshl had grown up to manhood he heard from his mother of the crimes of his uncle and the sad fate of his brethren. He set out at once to revenge himself and soon reached the dwelling of his uncle, who was absent in the forest working. He opened at once the box in which his uncle's wife was confined, and the birds flew away. The uncle returned homeward in a great rage, but Yeshl sat calmly without stirring from his place. The uncle then called him out of the hut, led him into a canoe, and paddled out to sea to a spot where a number of marine monsters were sporting about. Here he threw him into the water, believing that he was rid of another enemy, but Yeshl walked along the bottom of the sea to the beach and rejoined his uncle. Seeing that he could not destroy his nephew by any common means, he ordained in his wrath that a flood should arise, and the ocean began to rise higher and higher, but Yeshl again crawled into his bird-skin and flew away to the clouds, hanging there with his bill until the flood had covered all the mountains, just touched his wings, and then subsided. Then he let go his hold, fell into the sea upon a bunch of kelp, and a sea-otter carried him thence to the shore.

The Stakhin Thlinket tell this story somewhat differently. They say that Yeshl after his aerial flight fell down upon Queen Charlotte island, and, picking up pieces of the wood of the Douglas pine (called by the Thlinket *shlakh*, by the Russians *chaga*, of which the best canoes are made) in his bill, he flew all over the other islands, and wherever he let fall a piece of this wood, there this tree, which is highly prized by the Thlinket, grows now. It seems that he did not reach the island of Sitka, as this species of pine does not exist on the island.

From this period began all his journeys through the world, which are so rich in adventure that the Thlinket say one man cannot know them all. Once he recalled to life some dead boys by tickling their noses with hair; at another time he obtained the fish ssakh, by inciting a fight between a gull and a heron; but the most remarkable of his deeds was the creation of daylight on the earth. Up to this time the sun, moon, and stars were not yet placed in the heavens, but were concealed in three separate boxes by a rich and powerful chief, who guarded his treasures so well that nobody could touch them. When Yeshl heard of this he expressed a desire to obtain them, and how he succeeded is described in the following narrative:

> The chief just mentioned had an only daughter whom he loved and pampered so much that she was not allowed to eat or drink anything until the father had examined the food or drink. Yeshl, aware of these circumstances, understood that it would be possible only to the grandson of the chief to obtain the light, and therefore he resolved to be born again by his daughter. This apparently difficult task was an easy one to Yeshl, who could assume any form he liked. Consequently he transformed himself into a blade of grass and leaned against the vessel out of which the chief's daughter was in the habit of drinking, and when, after due examination by the father, she lifted up the bowl to quench her thirst, Yeshl, disguised in the blade of grass, wriggled into her throat and was swallowed. The result was that in due time the chief's daughter was about to give birth to a child and her father spread a number of sea-otter skins on the floor to afford a soft couch, but all the efforts and assistance of servants did not seem to help in her labor. At last a very old woman led her out in the forest, and as soon as she had stretched herself on a couch of moss the birth took place. The grandfather was very much rejoiced over the birth of his grandson and loved him almost more than his own body. At one time Yeshl began to cry and would allow nobody to quiet him. No matter what they gave him—whatever was given to him he threw away and cried all the more, always pointing with his hand to where the boxes containing the heavenly lights were suspended. To give him these it was necessary to have the consent of the grandfather; however, as there seemed to be no end to his crying the old man gave him one of the boxes. Yeshl at once ceased his clamor and commenced to play with the box in great glee; gradually he dragged the box out of the house, and noticing that he was not very closely observed, opened the lid, and at once the stars were in the heavens and the box was empty. The sorrow of the old man over the loss of his treasures was inexpressible, but he never denied his beloved grandson. Yeshl soon after employed a similar ruse to obtain the second box, which contained the moon. At last he invaded the last box, the most valuable of all, in which the sun was hidden, but the old ruse would no longer serve his purpose. The grandfather remained inexorable. Then Yeshl began to cry and weep so hard that he could not eat or drink, and became seriously ill. At that the grandfather's pity was aroused and he gave him the box with the strictest injunction that the lid must not be raised, but as soon as Yeshl had the box outside he transformed himself into a raven and flew away with the box. On his way he heard human voices, but could not see the people because no light as yet illuminated the earth. He questioned the people whether they desired to have light; they answered: "You will only cheat us—you are not Yeshl, who alone can give us light." In order to convince the doubters Yeshl raised the lid of the box and at once the sun shone from the heavens in all its splendor. The men ran away, frightened, in all directions; some of them into the mountains, some into the woods, and some into the water, and all of these were transformed into animals according to their hiding-places.

The Thlinket were still without fire; those who had it were located upon an island far out at sea. Yeshl proceeded to this spot with the help of his bird-skin, picked up a burning brand in his bill and hurried back, but the journey was so long that nearly all the wood burned up, and even the point of his bill was scorched. As soon as he arrived on the shore he let fall upon the earth the glowing coal that still remained, and the sparks were scattered over both wood and pebbles. From this time the Thlinket say both wood and stone contain fire, which can be obtained from the one by concussion and by friction from the other.

Fresh water was also not to be found on the islands and continent inhabited by the Thlinket, but on a small island a little to the eastward of Sitka there was a well guarded forever by a watchman named Khenookh, the original ancestor of the Wolf clan. Yeshl again employed artifice in obtaining the boon of fresh water. He took as much as he could into his bill and then flew away to the islands and remained, letting fall here and there drops of the precious fluid. Wherever the little drops fell there are now rivulets and streams, and where the large drops fell, lakes and good large rivers were formed. The ruse employed by Yeshl in stealing the water from Khenookh forms the subject of a separate tradition.

Khenookh is, in the mythology of the Thlinket, a mysterious person without beginning or end, wealthy, and more powerful than Yeshl; he plays a prominent part in this water myth. He was a man as well as Yeshl, and inhabited the island above mentioned. Even now the Thlinket say that a square stone-capped well with a stone cover exists on the spot. In the interior of the well they point out a narrow colored or striped line, which they say was not there from the beginning, but only since Yeshl stole the water. The water of the well is said still to possess some curious qualities; if an unclean being washes his hands therein the water disappears from the well and rises on the sea-shore. The whole neighborhood is still called Khenookh-keen—that is, Khenookh's water—because at the time when Yeshl, for the benefit of mankind, undertook his enterprise Khenookh guarded the well so strictly that he built his house over it and slept on the cover of the well. At one time Khenookh was paddling over the sea with his canoe, and meeting Yeshl also in a canoe he asked him, "How long have you lived in the world?" Yeshl replied that he was born before the earth was in its place. "But how long have you lived in the world?" asked Yeshl in his turn. "Since the time," replied Khenookh, "when the liver emerged from the beach." Replied Yeshl, "Then you are older than I am." Thus boasting against each other they gradually left the shore point, and Khenookh, desiring to display his strength and power before Yeshl, took off his hat and at once there came up a dense fog. Profiting by this Khenookh turned away from his companion, out of his sight. Yeshl became alarmed and began to call Khenookh by name, but he kept silent and concealed by the fog. When Yeshl saw that he could do nothing in this terrible fog he began at last to cry and to shout. Then Khenookh came to him and said: "What are you crying about?" and with these words he replaced his hat upon his head and the fog at once disappeared. By this action he caused Yeshl to exclaim, "You are more powerful than I am." Then Khenookh invited Yeshl to his dwelling, and upon arriving there Yeshl was treated to fresh water. This pleased him so much that he could not get enough. After the repast, Yeshl began to relate his deeds and adventures, and though his tales were exceedingly interesting, and though Khenookh listened at first with the greatest attention, he finally sank into a profound sleep, unfortunately still stretched upon the cover of the well. Then Yeshl had to invent another ruse. He stole out of the hut, killed a dog, and smeared the sleeping Khenookh with the blood. Then he shouted to the sleeper and said, "Arise, Khenookh, and look upon yourself, you have been bleeding from the nose." Khenookh awoke suddenly, half dazed, and rushed out of the house into the sea to cleanse himself. Then Yeshl hastened to the well, lifted the cover, and drank his fill. After filling his stomach he took as much as he could into his mouth, transformed himself into a raven, and tried to escape from the cabin through the smoke-hole, but his wings caught on something and the returning Khenookh at once recognized his guest in the struggling raven. He made a fire and began to smoke Yeshl. (The Thlinket think that the raven only turned black on this occasion, having been white before.) At last Khenookh grew tired, and Yeshl escaped along the water to drop upon the earth as heretofore described.

As soon as Yeshl had done everything for the welfare of the Thlinket he proceeded eastward to his home, the Nass-Shakiyeshl, which was inaccessible not only to human beings but also to spirits. It is said that in modern times a spirit attempted to reach the locality and was punished for his presumption by having his left side turned to stone. The mask of this same spirit, which was in the possession of the famous Chilkhat shaman, was miraculously affected at the same time, one side of the mask, which was originally of wood, being petrified. Yeshl in his capacity of God also bears the name of Hashakhoon, a name which has been applied to the God of the Christians (the common expression for the latter term is *Mokh*, a corruption of the Russian *Bogue*). The Thlinket have a very great number of subordinate gods or spirits, called by them *yekh* (in plural *yakh'h*), whom the shamans or sorcerers (*ikhth*) invoke during their performances. Every sorcerer, and they are very numerous, has his special spirits who are at his command, in addition to a large number of others upon whose assistance he can count only on special occasions. These spirits are divided into *khiyekh* or *khinayekh*, that is, the superior spirits, and into *takhiyekh* (land spirits who live in the north), and *tekiyekh* (water spirits). The khiyekh are the spirits of the braves who had fallen in battle. They live in disguise and reveal themselves in the aurora; consequently a strong northern light is considered by many Thlinket a prophecy of war. The takhiyekh are the spirits of those who had died a natural death, and their home is called Takhankhoo. The road to this place is not the same for all. Those over whose death the relatives cry or howl but little is smooth and even, but those who receive their whole measure of noisy mourning must walk over a swampy, wet road. The takhiyekh appear to the sorcerers in the shape of land animals, the tekiyekh in the shape of marine animals or fishes. In regard to the origin of the latter the Thlinket do not all agree. Some maintain that they are the spirits of the animals themselves. In addition to these each Thlinket has his own yekh, who attends him as his guardian spirit. When a man becomes wickedly inclined his yekh leaves him and sometimes kills him. The spirits seem to like cleanliness, as a rule, and they allow themselves to be conjured only with the sound of a drum, or another instrument which we have not yet described. This consists of a hollow wooden bird filled with small pebbles, so that every movement of the bird creates a rattling noise. This is used in all dances and songs.

The Thlinket believe in the immortality and migration of souls. The soul does not migrate into bodies of animals, but into other human beings, chiefly into relatives of the female line. For instance, if a woman before giving birth to a child sees in a dream a deceased relative, it is said that the latter's soul has gone into her; or if the new-born child resembles in any way the deceased, it is taken for granted that he has returned to earth and the child at once receives his name. A Thlinket who envies a rich or noble family may be heard to say: "When I die I should like to be born again in this family;" others exclaim, "O that I might be slain speedily, so that I might be born again in this world under better circumstances." The souls of those who are cremated are wholesome and comfortable in the other world, others suffer with cold, but the souls of those in whose honor slaves have been sacrificed will never need to wait upon themselves.

The traditions of the Thlinket also speak of a general flood, during which the people saved themselves in a huge flat edifice; when the water receded this craft stranded upon a submerged log and broke in two, when the water receded still more. From this it is said comes the difference in languages, as the people in one half of the broken vessel remained Thlinket, while those of the other half were changed into all the nations of the earth.

At the beginning of this flood a brother and sister were separated; the brother's name was Khethl, that is, "thunder and lightning;" the sister's name was Aghishanookhu, that is, "wife under the ground." In taking leave Khethl said to his sister, "You will never more see me as long as I live;" then he donned the skin of a gigantic bird and flew away to the part of the world which we call southwest. The sister, after the separation, ascended Mount Edgecombe, in the vicinity of Sitka; the mountain opened its summit and swallowed her. From this time dates the great hole at the summit of the mountain (the extinguished crater). Khethl kept his promise to his sister and comes annually to Sitka; the thunder is the noise of his wings and the lightning is the flash of his eyes. His favorite food consists of whales. The continuance of the sister's life in the interior of the mountain points to the origin of its volcanic nature. In the opinion of the Thlinket the earth, forming a disk, rests upon the point of a pillar nicely poised. This pillar is held in the hand of the humane Aghishanookhu, who guards and watches it in order that the earth may not fall and be submerged in the water; but at times, when the gods hating mankind battled with her for the purpose of obtaining possession of the pillar in order to destroy the inhabitants of the earth, the earth trembles, but Aghishanookhu is strong enough to defend her children.

From another source Holmberg obtained a variation of this myth concerning Mount Edgecombe. "No," he said, "I have never heard that animals came out of Edgecombe, but in a great hole at its summit there lives the bird *khunnakhateth* [probably the name of the bird into which Khethl was changed], who, after seizing with each talon the whale rises into the skies, producing thunder with the beating of his wings and lightning with the blinking of his eyes."

Having thus discussed the myths of the Thlinket, representing as they do the different dogmas and historic traditions, as in a poetic dream interwoven with the darkness of fable, I now turn to the not less important subject of "shamanism", closely related to the former.

Sorcery or shamanism played an important rôle in the ancient history of all northern nations. Shamanism has existed among all of them, though in various forms and degrees, but their nature and character are always the same. We find in every nation of the world more or less superstition, that is, an inclination to explain by supernatural agency all that the mind is unable to grasp; but the particular kind of sorcery or shamanism referred to here belongs exclusively to the north. To explain the cause of this perhaps requires a very profound and searching insight into the physical and psychological condition of mankind in various climates, or perhaps it lies concealed in the magic darkness that envelops the sharply-defined characteristics peculiar to polar regions. It appears that both shamanism and magnetism have their center near the pole, and both are in their inmost nature unknown and mysterious. We can observe only their effects manifested as phenomena.

The words and actions of the shamans and sorcerers are considered as infallible by the Thlinket, who believe in them sincerely. Some shamans, it is not known why, prohibited the consumption of whale-meat, which is considered a great delicacy by all other coast tribes of northwest America. In order to be a shaman it is necessary not only to possess the power to have various spirits at one's disposal, but also to call them whenever the emergency arose. On these occasions the shaman twists, throws, and paints his body in the most unnatural manner. The object of such sorcery is not only to reveal the future, but to ascertain all that is hidden, and with the help of spirits to prevent or avoid misfortune and disaster. Shamanism is generally hereditary in families—that is, it is transmitted with all its mysteries and collections of apparatus, such as masks, drums, straps, etc., to the son or grandson of the shaman. However, the descendants of a shaman are not always able to follow in his footsteps, not possessing, perhaps, the power to call the spirits and to enter into communication with them.

A man who intends to prepare himself to become a shaman proceeds for a time into the woods, or to the top of a mountain, where he may remain undisturbed by visitors. Here he passes from two to four weeks, feeding only upon the roots of *Pamax horridum* (called by the Russians *nezamainik*). The length of time depends upon the willingness of the spirits to appear. As soon as they come the most prominent among them sends a land-otter, in whose tongue the secret and power of shamanism are believed to be hidden, to meet the aspirant. On sighting each other they both stop, and the man kills the animal, exclaiming four times, "Oh!" in various keys. The otter then falls upon its back, the tongue protruding. This the shaman cuts off and preserves in a diminutive basket brought for the purpose. This talisman he conceals carefully from everybody. If it should happen that an unwashed being obtained this secret charm he would lose his reason at once. The skin of the otter is taken off and kept by the shaman as a sign of his profession, and the meat is buried in the ground. Owing to this tradition no Thlinket dared to kill a land-otter previous to the arrival of the Russians at Sitka, but of late years experience and avarice have overcome the superstition in this respect.

If the shaman, after a long seclusion, does not find himself able to summon spirits, he proceeds, still fasting, to the grave of a deceased shaman, passing the night with the corpse and taking one or two of its teeth into his mouth. If this last effort prove successful the shaman returns to his people half starved and much reduced in body, and as soon as he arrives his power and skill in sorcery are tested. The honor and power of a shaman depend upon the number of his spirits, and whose influence he caused to contribute to his wealth. Each shaman has his own spirits, and a certain name and certain song for each of them. On many occasions he meets with the spirits of his ancestors, which increases his power to such an extent that he is enabled to throw his spirits into other beings who refuse to believe in his powers. The unfortunates to whom this happens faint away and suffer terrible cramps or faint ever after; if a shaman becomes ill his relatives fast for many days in order to help him. His apparatus is kept in separate boxes, and for each spirit he has a peculiar wooden mask. The hair of the shaman is never cut.

As has already been remarked, the shaman is not cremated after death, but set by in an elevated box. During the first night the body is allowed to remain in the corner where the death occurred, but on the following day it is removed to another corner, and this is continued for four days, until the corpse has rested in every corner of the house. During this time all the inmates of the house must fast until on the fifth day, dressed in the full traditional costume, he is lashed upon a board, in the sides of which holes are pierced. Two bone sticks that were used by the shaman during his incantations are placed one through the hair and the other through the orifice in the partition of the nose; then the head is covered with a basket made of twigs, and the corpse is carried to the place of burial, which is always located on the shore. Whenever a Thlinket passes the grave of a shaman he throws down some tobacco into the water (formerly, of course, it was some other article of value), in order to earn with this sacrifice the favor and good will of the deceased.

The shaman's incantation is generally conducted as follows: On the day set for the purpose the relatives of the shaman who assist him, especially the singers, are not allowed to partake of food, and are obliged in addition to empty their stomachs, which they do by drinking tepid water and tickling the palate with a feather. The celebration begins with sunset and continues until the following dawn. All the Thlinket who wish to participate in the ceremony, men as well as women, assemble in the house of the shaman, which has been cleaned as much as possible, and begin their singing to the time of a drum. After the shaman has donned his professional apparel and covered his face with a mask he begins to run around the fire burning in the center of the house, twisting and moving his face with violent contortions to the beating of the drum, and until his eyes, which during all this run are always directed to the ceiling, are almost turned in his head; suddenly he stands still, looks upon the upper side of the drum, and utters a loud cry; the song ceases, and all eyes are bent upon him. In these ceremonies consist the whole art of the sorcerer. During the performances the spirits pass in review before him, appearing in various forms. Upon the appearance of each successive spirit the shaman changes his mask, that is, he dons the mask of the spirit with whom he communicates for the moment. Any words he utters during this ceremony are considered as inspirations of the spirit. At the conclusion of the ceremony the assembly is first treated to tobacco and then provided with food. These incantations only take place in the winter, at the time of the new and full moon; and are undertaken chiefly for the purpose of preserving the good will of the spirits toward the inhabitants of the settlement—to obtain their assistance perhaps in allaying an epidemic disease and transporting it into some hostile settlement. In addition to these grand occasions incantations are indulged in from time to time for the purpose of ascertaining the cause of sickness or misfortune, etc. The cure of diseases, however, does not depend so much upon the shaman as upon certain other individuals, who are called by the Thlinket *nakuzati* (derived from the word *naku*, which signifies medicine; the term might be translated physician or medicine-man), and in whose power it lies to injure or destroy other people.

The Thlinket name for—
Russian people, is Kuskekhan (Cossack).
Kadiak people, Kaiakwan.
Chugach people, Kushek.
Kenai people, Tisnakwan.
Aleut people, Tiakhakwan.
Yakutat people, Tliakhaikh-kwan.

Sir James Douglas, governor of the Hudson Bay Company's domain in British Columbia, wrote as follows:

> The most enlightened of the Thlinket tribes entertain rational ideas concerning their deities, while others invest them with irreconcilable qualities, such as boundless power, with an extreme simplicity that the most stupid can puzzle and deceive. Probably they have no clear and well-defined ideas on these abstruse points, which are not of a nature to attract their attention, and they merely repeat the tradition as it was received from their fathers, without scrutiny or comment of their own. The Thlinket believe in the existence of a Supreme Being, whose name is Yealth, and that he has a son named Yealth Yay, *i. e.*, the Son of God. They also think that there is a malevolent being called Kosstahooshtekakah. Yealth wears the human form; he made the earth; then man was formed. A faint light afterward appeared, gradually growing in brightness until the stars were seen. Then the moon was made, and lastly the sun shone forth in all his glory. They think that all men are not descended from the same parent stock, but that Yealth traveled from country to country and made a new man in each, to whom he gave a new language, not through the exertion of miraculous power, but by the mere physical process of changing the position of the internal organs by giving them a good sound twist with his hand. When all things were finished he commanded man to do good and to commit no wickedness, while at the same time he urged them to retaliate for hostile attacks of other people, and return injury for injury. He added: "I am now going away, but my eye will be always upon you. If you live wicked lives you cannot come to me, as the good and brave only can live in my place." With these words he left the earth and has not since that time returned to it, and they do not know where he is at present. The Thlinket think that there is a future state of retributive rewards and punishments. After death the souls of men ascend through successive stages, rising one over another like the stories of a house, to the highest heaven, where they find a strong gate guarded by a giant who knows the name of every spirit that makes its appearance there. After proclaiming the name aloud he proceeds to question the spirit regarding its past life, and closes the examination either by receiving it into heaven or driving it back to the inferior stages, where it wanders about comfortless amid yawning gulfs opening before it at every step. The knowledge of these things has no perceptible effect on their conduct. They steal and cheat and lie whenever they feel an interest in doing so, without any visible apprehension of incurring Yealth's displeasure. They all admit that theft, falsehood, and roguery are criminal, but nevertheless have recourse to them without hesitation whenever it suits their purpose.
>
> Polygamy is a general practice among them, and they keenly resent any unsanctioned misconduct of their wives, although they do not scruple to sell their favors for a small consideration. If unmarried women prove frail the partner of their guilt, if discovered, is bound to make reparation to the parents, soothing their wounded honor with handsome presents. A failure to do this would cause the friends of the offending fair one to use force to back their demands and to revenge the insult. It must not, however, be supposed that they would be induced to act this part from any sense of reflected shame, or from a desire of discouraging vice by making a severe example of the vicious; or that the girl herself has any visitings of remorse; or that the parents think her a bit the worse for the accident, or her character in any way blemished. Such are not their feelings, for the offender is simply regarded as a robber, who has committed depredation on their merchandise, their only anxiety being to make the damages exacted as heavy as possible.

Mr. A. Krause, an explorer connected with the Geographical Society of Bremen, relates an instance of unregenerated superstition that came beneath his observation under the very eyes of the Presbyterian missionary established among the Chilkhat tribe:

> During the months of February and March uninterrupted bad weather interfered so seriously with hunting and fishing as to cause great scarcity of food. The people were alarmed; the two shamans made the most strenuous efforts to propitiate the evil spirits, fasting, dancing, and singing night and day. But all this was in vain—the weather did not change—and it was necessary to find a reason for this unusual misfortune. At last the wise men came to the conclusion that the bad weather was the consequence of the burial of a child's body by the missionary during the preceding autumn. Huge fires were at once lighted and little images burned to atone for the burial of the child. When this measure, also, met with no success in producing a change of weather, the missionary was urged and implored to reveal the burial-place of the child that had risen to such unexpected posthumous importance, and when he very unnecessarily refused to comply men and women searched the vicinity for many days.

The Thlinket tribes are now divided as follows:

1. The Chilkhaat tribe, of Comptroller bay, numbering 326.
2. The Yakutat tribe, on the coast from cape Yaktag to cape Spencer, numbering 500.
3. The Chilkhat tribe, living on Lynn canal, numbering 988.
4. The Hoonyah tribe, on Chichagof island, numbering 908.
5. The Khootznahoo tribe, on Admiralty island, numbering 666.
6. The Kehk tribe, on the Kehk archipelago, numbering 568.
7. The Auk tribe, on the northern part of Admiralty island and Douglas island, numbering 640.
8. The Takoo tribe, on Takoo river and inlet, numbering 269.
9. The Stakhin tribe, on Stakhin river and Etholin island, numbering 317.
10. The Prince of Wales Island tribe, numbering 587.
11. The Tongas tribe, near British boundary, numbering 273.
12. The Sitka tribe, numbering 721.

To these must be added 788 Hyda, closely related to the Thlinket, living on Prince of Wales island.

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# REPORT

ON

# THE SEAL ISLANDS OF ALASKA,

BY

## HENRY W. ELLIOTT.

I

# LETTER OF TRANSMITTAL.

SMITHSONIAN INSTITUTION, *March* 31, 1880.

Hon. FRANCIS A. WALKER,
*Superintendent Tenth Census.*

DEAR SIR: At the suggestion of Professor Baird and Mr. Goode, I have taken much pleasure in rewriting my field-notes made upon the Seal Islands of Alaska, which I herewith inclose for the use of the Census Office, now under your direction. I also embody those maps and drawings which I think necessary to give the reader a better idea of my understanding of the subject.

Very respectfully, your friend and servant,

HENRY W. ELLIOTT.

# ANALYSIS.

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# THE SEAL ISLANDS OF ALASKA.

## A. INTRODUCTION.

### 1. HISTORY AND OBJECTS OF THE MEMOIR.

THE WRITER'S OPPORTUNITIES FOR OBSERVATION.—During the progress of the heated controversies that took place pending the negotiation which ended in the acquisition of Alaska by our government, frequent references were made to the fur-seal. Strange to say, this animal was so vaguely known at that time, even to scientific men, that it was almost without representation in any of the best zoölogical collections of the world: even the Smithsonian Institution did not possess a perfect skin and skeleton. The writer, then as now, an associate and collaborator of this establishment, had his curiosity very much excited by those stories, and in March, 1872, he was, by the joint action of Professor Baird and the Secretary of the Treasury, enabled to visit the Pribylov islands for the purpose of studying the life and habits of these animals.

The fact is, that the acquisition of those pelagic peltries had engaged thousands of men, and that millions of dollars have been employed in capturing, dressing, and selling fur-seal skins during the hundred years just passed by; yet, from the time of Steller, away back as far as 1751, up to the beginning of the last decade, the scientific world actually knew nothing definite in regard to the life-history of this valuable animal. The truth connected with the life of the fur-seal, as it herds in countless myriads on the Pribylov islands of Alaska, is far stranger than fiction. Perhaps the existing ignorance has been caused by confounding the hair-seal, *Phoca vitulina*, and its kind, with the creature now under discussion. Two animals more dissimilar in their individuality and method of living can, however, hardly be imagined, although they belong to the same group, and live apparently upon the same food.

The notes, surveys, and hypotheses herewith presented are founded upon the writer's personal observations in the seal-rookeries of St. Paul and St. George, during the seasons of 1872 to 1874, inclusive, supplemented by his confirmatory inspection made in 1876. They were obtained through long days and nights of consecutive observation, from the beginning to the close of each seal-season, and cover, by actual surveys, the entire ground occupied by these animals. They have slumbered in the author's portfolio until the present moment, simply for the reason that he desired, before making a final presentation of the history of these islands and the life thereon, to visit the Russian seal-islands, the "Commanders", viz, Bering and Copper islands, which lie to the westward, 700 miles from our own, and are within the pale of the czar's dominion.

PREVIOUS OBSERVATIONS OF STELLER AND OTHERS.—In treating this subject the writer has trusted to nothing save what he himself has seen; for, until these life-studies were made by him, no succinct and consecutive history of the lives and movements of these animals had been published by any man. Fanciful yarns, woven by the ingenuity of whaling captains, in which the truth was easily blended with that which was not true, and short paragraphs penned hastily by naturalists of more or less repute, formed the knowledge that we had. Best of all was the old diary of Steller, who, while suffering bodily tortures, the legacy of gangrene and scurvy, when wrecked with Vitus Bering on the Commander islands, showed the nerve, the interest, and the energy of a true naturalist. He daily crept, with aching bones and watery eyes, over the bowlders and mossy flats of Bering island, to catch glimpses of those strange animals which abode there then as they abide to-day. Considering the physical difficulties that environed Steller, the notes made by him on the sea-bears of the North Pacific are remarkably good; but, as I have said, they fail so far from giving a fair and adequate idea of what these immense herds are and do, as to be absolutely valueless for the present hour. Shortly after Steller's time, great activity sprang up in the South Atlantic and Pacific over the capture and sale of fur-seal skins taken in those localities. It is extraordinary, that though whole fleets of American, English, French, Dutch, and Portuguese vessels engaged, during a period of protracted enterprise, of over eighty years in length, in the business of repairing to the numerous rookeries of the Antarctic, returning annually, laden with enormous cargoes of fur-seal skins; yet, as above mentioned, hardly a definite line of record has been made in regard to the whole transaction, involving, as it did, so much labor and so much capital.

FORMER PUBLICATIONS OF THE WRITER.—A brief digest of the writer's notes, relating principally to the business on the islands, was prepared and given to the Treasury Department in 1873–'74. This was printed by the Secretary, and has been the text of guidance, as to observation, employed by the agents of the government ever since. The maps and sketch-maps are herewith accordingly given to the public for the first time; the author, fearing that private and personal affairs, which now confine him, may possibly never permit his going over to the Asiatic rookeries, thinks it perhaps better that what he now knows definitely in regard to the matter should be published without longer delay.

It was with peculiar pleasure that the writer undertook, at the suggestion of Professor Baird, who is the honored and beloved secretary of the Smithsonian Institution, the task of examining into and reporting upon this subject; and it is also gratifying to add, that the statements of fact and the hypotheses evolved therefrom by him in 1874, have, up to the present time, been verified by the inflexible sequence of events on the ground itself. The concurrent testimony of the numerous agents of the Treasury Department and the government generally, who have trodden in his footsteps, amply testifies to their stability. (See note, 39, A.)

## B. GEOGRAPHICAL DISTRIBUTION.

### 2. GEOGRAPHICAL DISTRIBUTION OF THE FUR-SEAL.

PECULIARITIES OF DISTRIBUTION.—Our first thought in studying the distribution of the fur-seals throughout the high seas of the earth, is one of wonder. While they are so widely spread over the Antarctic regions, yet, as we pass the equator going north, we find in the Atlantic above the tropics nothing that resembles them. Their range in the North Pacific is virtually confined to four islands in Bering sea, namely, St. Paul and St. George of the tiny Pribylov group, and Bering and Copper of the Commander islands, large in area, but relatively scant in seal-life.

The remarkable discrepancy which we have alluded to may be better understood when we consider that these animals require certain conditions of landing and breeding ground and climate, all combined, for their perfect life and reproduction. In the North Atlantic no suitable territory for their reception exists, or ever did exist; and really nothing in the North Pacific beyond what we have designated in Bering sea will answer the requirements of the fur-seal. When we look over the Antarctic waters, we are surprised at what might have been done, and should have been done, in those southern oceans. There we find hundreds of miles of the finest seal-breeding grounds on the western coast of Patagonia, the beautiful reaches of the Falkland islands, the great extent of Desolation island, together with the whole host of smaller islets, where these animals abounded in almost countless numbers when first discovered, and should abound to-day—millions upon millions—but which have been, through nearly a century the victims of indiscriminate slaughter, directed by most unscrupulous and most energetic men. It seems well-nigh incredible, but it is true, nevertheless, that for more than fifty years a large fleet, numbering more than sixty sail, and carrying thousands of active men, traversed this coast and circumnavigated every island and islet, annually slaughtering right and left wherever the seal-life was found. Ships were laden to the water's edge with the fresh, air-dried, and salted skins, and they were swallowed up in the marts of the world, bringing mere nominal prices—the markets glutted, but the butchery never stopping.

THE SEAL-GROUNDS IN THE SOUTHERN HEMISPHERE.—I will pass in brief review the seal-grounds of the southern hemisphere. The Galapagos islands come first in our purview; this scattered group of small rocks and islets, uninhabited and entirely arid, was, fifty years ago, resorted to by a very considerable number of these animals, *Arctocephalus australis*, together with many sea-lions, *Otaria Hookeri;* great numbers were then captured by fur-sealers, who found to their sorrow, when the skins were inspected, that pelage was poor and worthless. A few survivors, however, remain to this day.

Along and off the coast of Chili and Bolivia are the St. Felix and Juan Fernandez islands, the latter place being one of the most celebrated rookeries known to Antarctic sealers. The west coast of Patagonia and a portion of that of Terra del Fuego was, in those early days of seal-hunting, and is to-day, the finest connected range of seal-rookery ground in the south. Here was annually made the concentrated attack of that sealing fleet referred to; and one can readily understand how thorough must have been the labor, as he studies the great extent and deep indentation of this coast, its thousand and one islands and islets, and when he sees to-day that there is scarcely a rookery of fur-seals known to exist there. The Falkland islands, just abreast of the straits of Magellan, were also celebrated, and a favorite resort, not only of the sealers, but of the whale-fleets of the world. They are recorded, in the brief mention made by the best authority, as fairly swarming with fur-seals when they were opened up by Captain Cook. There is to-day, in the place of the millions that once existed, an insignificant number, taken notice of only now and then.

The Georgia islands and the Sandwich group, all a succession of rocky islands and reefs awash—the South Orkneys, the Shetlands, the Auckland group, Campbell's island, Emerald island, and a few islets lying just to the southward of New Zealand—have all been places of lively and continued butchery; the fur-seals ranging in desperation from one of those places to the other as the seasons progressed, and the merciless search and slaughter continued. These pinnipeds, however, never went to the southward of 62° south latitude.

In considering the western Antarctic hemisphere, I must not forget also to mention, that the fur-seal was in early times found up the east coast of South America, here and there in little rookeries, as far north as cape St. Roque; but the number was unimportant, when brought into contrast with that belonging to those localities which I have designated. A small cliff-bound rookery to-day exists at cape Corientes. This is owned and farmed out by the Argentine republic, and we are informed that in spite of all their care and attention they have neither increased nor have they diminished from their original insignificance; from this rookery only three to five thousand were and are annually taken. It appears as if the fur-seals had originally passed to Bering sea from the parent stock of the Patagonia region, up along the coast of South America, a few tarrying at the dry and heated Galapagos islands, the rest speeding on to the northward, disturbed by the clear skies and sandy beaches of the Mexican coast, on and up to the great fish-spawning shores of the Aleutian islands and Bering sea. There, on the Pribylov group and the bluffy Commander islands, they found that union of cool water, well-adapted landing, and moist, foggy air which they had missed since they left the storm-beaten coasts far below.

In the Antarctic waters of the eastern hemisphere seals were found at Tristan da Cunha, principally on Little Nightingale island, to the southward of it; on Gough's island; on Bouvet's island; Prince Edward and Marion islands; the Crozette group, all small rocks, as it were, over which violent storms fairly swept; then we observe the great rookeries of Kerguelen land, or Desolation island—where perhaps nine-tenths of all the oriental fur-seals congregated—thence over to a small and insignificant islet known as the Royal Company, south of Good Hope. This list includes all the known resting-places of the fur-seal in those waters.

FORMER ABUNDANCE IN THE SOUTHERN HEMISPHERE: EXTENT OF EXTERMINATIONS.—In the light of the foregoing remarks, is it not natural, when we reflect upon the immense area and the exceedingly favored conditions of ground and climate frequented by the fur-seals of the Southern ocean, to say that their number must have been infinitely greater as they were first apprehended, surpassing all adequate description, when compared to those which we now regard as the marvel and wonder of the age—the breeding rookeries of the Pribylov group?

It is a great pity that this work of extermination and senseless destruction should have progressed as it has to the very verge of total extinction, ere any one was qualified to take note of and record the wonderful life thus eliminated. The Falkland islands and Kerguelen land, at least, might have been placed under the same restrictions and wholesome direction which the Russians established in the North seas, the benefits of which accrue to us to-day, and will forever, as matters are now conducted. Certainly it is surprising that the business thought, the hardheaded sense, of those early English navigators, should not have been equal to that of the Russian Promyshleniks, who were renowned as the most unscrupulous and the greediest of gain-getters.

POSSIBILITIES FOR PROTECTION.—The Falkland islands offer natural conditions of protection by land far superior to those found on the Pribylov or Commander groups. They have beautiful harbors, and they lie in the track of commerce, advantages which are not shared by our islands; at Desolation island, perhaps, the difficulties are insuperable on account of the great extent of coast, which is practically inaccessible to men and nearly so to the seals; but the Falkland islands might have been farmed out by the British government at a trifling outlay and with exceeding good result; for, millions upon millions of the fur-seals could rest there to-day, as they did a hundred years ago, and be there to-morrow, as our seals do and are in Bering sea. But the work is done. There is nothing down there, now, valuable enough to rouse the interest of any government; still, a beginning might be made, which possibly forty or fifty years hence would rehabilitate the scourged and desolated breeding-grounds of the South seas. We are selfish people, however, and look only to the present, and it is, without question, more than likely that should any such proposition be brought before the British parliament it would be so ridiculed and exaggerated by demagogues and ignorant jesters as to cause its speedy suppression; hence, in our opinion, it is not at all likely that the English government, or any of the other governments controlling these many islands of the Southern ocean, which we have named, will ever take a single step in the right direction, as far as the encouragement of the fur-seal to live and prosper in those regions is concerned. When we look at our northern waters we speedily recognize the fact, that between North America and Europe, across the Atlantic and into the Arctic, there is not a single island or islet or stretch of coast that the fur-seal could successfully struggle for existence on. These facts will become entirely clear when the chapter on the habit of this animal is reached.

ISOLATION OF THE NORTH PACIFIC ROOKERIES.—In the North Pacific, in prehistoric times, a legend from Spanish authority states, that fur-seals were tolerably abundant on the Santa Barbara and Guadaloupe islands, off the coast of California, and the peninsula to the southward. A few were annually taken from these islands, up to 1835 and some were wont to sport on those celebrated rocks off the harbor of San Francisco, known as the Farralones; ut no tradition locates a seal-rookery anywhere else on the northwest coast, or anywhere else in all Alaska and its islands, save the Pribylov group: while across and down the Asiatic coast, only the Commander islands and a little rock* in the Kurile chain have been and are resorted to by them. The crafty savages of that entire region, the hairy *Ainos* of Japan, and the Japanese themselves, have for a hundred years searched and searched in vain for such ground.

COMMERCIAL IMPORTANCE OF THE ALASKA ROOKERIES.—To recapitulate, with the exception of these seal-islands of Bering sea, there are none elsewhere in the world of the slightest importance to-day; the vast breeding-grounds bordering on the Antarctic have been, by the united efforts of all nationalities—misguided, short-sighted, and greedy of gain—entirely depopulated; only a few thousand unhappy stragglers are now to be seen throughout all that southern area, where millions once were found, and a small rookery protected and fostered by the government of a South American state, north and south of the mouth of the Rio de la Plata. When, therefore, we note the eagerness with which our civilization calls for sealskin fur, the fact that, in spite of fashion and its caprices, this fur is and always will be an article of intrinsic value and in demand, the thought at once occurs, that the government is exceedingly fortunate in having this great amphibious stock-yard far up and away in the quiet seclusion of Bering sea, from which it shall draw an everlasting revenue, and on which its wise regulations and its firm hand can continue the seals forever.

## C. THE PRIBYLOV ISLANDS.

### 3. DISCOVERY OF THE PRIBYLOV ISLANDS.

SEARCH OF RUSSIAN EXPLORERS FOR SEA-OTTERS AND SEALS.—All writers on the subject of Alaskan exploration and discovery, agree as to the cause of the discovery of the Pribylov islands in the last century. It was due to the feverish anxiety of a handful of Russian fur-gatherers, who desired to find new fields of gain when they had exhausted those last uncovered. Altasov, and his band of Russians, Tartars, and Kossacks, arrived at Kamtchatka, toward the close of the seventeenth century, and they first found of all men, the beautiful, costly, rare fur of the sea-otter. The animal bearing this pelage abounded then on that coast, but by the middle of the eighteenth century they and those who came after them had entirely extirpated it from that country. Then the survivors of Bering's second voyage of observation, in 1741–'42, and Tscherikov brought back an enormous number of skins from Bering island; then Michael Novodiskov discovered Attoo, and the contiguous islands, in 1745; Paikov came after him and opened out the Fox islands, in the same chain, during 1759; then succeeded Stepan Glotov, of infamous memory, who determined Kakiak in 1763, and the peninsula of Alaska followed in order by Krenitsin, 1768. During these long years, from the discovery of Attoo until the last date mentioned above, a great many Russian associations fitted out at the mouth of the Amoor river, and the Okotsk sea, and prospected therefrom this whole Aleutian archipelago in search of the sea-otter. There were perhaps twenty-five or thirty different companies, with quite a fleet of small vessels, and so energetic and thorough were they in their search and capture of the sea-otter, that along by 1772 and 1774 the catch in this group had dwindled down from thousands and tens of thousands at first, to hundreds and tens of hundreds at last. As all men do when they find that that which they are engaged in is failing them, a change of search and inquiry was in order, and then the fur-seal, which had been noted but not valued much, every year as it went north in the spring through the passes and channels of the Aleutian chain, then going back south again in the fall, became the source of much speculation as to where it spent its time on land and how it bred. Nobody had ever heard of its stopping one solitary hour on a single rock or beach throughout all Alaska or the northwest coast. The natives, when questioned, expressed themselves as entirely ignorant, though they believed, as they believe in many things of which they have no knowledge, that these seals repaired to some unknown land in the north every summer and left every winter. They also reasoned then, that when they left the unknown land to the north in the fall, and went south into the North Pacific, they traveled to some other strange island or continent there, upon which in turn to spend the winter. Naturally the Russians preferred to look for the supposed winter resting-places of the fur-seal, and forthwith a hundred schooners and shallops sailed into storm and fog to the northward occasionally, but generally to the southward, in search of this rumored breeding-ground. Indeed, if the record can be credited, the whole bent of this Russian attention and search for the fur-seal islands was devoted to that region south of the Aleutian islands, between Japan and Oregon.

PRIBYLOV'S DISCOVERY OF THE ISLANDS WHICH BEAR HIS NAME.—Hence it was not until 1786, after more than eighteen years of unremitting search by hardy navigators, that the Pribylov islands were discovered. It seems that a rugged Muscovitic "stoorman", or ship's "mate", Gehrman Pribylov by name, serving under the direction and in the pay of one of the many companies engaged in the fur-business at that time, was much moved and exercised in his mind by the revelations of an old Aleutian shaman at Oonalashka, who pretended to recite a legend of the natives, wherein he declared that certain islands in the Bering sea had long been known to Aleuts.†

Pribylov commanded a small sloop, the "St. George", which he employed for three successive years in constant, though fruitless, explorations to the northward of Oonalashka and Oonimak, ranging over the whole of

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* Robbins reef.

† This legend is translated by the author, and published in the Appendix.

Bering sea from the straits above. His ill-success does not now seem strange, when we understand the currents, the winds, and fogs of those waters. Why, only recently the writer himself has been on one of the best-manned vessels that ever sailed from any port, provided with good charts and equipped with all the marine machinery known to navigation, and that vessel has hovered for nine successive days off the north point and around St. Paul island, sometimes almost on the reef, and never more than ten miles away, without actually knowing where the island was! So Pribylov did well, considering, since at the beginning of the third summer's tedious search, in June, 1786, his old sloop ran up against the walls of Tolstoi Mees, at St. George, and when, though the fog was so thick that he could see scarce the length of his vessel, his ears were regaled by the sweet music of seal-rookeries wafted out to him on the heavy air. He knew then that he had found the object of his search, and he at once took possession of the island in the Russian name and that of his craft.

His secret could not long be kept. He had left some of his men behind him to hold the island, and when he returned to Oonalashka they were gone. And, when the next season had fairly opened, a dozen vessels were watching him and trimming in his wake. Of course they all found the island, and in that year, July, 1787, the sailors of Pribylov, on St. George, while climbing the bluffs and straining their eyes for a relief-ship, descried the low coast and scattered cones of St. Paul, thirty-six miles to the northwest of them. When they landed at St. George, not a sign nor a vestige of human habitation was found thereon; but during the succeeding year, when they crossed over to St. Paul, and took possession of it, in turn, they were surprised at finding on the south coast of that island, at a point now known as English bay, the remains of a recent fire. There were charred embers of driftwood, and places where grass had been scorched; there was a pipe, and a brass knife handle, which I regret to say have long passed beyond the cognizance of any ethnologist. This much appears in the Russian records.

## 4. DESCRIPTION OF THE PRIBYLOV ISLANDS.

The Pribylov islands lie in the heart of Bering sea, and are among the most insignificant landmarks known in that ocean. They are situated 192 miles north of Oonalashka, 200 miles south of St. Matthews, and about the same distance westward of cape Newenham on the mainland.

CLIMATE.—The islands of St. George and St. Paul are from twenty-seven to thirty miles apart, St. George lying southeastward of St. Paul. They are far enough south to be beyond the reach of permanent ice-floes, upon which polar bears could have made their way to the islands, though a few of these animals were, doubtless, always present. They laid also distant enough from the inhabited Aleutian districts and the coast of the mainland to have remained unknown to savage men. Hence they afforded the fur-seal the happiest shelter and isolation, for their position seems to be such as to surround and envelop them with fog-banks that fairly shut out the sun nine days in every ten, during the summer and breeding-season.

In this location, ocean-currents from the great Pacific, warmer than the normal temperature of that latitude, trending up from southward, ebb and flow around the islands as they pass, giving rise, during the summer and early autumn, to constant, dense, humid fog and drizzling mists, which hang in heavy banks over the islands and the sea-line, seldom dissolving away to indicate a pleasant day. By the middle or end of October, strong, cold winds, refrigerated on the Siberian steppes, sweep down across the islands, carrying off the moisture and clearing up the air. By the end of January, or early in February, they usually bring, by their steady pressure, from the north and northwest, great fields of broken ice, sludgy floes, with nothing in them approximating or approaching glacial ice. They are not very heavy or thick, but still as the wind blows they compactly cover the whole surface of the sea, completely shutting in the land, and for months at a time hushing the wonted roar of the surf. In the exceptionally cold seasons that succeed each other up there every four or five years, for periods of three and even four months—from December to May, and sometimes into June—the islands will be completely environed and ice-bound. On the other hand, in about the same rotation, occur the exceptionally mild winters. Not even the sight of an ice-floe is recorded during the whole winter, and there is very little skating on the shallow lakes and lagoons peculiar to St. Paul and St George. This, however, is not often the case.

The breaking-up of winter-weather and the precipitation of summer (for there is no real spring or autumn in these latitudes), usually commences about the first week in April. The ice begins to leave or dissolve at that time, or a little later, so that by the 1st or 5th of May, the beaches and rocky sea-margin beneath the mural precipices are generally clear and free from ice and snow, although the latter occasionally lies, until the end of July or the middle of August, in gullies and on leeward hill-slopes, where it has drifted during the winter. Fog, thick and heavy, rolls up from the sea, and closes over the land about the end of May; this, the habitual sign of summer, holds on steadily to the middle or end of October again.

The periods of change in climate are exceedingly irregular during the autumn and spring, so-called, but in summer the cool, moist, shady, gray fog is constantly present. To this certainty of favored climate, coupled with the perfect isolation and the exceeding fitness of the ground, is due without doubt, that preference manifested by the warm-blooded animals which come here every year, in thousands and hundreds of thousands, to breed, to the practical exclusion of all other ground.

A large amount of information in regard to the climate of these islands has been collected and recorded by the signal service, United States army, and similar observations are still continued by the agents of the Alaska Commercial Company. I simply remark here, that the winter which I passed upon St. Paul island (1872–'73) was one of great severity, and, according to the natives, such as is very seldom experienced. Cold as it was, however, the lowest marking of the thermometer was only 12° Fahr. below zero, and that lasted but a few hours during a single day in February, while the mean of that month was 18° above. I found that March was the coldest month. Then the mean was 12° above, and I have since learned that March continues to be the meanest month of the year. The lowest average of a usual winter ranges from 22° to 26° above zero; but these quiet figures are simply inadequate to impress the reader with the exceeding discomfort of the winter in that locality. It is the wind that tortures and cripples out-door exercise there, as it does on all the sea-coast and islands of Alaska. It is blowing, blowing, from every point of the compass at all times; it is an everlasting succession of furious gales, laden with snow and sleety spiculæ, whirling in great drifts to-day, while to-morrow the "boorga" will blow from a quarter directly opposite, and reverse its rift-building of the day preceding.

Without being cold enough to suffer, one is literally confined and chained to his room from December until April by this æolian tension. I remember very well that, during the winter of 1872–'73, I was watching, with all the impatience which a man in full health and tired of confinement can possess, every opportunity to seize upon quiet intervals between the storms, in which I could make short trips along the tracks over which I was habituated to walk during the summer; yet, in all that hyemal season I got out but three times; and then only by the exertion of great physical energy. On a day in March, for example, the velocity of the wind at St. Paul, recorded by one of the signal service anemometers, was at the rate of 88 miles per hour, with as low a temperature as —4°! This particular wind-storm, with snow, blew at such a velocity for six days without an hour's cessation, while the natives passed from house to house crawling on all-fours: no man could stand up against it, and no man wanted to. At a much higher temperature—say at 15° or 16° above zero—with the wind blowing only 20 or 25 miles an hour, it is necessary, when journeying, to be most thoroughly wrapped up, to guard against freezing.

As I have said, there are here virtually but two seasons—winter and summer. To the former belongs November and the following months up to the end of April, with a mean temperature of 20° to 28°; while the transition of summer is but a very slight elevation of that temperature, not more than 15° or 20°. Of the summer months, July, perhaps, is the warmest, with an average temperature between 46° and 50° in ordinary seasons. When the sun breaks out through the fog, and bathes the dripping, water-soaked hills and flats of the island in its hot flood of light, I have known the thermometer to rise to 60° and 64° in the shade, while the natives crawled out of the fervent and unwonted heat, anathematizing its brilliancy and potency. Sunshine does them no good; for, like the seals, they seem under its influence to swell up at the neck. A little of it suffices handsomely for both Aleuts and pinnipedia, to whom the ordinary atmosphere is much more agreeable.

It is astonishing how rapidly snow melts here. This is due, probably, to the saline character of the air, for when the temperature is only a single degree above freezing, and after several successive days in April or May, at 34° and 36°, grass begins to grow, even if it be below melting drifts, and the frost has penetrated the ground many feet beneath. I have said that this humidity and fog, so strongly and peculiarly characteristic of the Pribylov group, was due to the warmer ocean-currents setting up from the coast of Japan, and trending to the Arctic through Bering's straits, and deflected to the southward into the North Pacific, laving, as it flows, the numerous passes and channels of the great Aleutian chain; but I do not think, nor do I wish to be understood as saying, that my observation in this respect warrants any conclusion as to so large a gulf-stream flowing to the north, such as mariners and hydrographers recognize upon the Atlantic coast. I do not believe that there is anything of the kind equal to it in Bering sea. I think, however, that there is a steady set-up to northward from southward around the seal-islands, which is continued through Bering's straits, and drifts steadily off up to the northeast, until it is lost beyond Point Barrow. That this pelagic circulation exists, is clearly proven by the logs of the whalers, who, from 1845 to 1856, literally filled the air over those waters with the smoke of their "try-fires", and plowed every square rod of that superficial marine area with their adventurous keels. While no two, perhaps, of those old whaling captains living to-day, will agree as to the exact course of tides,* for Alaskan tides do not seem to obey any law, they all affirm the existence of a steady current, passing up from the south to the northeast, through Bering's straits. The flow is not rapid, and is doubtless checked at times, for short intervals, by other causes, which need not be discussed here. It is certain, however, that there is warm water enough, abnormal to the latitude, for the evolution of the characteristic fog-banks, which almost discomfited Pribylov, at the time of his discovery of the islands, nearly one hundred years ago, and which have remained ever since.

Without this fog the fur-seal would never have rested there as he has done; but when he came on his voyage of discovery, ages ago, up from the rocky coasts of Patagonia, mayhap, had he not found this cool, moist temperature of St. Paul and St. George, he would have kept on, completed the circuit, and returned to those congenial antipodes of his birth.

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* The rise and fall of tide at the seal-islands I carefully watched one whole season at St. Paul. The irregularity, however, of ebb and flow, is the most prominent feature of the matter. The highest rise in the spring tides was a trifle over four feet, while that of the neap tides not much over two. Owing to the nature of the case, it is impossible to prepare a tidal calendar for Alaska, above the Aleutian islands, which will even faintly foreshadow a correct registration in advance.

CLOUDS.—Speaking of the stormy weather brings to my mind the beautiful, varied, and impressive nephelogical display in the heavens overhead here during October and November. I may say, without exaggeration, that the cloud-effects which I have witnessed from the bluffs of this little island, in those seasons of the year, surpass anything that I had ever seen before. Perhaps the mighty masses of cumuli, deriving their origin from warm exhalations out of the sea, and swelled and whirled with such rapidity, in spite of their appearance of solidity, across the horizon, owe their striking brilliancy of color and prismatic tones to that low declination of the sun due to the latitude. Whatever the cause may be, and this is not the place to discuss it, certainly no other spot on earth can boast of a more striking and brilliant cloud-display. In the season of 1865–'66, when I was encamped on this same parallel of latitude in the mountains eastward of Sitka and the interior, I was particularly attracted by the exceeding brilliancy, persistency, and activity of the aurora; but here on St. Paul, though I eagerly looked for its dancing light, it seldom appeared; and when it did, it was a sad disappointment, the exhibition always being insignificant when compared in my mind with that flashing of my previous experience. A quaint old writer,* a hundred years ago, when describing Norway and its people, called attention to what he considered a very plausible theory as to the cause of the aurora; he cited an ancient sage, who believed that the change of the winds threw the saline particles of the sea high into the air, and then, by aerial friction, "fermentation" took place, and the light was evolved! I am sure that the saline particles of Bering sea were whirled into the air during the whole of that winter of my residence there, but no "fermentation" occurred, evidently, for rarely indeed did the aurora greet my eyes. In the summer season there is considerable lightning; you will see it streak its zigzag path mornings, evenings, and even noondays, but from the dark clouds and their swelling masses upon which it is portrayed no sound returns; a *fulgur brutum*, in fact. I remember hearing but one clap of thunder while in that country. If I recollect aright, and my Russian served me well, one of the old natives told me that it was no mystery, this light of the aurora, for, said he, "we all believe that there are fire-mountains away up toward the north, and what we see comes from their burning throats, mirrored back on the heavens".

GEOLOGICAL STRUCTURE.—The formation of these islands, St. Paul and St. George, was recent, geologically speaking, and directly due to volcanic agency, which lifted them abruptly, though gradually, from the sea-bed. Little spouting craters then actively poured out cinders and other volcanic breccia upon the table-bed of basalt, depositing below as well as above the water's level as they rose; and subsequently finishing their work of construction through the agency of these spout-holes or craters, from which water-puddled ashes and tufa were thrown. Soon after the elevation and deposit of the igneous matter, all active volcanic action must have ceased, though a few half-smothered outbursts seem to have occurred very recently indeed; for on Bobrovia or Otter island, six miles southward of St. Paul, is the fresh, clearly blown-out throat, with the fire-scorched and smoked, smooth, sharp-cut, funnel-like walls of a crater. This is the only place on the seal-islands where there are any evidences of recent discharges from the crater of a volcano.

Since the period of the upheaval of the group under discussion, the sea has done much to modify and even enlarge the most important one, St. Paul, while the others, St. George and Otter, being lifted abruptly above the power of water and ice to carry and deposit sand, soil, and bowlders, are but little changed from the condition of their first appearance.

VEGETATION.—The Russians tell a rather strange story in connection with Pribylov's landing. They say that both the islands were at first without vegetation†, save St. Paul, where there was a small "talneek", or willow, creeping along on the ground; and that on St. George nothing grew, not even grass, except on the place where the carcasses of dead animals rotted. Then, in the course of time, both islands became covered with grass, a great part of it being of the sedge kind, *Elymus*. This record of Veniaminov, however, is scarcely credible; there are few, surely, who will not question the opinion that the seals antedated the vegetation, for, according to his own statements, those creatures were there then in the same immense numbers that we find them to-day. The vegetation on these islands, such as it is, is fresh and luxuriant during the growing season of June and July and early August, but the beauty and economic value of trees and shrubbery, of cereals and vegetables, is denied to them by climatic conditions. Still I am strongly inclined to believe that, should some of those hardy shrubs and spruce trees indigenous at Sitka or Kadiak, be transplanted properly to any of the southern hill-slopes of St. Paul most favored by soil, drainage, and bluffs for shelter from saline gales, they might grow, though I know that, owing to the lack of sunlight, they would never mature their seed. There is, however, during the summer, a beautiful spread of grasses, of flowering annuals, biennials, and perennials, of gaily-colored lichens and crinkled mosses‡, which have always afforded me great delight whenever I have pressed my way over the moors and up the hillsides of the rookeries.

There are ten or twelve species of grasses of every variety, from close, curly, compact mats to tall stalks—tussocks of the wild wheat, *Elymus arenaria*, standing in favorable seasons waist high—the "wheat of the north"—together with over one hundred varieties of annuals, perennials, spagnum, cryptogamic plants, etc., all flourishing in their respective positions, and covering nearly every point of rock, tufa, cement, and sand that a plant can grow upon, with a living coat of the greenest of all greens—for there is not sunlight enough there to ripen any perceptible tinge of ocher-yellow into it—so green that it gives a deep blue tint to gray noonday shadows, contrasting pleasantly with the varying russets, reds, lemon-yellows, and grays of the lichen-covered rocks, and the brownish purple of the wild wheat on the sand-dune tracts in autumn, together, also, with innumerable blue, yellow, pink, and white phænogamous blossoms, everywhere interspersed over the grassy uplands and sandy flats. Occasionally, on looking into the thickest masses of verdure, our common wild violet will be found, while the phloxes are especially bright and brilliant here. The flowers of one species of gentian, *Gentiana verna*, are very marked in their beauty; also those of a nasturtium, and a creeping pea-vine on the sand-dunes. The blossom of one species of the pulse family is the only one here that emits a positive, rich perfume; all the others are more suggestive of that quality than expressive. The most striking plant in all the long list is the *Archangelica officinalis*, with its tall seed-stalks and broad leaves, which grows first in spring and keeps green latest in the fall. The luxuriant rhubarb-like stems of this umbellifer, after they have made their rapid growth in June, are eagerly sought for by the natives, who pull them and crunch them between their teeth with all the relish that we experience in eating celery. The exhibition of ferns at Kamminista, St. Paul, during the summer of 1872, surpassed anything that I ever saw: I recall with vivid detail the exceedingly fine display made by these crenulated and waving fronds, as they reared themselves above the rough interstices of the rocky ridges. From the fern roots, and those of the gentian, the natives here draw their entire stock of vegetable medicines. This floral display on St. Paul is very much more extensive and conspicuous than that on St. George, owing to the absence of any noteworthy extent of warm sand-dune country on the latter island.

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*Pontoppidan.

†Veniaminov: Zapieskie Oonalashkenskaho Otdayla, etc., 1842.

‡The mosses at Kamminista, St. Paul, are the finest examples of their kind on the islands; they are very perfect and beautiful in many species.

When an unusually warm summer passes over the Pribylov group, followed by an open fall and a mild winter, the Elymus ripens its seed, and stands like fields of uncut grain, in many places along the north shore of St. Paul and around the village, the snow not falling enough to entirely obliterate it; but it is seldom allowed to flourish to that extent. By the end of August and the first week of September of normal seasons, the small edible berries of *Empetrum nigrum* and *Rubus chamæmorus* are ripe. They are found in considerable quantities, especially at "Zapadnie", on both islands, and, as everywhere else throughout the circumpolar latitudes, the former is small, watery, and dark, about the size of the English or black currant; the other resembles an unripe and partially decayed raspberry. They are, however, keenly relished by the natives, and even by the American residents, being the only fruit growing upon the islands.

AGRICULTURE AND ITS POSSIBILITIES.—A great many attempts have been made, both here and at St. George, to raise a few of the hardy vegetables. With the exception of growing lettuce, turnips, and radishes on the island of St. Paul, nothing has been or can be done. On St. George, on the south shore, and at the foot of a mural bluff, is a little patch of ground of less than one-sixteenth of an acre, that appears to be so drained and so warmed by the rarely-reflected sunlight from this cliff, every ray of which seems to be gathered and radiated from the rocks, as to allow the production of fair turnips; and at one season there were actually raised potatoes as large as walnuts. Gardening, however, on either island involves so much labor and so much care, with so poor a return, that it has been discontinued. It is a great deal better, and a great deal easier, to have the "truck" come up once a year from San Francisco on the steamer.

INSECTS.—There is one comfort which nature has vouchsafed to civilized man on these islands. There are very few indigenous insects. A large flesh-fly, *Bombylius major*, appears during the summer and settles in a striking manner upon the backs of the loafing natives, or strings itself in rows of millions upon the long grass-blades which flourish over the killing grounds, especially on the leaf-stalks of the Elymus, causing this vegetation, on the whole slaughtering-field and vicinity, to fairly droop to earth as if beaten down by a tornado of wind and rain. It makes the landscape look as though it had molded in the night, and the fungoid spores were blue and gray. Our common house-fly is not present; I never saw one while I was up there. The flesh-flies which I have just mentioned never came into the dwellings unless by accident: the natives say they do not annoy them, and I did not notice any disturbance among the few animals which the resident company had imported for beef and for service.

Then, again, this is perhaps the only place in all Alaska where man, primitive and civilized, is not cursed by mosquitoes. There are none here. A gnat, that is disagreeably suggestive of the real enemy just referred to, flits about in large swarms, but it is inoffensive, and seeks shelter in the grass. Several species of beetles are also numerous here. One of them, the famous green and gold "carabus", is exceedingly common, crawling everywhere, and is just as bright in the rich bronzing of its wing-shields as are its famous prototypes of Brazil. One or two species of *Ichneumon*, a *Cymindis*, several representatives of the *Aphidiphaga*, one or two of *Dytiscidæ*, three or four *Cicindelidæ*—these are nearly all that I found. A single dragon-fly, *Perla bicaudata*, flitted over the lakes and ponds of St. Paul. The, to our eyes, familiar form of the bumble-bee, *Bombus borealis*, passing from flower to flower, was rarely seen; but a few are here resident. The *Hydrocorisæ* occur in great abundance, skipping over the water in the lakes and pools everywhere, and a very few species of butterflies, principally the yellow *Nymphalidæ*, are represented by numerous individuals.

LAND MAMMALS.—Aside from the seal-life on the Pribylov islands, there is no indigenous mammalian creature, with the exception of the blue and white foxes, *Vulpes lagopus*, and the lemming, *Myodes obensis*. The latter is restricted, for some reason or other, to the island of St. George, where it is, or at least was, in 1874, very abundant. Its burrows and paths, under and among the grassy hummocks and mossy flats, checkered every square rod of land there covered with this vegetation. Although the island of St. Paul is but 29 or 30 miles to the northwest, not a single one of these active, curious little animals is found on it, nor could I learn from the natives that it had ever been seen there. The foxes are also restricted to these islands; that is, their kind, which are not found elsewhere, except the stray examples on St. Matthew seen by myself, and those which are carefully domesticated and preserved at Attoo, the extreme westernmost land of the Aleutian chain. These animals find comfortable holes for their accommodation and retreat on the seal-islands, among the countless chinks and crevices of the basaltic formation. They feed and grow fat upon sick and weakly seals, also devouring many of the pups, and they vary this diet by water-fowl and eggs* during the summer, returning for their subsistence during the long winter to the bodies of seals upon the breeding-grounds and the skinned carcasses left upon the killing-fields. Were they not regularly hunted from December until April, when their fur is in its prime beauty and condition, they would swarm like the lemming on St. George, and perhaps would soon be obliged to eat one another. The natives, however, thin them out by incessant trapping and shooting during the period when the seals are away from the islands.

The Pribylov group is as yet free from rats; at least, none have got off from the ships. There is no harbor at either of these islands, and the ships lie out in the roadstead, so far from land that these pests do not venture to swim to the shore. Mice were long ago brought to shore in ships' cargoes, and they are a great nuisance to the white people as well as the natives throughout the islands. Hence cats also are abundant. Nowhere perhaps in the wide world are such cats to be seen as these. The tabby of our acquaintance, when she goes up there and lives upon the seal-meat spread everywhere under her nose, is metamorphosed, by time of the second generation, into a stubby feline ball; in other words, she becomes thickened, short, and loses part of the normal length of her tail; also her voice is prolonged and resonant far beyond the misery which she inflicts upon our ears here. These cats actually swarm about the natives' houses, never in them much, for only a tithe of their whole number can be made pets of; but they do make night hideous beyond all description. They repair for shelter, often, to the chinks of precipices, and bluffs, but, although not exactly wild, yet they cannot be approached or cajoled. The natives, when their sluggish wits are periodically thoroughly aroused and disturbed by the volume of cat-calls in the village, sally out and by a vigorous effort abate the nuisance for the time being. The most extravagant caterwauling alone will or can arouse this Aleutian ire.

STOCK AND POULTRY-RAISING.—On account of the severe climatic conditions it is of course impracticable to keep stock here with any profit or pleasure. The experiment has been tried faithfully. It is found best to bring beef-cattle up in the spring on the steamer, turn them out to pasture until the close of the season, in October and November, and then, if the snow comes, to kill them and keep them refrigerated the rest of the year. Stock cannot be profitably raised here, the proportion of severe weather annually is too great—from three to perhaps six months of every year they require feeding and watering, with good shelter. To furnish an animal with hay and grain up there is a costly matter, and the dampness of the growing summer season on both islands renders hay-making impracticable. Perhaps a few head of hardy Siberian cattle might pick up a living on the north shore of St. Paul, among the grasses and sand-dunes there, with nothing more than shelter and water given them, but they would need both of those attentions. Then the care of them would hardly return expenses, as the entire grazing ground could not support any number of animals. It is less than two square miles in extent, and half of this area is unproductive. Then, too, a struggle for existence would reduce the flesh and vitality of these cattle to so low an ebb, that it is doubtful whether they could be put through another winter alive, especially if severe. I was then, and am now, strongly inclined to think, that if a few of those Siberian reindeer could be brought over to St. Paul and to St. George, they would make a very successful struggle for existence, and be a source of a good supply, summer and winter, of fresh meat for the agents of the government and the company who may be living upon the islands. I do not think that they would be inclined to molest or visit the seal-grounds; at least, I noticed that the cattle and mules of the company running loose on St. Paul, were careful never to poke around on the outskirts of a rookery, and deer would be more timid and less obtrusive than our domesticated animals. But I did notice on St. George that a little squad of sheep, brought up and turned out there for a summer's feeding, seemed to be so attracted by the quiet calls of the pups on the rookeries, that they were drawn to and remained by the seals without disturbing them at all, to their own physical detriment, for they lost better

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*The temerity of the fox is wonderful to contemplate, as it goes on a full run or stealthy tread up and down and along the faces of almost inaccessible bluffs, in search of old and young birds and their nests and eggs, for which the "peestchee" have a keen relish. The fox always brings the egg up in its mouth, and, carrying it back a few feet from the brink of the precipice, leisurely and with gusto breaks the larger end and sucks the contents from the shell. One of the curious sights of my notice in this connection, was the sly, artful, and insidious advances of Reynard at Tolstoi Mees, St. George, where, conspicuous and elegant in its fluffy white dress, it cunningly stretched on its back as though dead, making no sign of life whatever, save to gently hoist its thick brush now and then; whereupon many dull, curious sea-birds, *Graculus bicristatus*, in their intense desire to know all about it, flew in narrowing circles overhead, lower and lower, closer and closer, until one of them came within the sure reach of a sudden spring and a pair of quick snapping jaws, while the gulls and others, rising safe and high above, screamed out in seeming contempt for the struggles of the unhappy "shag", and rendered hideous approbation.

pasturage by so doing. The natives of St. Paul have a strange passion for seal-fed pork, and there are quite a large number of hogs on the island of St. Paul and a few on St. George. The pigs soon become entirely carnivorous, living, to the practical exclusion of all other diet, on the carcasses of seals.

Chickens are kept with much difficulty, in fact it is only possible to save their lives when the natives take them into their own rooms, or keep them above their heads, in their dwellings, during winter.

BIRD-LIFE.—While the great exhibition of pinnipedia preponderates over every other feature of animal life on the seal-islands, still we find a wonderful aggregate of ornithological representation thereon. The spectacle of birds nesting and breeding, as they do at St. George island, to the number of millions, flecking those high basaltic bluffs of its shore-line, 29 miles in length, with color-patches of black, brown, and white, as they perch or cling to the mural cliffs in the labor of incubation, is a sight of exceeding attraction and constant novelty. It affords the naturalist an opportunity of a life-time for minute investigation into all the details of the reproduction of these vast flocks of circumboreal water-fowl. The island of St. Paul, owing to the low character of its shore-line, a large proportion of which is but slightly elevated above the sea and is sandy, is not visited, and cannot be visited, by such myriads of birds as are seen at St. George; but the small, rocky Walrus islet is fairly covered with sea-fowls, and the Otter island bluffs are crowded by them to their utmost capacity of reception. The birds string themselves anew around the cliffs with every succeeding season, like endless ribbons stretched across their rugged faces, while their numbers are simply countless. The variety is not great, however, in these millions of breeding-birds. It consists of only ten or twelve names; the whole list of avafauna belonging to the Pribylov islands, stragglers and migatory, contains but 40 species. Conspicuous among the last-named class is the robin, a straggler which was brought from the main land, evidently against its own effort, by a storm or a gale of wind, which also brings against their will the solitary hawks, owls, and waders, occasionally noticed here.

After the dead silence of a long ice-bound winter, the arrival of large flocks of those sparrows of the north, the "choochkies," *Phaleris microceros*, is most cheerful and interesting. Those plump little auks are bright, fearless, vivacious birds, with bodies round and fat. They come usually in chattering flocks on or immediately after the 1st of May, and are caught by the people with hand-scoops or dip-nets to any number that may be required for the day's consumption; their tiny, rotund forms making pies of rare, savory virtue, and being also baked and roasted and stewed in every conceivable shape by the Russian cooks—indeed they are equal to the reed-birds of the South. These welcome visitors are succeeded along about the 20th of July by large flocks of fat, red-legged turn-stones, *Strepsilas interpres*, which come in suddenly from the west or north, where they have been breeding, and stop on the islands for a month or six weeks, as the case may be, to feed luxuriantly upon the flesh-flies, which we have just noticed, and their eggs. Those handsome birds go in among the seals, familiarly chasing the flies, gnats, etc. They are followed, as they leave in September, by several species of jack-snipe and a plover, *Tringa* and *Charadrius;* these, however, soon depart, as early as the end of October and the beginning of November, and then winter fairly closes in upon the islands; the loud, roaring, incessant seal-din, together with the screams and darkening flight of innumerable water-fowl, are replaced in turn again by absolute silence, marking out as it were in lines of sharp and vivid contrast, summer's life and winter's death.

The author of that quaint old saying, "Birds of a feather flock together," might well have gained his inspiration had he stood under the high bluffs of St. George at any season, prehistoric or present, during the breeding of the water-birds there, where myriads of croaking murres and flocks of screaming gulls darken the light of day with their fluttering forms, and deafen the ear with their shrill, harsh cries as they do now, for music is denied to all those birds of the sea. Still, in spite of the apparent confusion, he would have taken cognizance of the fact, that each species had its particular location and kept to its own boundary, according to the precision of natural law.

FISHES.—With regard to the herpetology of the islands, I may state that the most careful search on my part was not rewarded by the discovery of a single reptile. In the province of ichthyology I gathered only a few specimens, the scarcity of fish being easily traceable to the presence of the seals on the grounds here. Naturally enough the finny tribes avoid the seal-churned waters for at least one hundred miles around. Among the few specimens, however, which I collected, three or four species new to natural science were found and have since been named by experts in the Smithsonian Institution.

The presence of such great numbers of amphibian mammalia about the waters, during five or six months of every year, renders all fishing abortive, and unless expeditions are made seven or eight miles at least from the land, and you desire to catch large halibut, it is a waste of time to cast your line over the gunwhale of the boat. The natives capture "poltoos" or halibut, *Hippoglossus vulgaris*, within two or three miles of the Reef-point on St. Paul and the south shore during July and August. After this season the weather is usually so stormy and cold that the fishermen venture no more until the ensuing summer.

AQUATIC INVERTEBRATES.—With regard to the *Mollusca* of the Pribylov waters, the characteristic forms of *Toxoglossata* and *Heteroglossata* peculiar to this north latitude are most abundant; of the *Cephalopoda* I have seen only a species of squid, *Sepia loligo*. The clustering whelks, *Buccinoid*, literally conceal large areas of the bowlders on the beaches here and there; they are in immense numbers, and are crushed under your foot at almost every step when you pass over long reaches of rocky shingle at low tide. A few of the larger *Fusus* are found, and the live and dead shells of *Limacina* are in great abundance wherever the floating kelp-beds afford them shelter.

On land a very large number of shells of the genera *Succinea* and *Pupa* abound all over the islands; on the bluffs of St. George just over Garden cove I gathered a beautiful *Helix*.

The little fresh-water lakes and ponds contain a great quantity of representatives of the characteristic genera *Planorbis*, *Melania*, *Limnea*, and that pretty little bivalve, the *Cyclas*.

Of the *Crustacea*, the *Annelidæ*, and *Echinodermata*, there is abundant representation here. The sea-urchins, "repkie" of the natives, are eagerly sought for at low tide and eaten raw by them. The Arctic sea-clam, *Mya truncata*, is once in a long time found here (it is the chief food of the walrus of Alaska), and the species of *Mytilus*, the mussels, so abundant in the Aleutian archipelago, are almost absent here at St. Paul, and only sparingly found at St. George.

The waters fairly swarm with an enormous number and variety of *Medusæ* or jelly-fishes.

The sea-weeds are exceedingly varied and abundant here, great heaps of their assorted fronds are tossed up by every gale to rot upon the beaches.

DIMENSIONS AND CONTOUR OF THE ISLANDS.—Until my arrival on the seal-islands in April, 1872, no steps had ever been taken by any man whomsoever toward ascertaining the extent and the real importance of these interests of the government; the Russians never having made even an approximate survey of the land, while our own people did no better. I was very much surprised, immediately after landing, and calling for a map of the island of St. Paul, to have an odd sketch, traced from an old Russian chart, placed before me, that my eye stamped instantly as grotesque, by the land-bearings which I took out of my window on the spot. It was a matter of no special concern, however, to the Russians; had it been, doubtless they would have accurately surveyed the whole field. But it was and is quite different with us; and, that no agent of the Treasury Department, or other branches of the government, had, up to the date of my arrival, given it the slightest thought or attention, struck me as rather strange. It was, as it is, and ever will be, a matter of first importance to a correct and succinct understanding of the subject, and it was the first thing about which I busied myself. I present, therefore, with this memoir, a careful chart of each island and the contiguous islets, which are the first surveys ever made upon the ground having the slightest pretension to accuracy.* The reader will observe, as he turns to these maps, the striking dissimilarity which exists between them, not only in contour but in physical structure, the island of St. Paul being the largest in superficial area, and receiving a vast majority of the *Pinnipedia* that belong to both. As it lies in Bering sea to-day, this island is in its greatest length, between northeast and southwest points, 13 miles, air line; and a little less than 6 at points of greatest width. It has a superficial area of about 33 square miles, or 21,120 acres, of diversified, rough, and rocky uplands, rugged hills, and smooth, volcanic cones, which either set down boldly to the sea or fade out into extensive wet and mossy flats, passing at the sea-margins into dry, drifting, sand-dune tracts. It has 42 miles of shore-line, and of this coast, 16½ miles are hauled over by fur-seals *en masse.* At the time of its first upheaval above the sea, it doubtless presented the appearance of ten or twelve small rocky, bluffy islets and points, upon some of which were craters that vomited breccia and cinders, with little or no lava overflowing. Active plutonic agency must have soon ceased after this elevation, and then the sea around about commenced the work which it is now engaged in: of building on to the skeleton thus created; and it has progressed to-day so thoroughly and successfully in its labor of sand-shifting, together with the aid of ice-floes, in their action of grinding, lifting, and shoving, that nearly all of these scattered islets within the present area of the island, and marked by its bluffs and higher uplands, are completely bound together by ropes of sand, changed into enduring bars and ridges of water-worn bowlders. These are raised above the highest tides by winds that whirl the sand up, over, and on them, as it drives out from the wash of the surf and from the interstices of the rocks, lifted up and pushed by ice-fields.

LAND AND SCENERY.—The sand which plays so important a part in the formation of the island of St. Paul, and which is almost entirely wanting in and around the others in this Pribylov group, is principally composed of *Foraminifera*, together with *Diatomacea*, mixed in with a volcanic base of fine comminuted black and reddish lavas and old friable gray slates. It constitutes the chief beauty of the sea-shore here, for it changes color like a chameleon, as it passes from wet to dry, being a rich steely-black at the surf-margin and then drying out to a soft purplish-brown and gray, succeeding to tints most delicate of reddish and pale neutral, when warmed by the sun and drifting up on to the higher ground with the wind. The sand-dune tracts on this island are really attractive in the summer, especially so during those rare days when the sun comes forth—the unwonted light shimmers over them and the most luxuriant grass and variety of beautiful flowers, which exist in profusion thereon. In past time, as these sand and bowlder bars were forming on St. Paul island, they, in making across from islet to islet, inclosed small bodies of sea-water. These have, by evaporation and time, by the flooding of rains and annual melting of snow, become, nearly every one of them, fresh; they are all, great and small, well shown on my map, which locates quite a large area of pure water. In them, as I have hinted, are no reptiles; but an exquisite species of tiny viviparous fish exists in the lagoon-estuary near the village, and the small pure-water lakes of the natives just under the flanks of Telegraph hill. The Aleuts assured me that they had caught fish in the great lake toward Northeast point, when they lived in their old village out there, but I never succeeded in getting a single specimen. The waters of these pools and ponds are fairly alive with vast numbers of minute *Rotifera*, which sport about in all of them whenever they are examined. Many species of water-plants, pond-lilies, algæ, etc., are found in the inland waters, especially in the large lake "Mee-sulk-mah-nee", that is very shallow.

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* These surveys have since been confirmed and elaborated by H. W. McIntyre, of the A. C. Co., and Lieut. Washburn Maynard, U. S. N.

The backbone of the island, running directly east and west, from shore to shore, between Polavina point and Einahnuhto hills, constitutes the high land of the island: Polavina Sopka, an old extinct cinder-crater, 550 feet; Boga Slov, an upheaved mass of splinted lava, 600 feet; and the hills frowning over the bluffs there, on the west shore, are also 600 feet in elevation above the sea. But the average height of the upland between is not much over 100 to 150 feet above water-level, rising here and there into little hills and broad, rocky ridges, which are minutely sketched upon the map. From the northern base of Polavina Sopka a long stretch of low sand-flats extend, inclosing the great lake, and ending in a narrow neck where it unites with Novastoshnah, or Northeast point. Here the volcanic nodule known as Hutchinson's hill, with its low, gradual slopes, trending to the east and southward, makes a rocky foundation secure and broad, upon which the great single rookery of the island, the greatest in the world, undoubtedly, is located. The natives say that when they first came to these islands, Novastoshnah was an island by itself, to which they went in boats from Vesolia Mista; and the lagoon now so tightly inclosed was then an open harbor, in which the ships of the old Russian company rode safely at anchor. To-day no vessel drawing ten feet of water can get nearer than half a mile of the village, or a mile from this lagoon.

LACK OF HARBORS: ANCHORAGES.—The total absence of a harbor at the Pribylov islands is much to be regretted. The village of St. Paul, as will be seen by reference to the map, is so located as to command the best landings for vessels that can be made during the prevalence of any and all winds, except those from the south. From these there is no shelter for ships, unless they run around to the north side, where they are unable to hold practicable communication with the people or to discharge. At St. George matters are still worse, for the prevailing northerly, westerly, and easterly winds drive the boats away from the village roadstead, and weeks often pass at either island, but more frequently at the latter, ere a cargo is landed at its destination. Under the very best circumstances, it is both hazardous and trying to load and unload ship at any of these places. The approach to St. Paul by water during thick weather, is doubtful and dangerous, for the land is mostly low at the coast, and the fogs hang so dense and heavy over and around the hills as to completely obliterate their presence from vision. The captain fairly feels his way in, by throwing his lead-line and straining his ear to catch the muffled roar of the seal-rookeries, which are easily detected when once understood, high above the booming of the surf. At St. George, however, the bold, abrupt, bluffy coast everywhere all around, with its circling girdle of flying water-birds far out to sea, looms up quite prominently, even in the fog; or, in other words, the navigator can notice it before he is hard aground or struggling to haul to windward from the breakers under his lee. There are no reefs making out from St. George worthy of notice, but there are several very dangerous and extended ones peculiar to St. Paul, which Captain John G. Baker, in command of the vessel* under my direction, carefully sounded out, and which I have placed upon my chart for the guidance of those who may sail in my wake hereafter.

When the wind blows from the north, northwest, and west to southwest, the company's steamer trips her anchor in eight fathoms of water abreast of the Black Bluffs opposite the village, from which anchorage her stores are lightered ashore; but in the northeasterly, easterly, and southeasterly winds, she hauls around to the Lagoon bay west of the village, and there, little less than half a mile from the landing, she drops her anchor in nine fathoms of water, and makes considerable headway at discharging the cargo. Sailing craft come to both anchorages, but, however, keep still farther out, though they choose relatively the same positions, but seek deeper water to swing to their cables in: the holding-ground is excellent. At St. George the steamer comes, wind permitting, directly to the village on the north shore, close in, and finds her anchorage in ten fathoms of water, in poor holding-ground; but it is only when three or four days have passed free from northerly, westerly, or easterly winds, that she can make the first attempt to safely unload. The landing here is a very bad one, surf breaking most violently upon the rocks from one end of the year to the other.

OTTER ISLAND.—The observer will notice that six miles southward and westward of the reef of St. Paul island, is a bluffy islet, called by the Russians Otter island, because in olden time the Promyshleniks are said to have captured many thousands of sea-otters on its stony coast. It rises from the ocean, sheer and bold, an unbroken mural precipice extending nearly all around, of sea-front, but dropping on its northern margin, at the water, low, and slightly elevated above the surf-wash, with a broken, rocky beach and no sand. The height of the cliffs, at their greatest elevation over the west end, is 300 feet, while the eastern extremity is quite low, and terminated by a queer, funnel-shaped crater-hill, which is as distinctly defined, and as plainly scorched, and devoid of the slightest sign of vegetation within, as though it had burned up and out yesterday. This crater-point on Otter island is the only unique feature of the place, for with the exception of that low north shore, before mentioned, where many thousand of "bachelor seals" haul out during the season every year, there is nothing else worthy of notice concerning it. A bad reef makes out to the westward and northward, which I have indicated from my observation of the rocks awash, looking down upon them from the bluffs. Great numbers of water-fowl roost upon the cliffs, and there are here about as many blue foxes to the acre as the law of life allows. A small, shallow pool of impure water lies close down to the north shore, right under a low hill, upon which the Russians in olden time posted a huge Greek cross, that is still standing; indeed, it was their habit to erect crosses on all the hills in those olden times; one of them is standing at Northeast point, on the large sand-dune which I have called St. John or Cross hill; and another one, a sound, stalwart stick, yet faces the gale and driving "boorgas" to-day on Boga Slov, as it has faced them for the last sixty years. Otter island has, since my return in 1872, had considerable attention in the Treasury Department, owing to the fact that certain parties contended that it lies without the jurisdiction of the law which covers and protects the seal-life on the Pribylov islands. This survey of mine, however, settles that question: the island is within the pale of law. It is a rock adjacent to and in the waters of St. Paul, and resorted to only by those seals which are born upon and belong to the breeding-grounds of St. Paul and St. George, and I have never seen at any one time more than three or four thousand "holluschickie" hauled out here.

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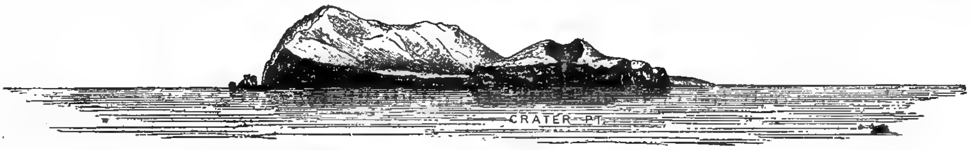
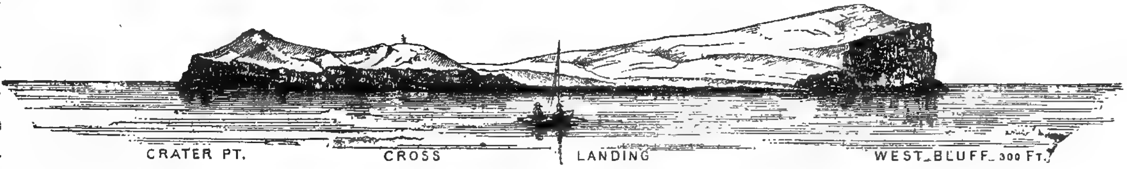
* United States revenue-marine cutter Reliance, June to October, 1874.



EAST SHORE.
[Bearing west by compass, 3 miles distant.]


CRATER PT.
CROSS
LANDING
WEST BLUFF 300 FT.

PROFILE OF THE NORTH SHORE OF OTTER ISLAND (from steamer's anchorage, Zoltoi bay, St. Paul).
[Bearing south by compass, 6 miles distant.]

WALRUS ISLAND.—To the eastward, six miles from Northeast point, will be noticed a small rock named Walrus island. It is a mere ledge of lava, flat-capped, lifted just above the wash of angry waves; indeed, in storms of great power, the observer, standing on either Cross or Hutchinson's hills, with a field-glass, can see the water breaking clear over it. These storms, however, occur late in the season, usually in October or November. This island has little or no commercial importance, being scarcely more than a quarter of a mile in length and 100 yards in point of greatest width, with bold water all around, entirely free from reefs or sunken rocks. As might be expected, there is no fresh water on it. In a fog it makes an ugly neighbor for the sea-captains when they are searching for St. Paul; they all know it, and they all dread it. It is not resorted to by the fur-seals or by sea-lions in particular; but, singularly enough, it is frequented by several hundred male walrus, to the exclusion of females, every summer. A few sea-lions, but only a very few, however, breed here. On account of the rough weather, fogs, etc., this little islet is seldom visited by the natives of St. Paul, and then only in the egging season of late June and early July; then that surf-beaten rock literally swarms with breeding water-fowl.

This low, tiny, rocky islet is, perhaps, the most interesting single spot now known to the naturalist, who may land in northern seas, to study the habits of bird-life; for here, without exertion or risk, he can observe and walk among tens upon tens of thousands of screaming water-fowl, and as he sits down upon the polished lava rock, he becomes literally ignored and environed by these feathered friends, as they reassume their varied positions of incubation, which he disturbs them from by his arrival. Generation after generation of their kind have resorted to this rock unmolested, and to-day, when you get among them, all doubt and distrust seems to have been eliminated from their natures. The island itself is rather unusual in those formations which we find peculiar to Alaskan waters. It is almost flat, with slight, irregular undulations on top, spreading over an area of five acres, perhaps. It rises abruptly, though low, from the sea, and it has no safe beach upon which a person can land from a boat; not a stick of timber or twig of shrubbery ever grew upon it, though the scant presence of low, crawling grasses in the central portions prevents the statement that *all* vegetation is absent. Were it not for the frequent rains and dissolving fog, characteristic of summer weather here, the guano accumulation would be something wonderful to contemplate—Peru would have a rival. As it is, however, the birds, when they return, year after year, find their nesting-floor swept as clean as though they had never sojourned there before. The scene of confusion and uproar that presented itself to my astonished senses when I approached this place in search of eggs, one threatening, foggy July morning, may be better imagined than described, for as the clumsy bidarrah came under the lee of the low cliffs, swarm upon swarm of thousands of murres or "aries" dropped in fright from their nesting-shelves, and before they had control of their flight, they struck to the right and left of me, like so many cannon balls. I was forced, in self-protection, to instantly crouch for a few moments under the gunwale of the boat until the struggling, startled flock passed, like an irresistible, surging wave, over my head. Words cannot depict the amazement and curiosity with which I gazed around, after climbing up to the rocky plateau and standing among myriads of breeding-birds, that fairly covered the entire surface of the island with their shrinking forms, while others whirled in rapid flight over my head, as wheels within wheels, so thickly inter-running that the blue and gray of the sky was hidden from my view. Add to this impression the stunning whir of hundreds of thousands of strong, beating wings, the shrill screams of the gulls, and the muffled croaking of the "aries", coupled with an indescribable, disagreeable smell which arose from the broken eggs and other decaying substances, and a faint idea may be evoked of the strange reality spread before me. Were it not for this island and the ease with which the natives can gather, in a few hours, tons upon tons of sea-fowl eggs, the people of the village would be obliged to go to the westward, and suspend themselves from the lofty cliffs of Einahnuhto, dangling over the sea by ropes, as their neighbors are only too glad and willing to do at St. George.

ST. PAUL.—A glance at the map of St. Paul, shows that nearly half of its superficial area is low and quite flat, not much elevated above the sea. Wherever the sand-dune tracts are located, and that is right along the coast, is found an irregular succession of hummocks and hillocks, drifted by the wind, which are very characteristic. On the summits of these hillocks the *Elymus* has taken root in times past, and, as the sand drifts up, it keeps growing on and up, so that the quaint spectacle is presented of large stretches to the view, wherein sand-dunes, entirely bare of all vegetation at their base and on their sides, are crowned with a living cap of the brightest green—a tuft of long, waving grass blades which will not down. None of this peculiar landscaping, however, is seen on St. George, not even in the faintest degree. Travel about St. Paul, with the exception of the road to Northeast point, where the natives take advantage of low water to run on the hard, wet sand, is exceedingly difficult, and there are examples of only a few white men who have ever taken the trouble and expended the physical energy necessary to accomplish the comparatively short walk from the village to Nahsayvernia, or the north shore. Walking over the moss-hidden and slippery rocks, or tumbling over slightly uncertain tussocks, is a task and not a pleasure. On St. George, with the exception of a half-mile path to the village cemetery and back, nobody pretends to walk, except the natives who go to and from the rookeries in their regular seal-drives. Indeed, I am told that I am the only white man who has ever traversed the entire coast-line of both islands. (See note, 39, E.)

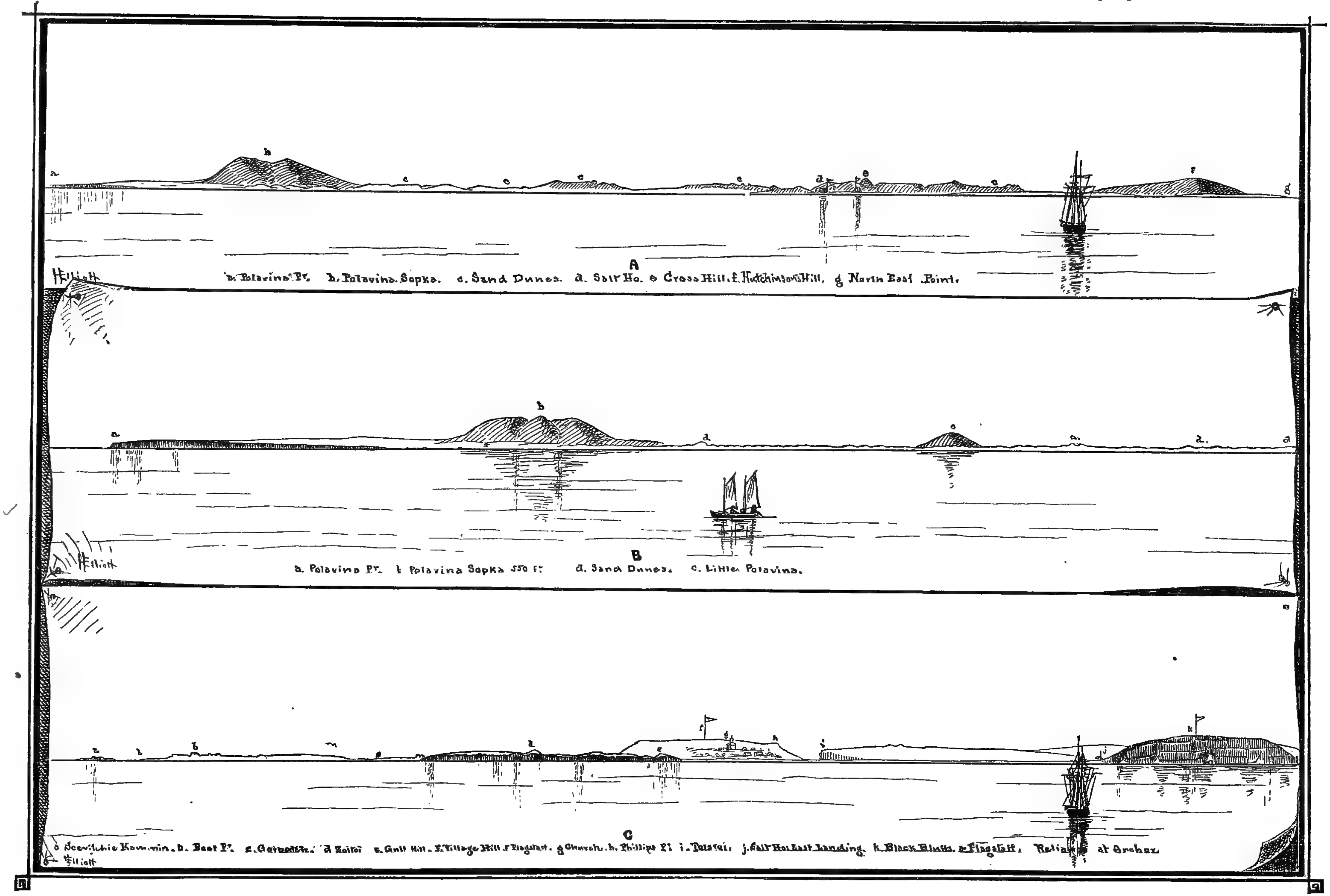
ST. GEORGE.—Turning to St. George and its profile, presented by the accompanying map, the observer will be struck at once by the solidity of that little island and its great boldness, rising, as it does, sheer and precipitous from the sea all around, except at the three short reaches of the coast indicated on the chart, and where the only chance to come ashore exists.

The seals naturally have no such opportunity to gain a footing here as they have on St. Paul, hence their comparative insignificance as to number. The island itself is a trifle over ten miles in extreme length, east and west, and about four and a quarter miles in greatest width, north and south. It looks, when plotted, somewhat like an old stone ax; and, indeed, when I had finished my first contours from my field-notes, the ancient stone-ax outline so disturbed me that I felt obliged to resurvey the southern shore, in order that I might satisfy my own mind as to the accuracy of my first work. It consists of two great plateaus, with a high upland valley between, the western table-land dropping abruptly to the sea at Dalnoi Mees, while the eastern falls as precipitately at Waterfall Head and Tolstoi Mees. There are several little reservoirs of fresh water—I can scarcely call them lakes—on this island; pools, rather, that the wet sphagnum seems to always keep full, and from which drinking-water in abundance is everywhere found. At Garden cove a small stream, the only one on the Pribylov group, empties into the sea.

St. George has an area of about 27 square miles; it has 29 miles of coast-line, of which only two and a quarter are visited by the fur-seals, and which is in fact all the eligible landing-ground afforded them by the structure of the island. Nearly half of the shore of St. Paul is a sandy beach, while on St. George there is less than a mile of it all put together, namely, a few hundred yards in front of the village, the same extent on the Garden cove beach southeast side, and less than half a mile at Zapadnie on the south side.

Just above the Garden cove, under the overhanging bluffs, several thousand sea-lions hold exclusive, though shy, possession. Here there is a half mile of good landing. On the north shore of the island, three miles west from the village, a grand bluff wall, of basalt and tufa intercalated, rises abruptly from the sea to a sheer height of 920 feet at its reach of greatest elevation, thence, dropping a little, runs clear around the island to Zapadnie, a distance of nearly 10 miles, without affording a single passage-way up or down to the sea that thunders at its base. Upon its innumerable narrow shelf-margins, and in its countless chinks and crannies, and back therefrom over the extended area of lava-shingled inland ridges and terraces, millions upon millions of water-fowl breed during the summer months.

The general altitude of St. George, though in itself not great, has, however, an average three times higher than that of St. Paul, the elevation of which is quite low, and slopes gently down to the sea east and north; St. George rises abruptly, with exceptional spots for landing. The loftiest summit on St. George, the top of the hill right back to the southward of the village, is 930 feet, and is called by the natives Ahluckeyak. That on St. Paul, as I have before said, is Boga Slov hill, 600 feet. All elevations on either island, 15 or 20 feet above sea-level, are rough and hummocky, with the exception of the sand-dune tracts at St. Paul and the summits of the cinder hills, on both islands. Weathered out or washed from the basalt and pockets of olivine on either island are aggregates of augite, seen most abundant on the summit slopes of Ahluckeyak hill, St. George. Specimens from the stratified bands of old, friable, gray lavas, so conspicuous on the shore of this latter island, show the existence of hornblende and vitreous feldspar in considerable quantity, while on the south shore, near the Garden cove, is a large dike of a bluish and greenish gray phonolith, in which numerous small crystals of spinel are found. A dike, with well-defined


A
a. Polavina Pt.
b. Polavina Sopka.
c. Sand Dunes.
d. Salt Ho.
e. Cross Hill.
f. Hutchinson's Hill.
g. North East Point.
B
a. Polavina Pt.
b. Polavina Sopka 550 ft.
d. Sand Dunes.
c. Little Polavina.
C
a. Seevitchie Kammin.
b. East Pt.
c. Gorbotch.
d. Zoltoi
e. Gull Hill.
f. Village Hill & Flagstaff.
g. Church.
h. Phillips Pt.
i. Tolstoi.
j. Salt Ho. East Landing.
k. Black Bluffs. & Flagstaff.
Reliance at Anchor
H. W. Elliott

# PROFILES OF THE EAST COAST OF ST. PAUL ISLAND.

**A.** Northeast shore of St. Paul Island, from a point at sea, about 8 miles distant to eastward, magnetic.
**B.** Polavina Sopka and Point, from a seaward view, 3 miles distant; the mountain bearing west, magnetic.
**C.** Village and East Landing, from the usual anchorage there; 1 mile distant.

walls of old, close-grained, clay-colored lava, is near the village of St. George, about a quarter of a mile east from the landing, in the face of those reddish breccia bluffs that rise from the sea. It is the only example of the kind on the islands. The bases or foundations of the Pribylov islands are, all of them, basaltic; some are compact and grayish-white, but most of them exceedingly porous and ferruginous. Upon this solid floor are many hills of brown and red tufa, cinder-heaps, etc. Polavina Sopka, the second point in elevation on St. Paul island, is almost entirely built up of red scoria and breccia; so is Ahluckeyak hill, on St. George, and the cap to the high bluffs opposite. The village hill at St. Paul, Cone hill, the Einahnuhto peaks, Crater hill, North hill, and Little Polavina are all ash-heaps of this character. The bluffs at the shore of Polavina point, St. Paul, show in a striking manner a section of the geological structure of the island. The tufas on both islands, at the surface, decompose and weather into the base of good soil, which the severe climate, however, renders useless to the husbandman. There is not a trace of a granitic or a gneissic rock found *in situ*. Metamorphic bowlders have been collected along the beaches and pushed up by the ice-floes which have brought them down from the Siberian coast away to the northwest. The dark-brown tufa bluffs and the breccia walls at the east landing of St. Paul island, known as "Black bluffs", rise suddenly from the sea 60 to 80 feet, with stratified horizontal lines of light-gray calcareous conglomerate, or cement, in which are imbedded sundry fossils characteristic of and belonging to the Tertiary age, such as *Cardium grœnlandicum*, *C. decoratum*, and *Astarte pectunculata*, etc. This is the only locality within the purview of the Pribylov islands where any paleontological evidence of their age can be found. These specimens, as indicated, are exceedingly abundant; I brought down a whole series, gathered there at the east landing or "Navastock", in a short half-hour's search and labor.

WHY THESE ISLANDS ARE FREQUENTED BY FUR-SEALS.—The fact that the fur-seals frequent these islands and those of Bering and Copper, on the Russian side, to the exclusion of other land, seems at first a little singular, to say the least; but when we come to examine the subject we find that these animals, when they repair hither to rest for two or three months on the land, as they must do by their habit during the breeding-season, they require a cool, moist atmosphere, imperatively coupled with firm, well-drained land, or dry, broken rocks, or shingle rather, upon which to take their positions and remain undisturbed by the weather and the sea for the lengthy period of reproduction. If the rookery-ground is hard and flat, with an admixture of loam or soil, puddles are speedily formed in this climate, where it rains almost every day, and when not raining, rain-fogs take quick succession and continue the saturation, making thus a muddy slime, which very quickly takes the hair off the animals whenever it plasters or wherever it fastens on them; hence, they carefully avoid any such landing. If they occupy a sandy shore the rain beats that material into their large, sensitive eyes, and into their fur, so they are obliged, from simple irritation, to leave and hunt the sea for relief.

The seal-islands now under discussion offer to the *Pinnipedia* very remarkable advantages for landing, especially St. Paul, where the ground of basaltic rock and of volcanic tufa or cement slopes up from so many points gradually above the sea, making thereby a perfectly adapted resting-place for any number, from a thousand to millions, of those intelligent animals, which can lie out here from May until October every year in perfect physical peace and security. There is not a rod of ground of this character offered to these animals elsewhere in all Alaska, not on the Aleutian chain, not on the mainland, not on St. Matthew or St. Lawrence. Both of the latter islands were surveyed by myself, with special reference to this query, in 1874; every foot of St. Matthew shore-line was examined, and I know that the fur-seal could not rest on the low clayey lava flats there in contentment a single day; hence he never has rested there, nor will he in the future. As to St. Lawrence, it is so ice-bound and snow-covered in spring and early summer, to say nothing of numerous other physical disadvantages, that it never becomes of the slightest interest to the seals.

## D. THE OCCUPANTS OF THE ISLANDS.

### 5. THE NATIVES OF THE ISLANDS.

COLONIZATION BY RUSSIANS AND ALEUTS: EARLY HISTORY.—When Pribylov, in taking possession, landed on St. George a part of his little ship's crew, July, 1786, he knew that, as it was uninhabited, it would be necessary to create a colony there, from which to draft laborers to do the killing, skinning, and curing of the peltries; therefore he and his associates, and his rivals after him, imported natives of Oonalashka and Atkha—passive, docile Aleuts. They founded their first village a quarter of a mile to the eastward of one of the principal rookeries on St. George, now called "Starry Ateel", or "Old settlement"; a village was also located at Zapadnie, and a succession of barrabaras planted at Garden cove. Then, during the following season, more men were brought up from Atkha and taken over to St. Paul, where five or six rival traders posted themselves on the north shore, near and at "Maroonitch", and at the head of the Big lake, among the sand-dunes there. They were then as they are now, somewhat given to riotous living, if they only had the chance, and the ruins of the Big lake settlement are pleasantly remembered by the descendants of those pioneers to-day, on St. Paul, who take off their hats as they pass by, to affectionately salute, and call the place "Vesolia Mista", or "Jolly Spot"; the old men telling me, in a low whisper, that "in those good old days they had plenty of rum". But, when the pressure of competition became great, another village was located at Polavina, and still another at Zapadnie, until the activity and unscrupulous energy of all these rival settlements well-nigh drove out and eliminated the seals in 1796. Three years later the whole territory of Alaska passed into the hands of the absolute power vested in the Russian-American Company. These islands were in the bill of sale, and early in 1799 the competing traders were turned off neck and heels from them, and the Pribylov group passed under the control of a single man, the iron-willed Baranov. The people on St. Paul were then all drawn together, for economy and warmth, into a single settlement at Polavina. Their life in those days must have been miserable. They were mere slaves, without the slightest redress from any insolence or injury which their masters might see fit, in petulance or brutal orgies, to inflict upon them. Here they lived and died, unnoticed and uncared for, in large barracoons half under ground and dirt roofed, cold, and filthy. Along toward the beginning or end of 1825, in order that they might reap the advantage of being located best to load and unload ships, the Polavina settlement was removed to the present village site, as indicated on the map, and the natives have lived there ever since.

On St. George the several scattered villages were abandoned, and consolidated at the existing location some years later, but for a different reason. The labor of bringing the seal-skins over to Garden cove, which is the best and surest landing, was so great, and that of carrying them from the north shore to Zapadnie still greater, that it was decided to place the consolidated settlement at such a point between them, on the north shore, that the least trouble and exertion of conveyance would be necessary. A better place, geographically, for the business of gathering the skins and salting them down at St. George cannot be found on the island, but a poorer place for a landing it is difficult to pick out, though in this respect there is not much choice outside of Garden cove.

CONTRAST IN THE CONDITION OF THE INHABITANTS UNDER RUSSIAN AND AMERICAN RULE.—Up to the time of the transfer of the territory and leasing of the islands to the Alaska Commercial Company, in August, 1870, these native inhabitants all lived in huts or sod-walled and dirt-roofed houses, called "barrabkies," partly under ground. Most of these huts were damp, dark, and exceedingly filthy: it seemed to be the policy of the short-sighted Russian management to keep them so, and to treat the natives not near so well as they treated the few hogs and dogs which they brought up there for food and for company. The use of seal-fat for fuel, caused the deposit upon everything within doors of a thick coat of greasy, black soot, strongly impregnated with a damp, moldy, and indescribably offensive odor. They found along the north shore of St. Paul and at Northeast point, occasional scattered pieces of drift-wood, which they used, carefully soaked anew in water if it had dried out, split into little fragments, and, trussing the blubber with it when making their fires, the combination gave rise to a roaring, spluttering blaze. If this drift-wood failed them at any time when winter came round, they were obliged to huddle together beneath skins in their cold huts, and live or die, as the case might be. But the situation to-day has changed marvelously. We see here now at St. Paul, and on St. George, in the place of the squalid, filthy habitations of the immediate past, two villages neat, warm, and contented. Each family lives in a snug frame-dwelling; every house is lined with tarred paper, painted, furnished with a stove, with out-houses, etc., complete; streets laid out, and the foundations of these habitations regularly plotted thereon. There is a large church at St. Paul, and a less pretentious but very creditable structure of the same character, on St. George; a hospital on St. Paul, with a full and complete stock of drugs, and skilled physicians on both islands to take care of the people, free of cost. There is a school-house on each island, in which teachers are also paid by the company eight months in the year, to instruct the youth, while the Russian Church is sustained entirely by the pious contributions of the natives themselves on these two islands, and sustained well by each other. There are 80 families, or 80 houses, on St. Paul, in the village, with 20 or 24 such houses to as many families at St. George, and 8 other structures. The large ware-houses and salt-sheds of the Alaska Commercial Company, built by skillful mechanics, as have been the dwellings just referred to, are also neatly painted; and, taken in combination with the other features, constitute a picture fully equal to the average presentation of any one of our small eastern towns. There is no misery, no downcast, dejected, suffering humanity here to-day. These Aleuts, who enjoy as the price of their good behaviour, the sole right to take and skin seals for the company, to the exclusion of all other people, are known to and by their less fortunate neighbors elsewhere in Alaska as the "Bogatskie Aloutov", or the "rich Aleuts". The example of the agents of the Alaska Commercial Company, on both islands, from the beginning of its lease, and the course of the treasury agents* during the last four or five years, have been silent but powerful promoters of the welfare of these people. They have maintained perfect order: they have directed neatness, and cleanliness, and stimulated industry, such as those natives had never before dreamed of.

NUMBER AND CONDITION OF THE ISLANDERS IN 1880.—The population of St. Paul is, at the present writing, 298. Of these, 14 are whites (13 males and 1 female), 128 male Aleutians, and 156 females. On St. George we have 92 souls: 4 white males, 35 male Aleutians, and 53 females, a total population on these islands of 390. This is an increase of between 30 and 40 people since 1873. Prior to 1873, they had neither much increased nor diminished for 50 years, but would have fallen off rapidly (for the births were never equal to the deaths) had not

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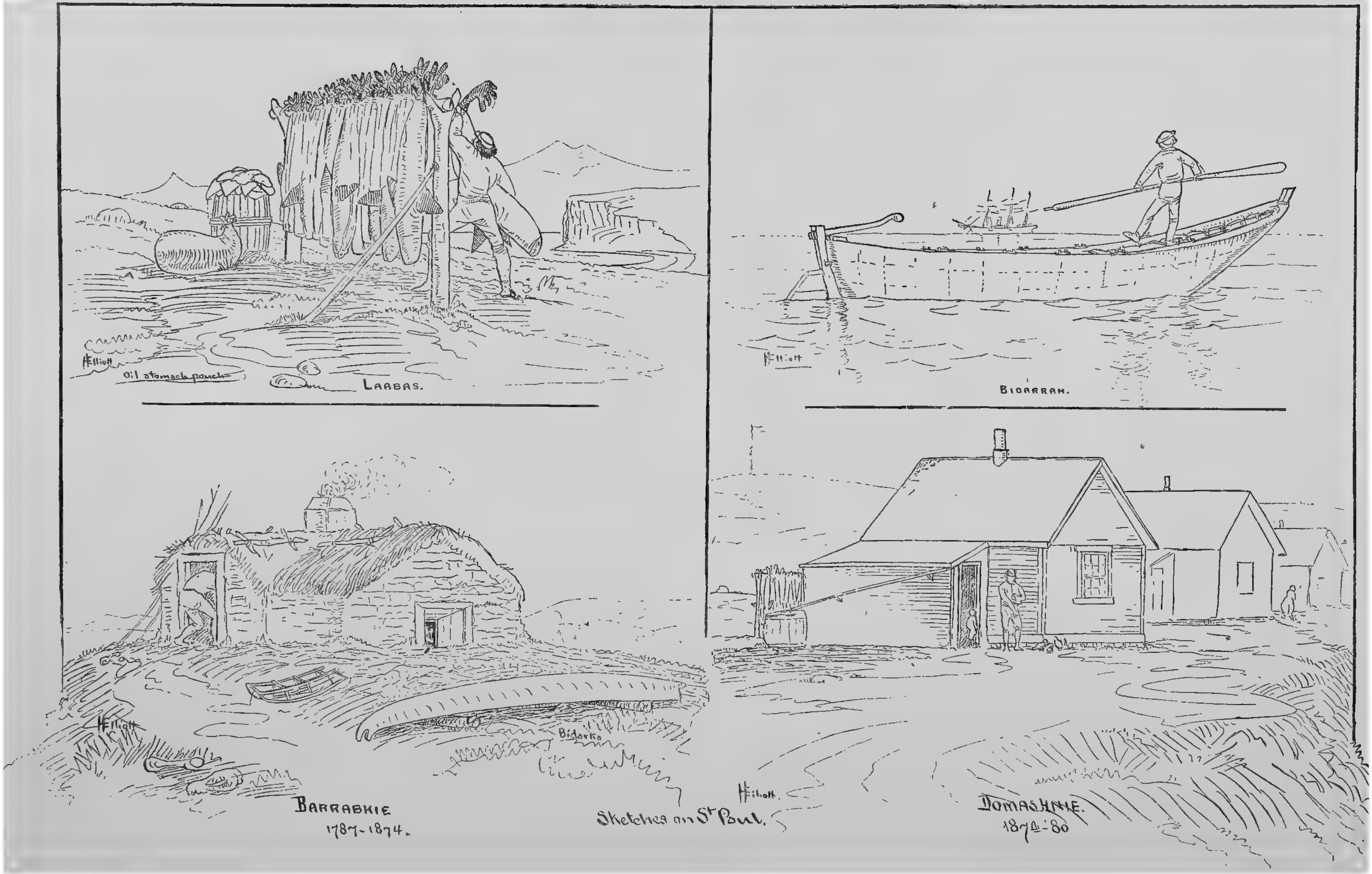
*Messrs. Morton, Falconer, Otis, Moulton, Scribner, and Beaman.



SEAL-MEAT FRAME, LIGHTER, HUT, AND HOUSES AT ST. PAUL ISLAND.

recruits been regularly drawn from the mainland and other islands every season when the ships came up. As they lived then, it was a physical impossibility for them to increase and multiply; but, since their elevation and their sanitary advancement are so marked, it may be reasonably expected that those people for all time to come will at least hold their own, even though they do not increase to any remarkable degree. Perhaps it is better that they should not. But it is exceedingly fortunate that they do sustain themselves so as to be, as it were, a prosperous corporate factor, entitled to the exclusive privilege of labor on these islands. As an encouragement for their good behavior the Alaska Commercial Company, in pursuance of its enlightened treatment of the whole subject, so handsomely exhibited by its housing of these people, has assured them that so long as they are capable and willing to perform the labor of skinning the seal-catch every year, so long will they enjoy the sole privilege of participating in that toil and its reward. This is wise on the part of the company, and it is exceedingly happy for the people. They are, of all men, especially fitted for the work connected with the seal-business—no comment is needed—nothing better in the way of manual labor, skilled and rapid, could be rendered by any body of men, equal in numbers, living under the same circumstances, all the year round. They appear to shake off the periodic lethargy of winter and its forced inanition, to rush with the coming of summer into the severe exercise and duty of capturing, killing, and skinning the seals, with vigor and with persistent and commendable energy.

To day only a very small proportion of the population are descendants of the pioneers who were brought here by the several Russian companies, in 1787 and 1788; a colony of 137 souls, it is claimed, principally recruited at Oonalashka and Atkha. I have placed in the appendix, together with other scattered notes, a list of these people who were living on St. Paul island in August, 1873; also showing at the same time those who were living there in 1870. It is a simple record, perhaps of no interest to anybody except those who are intimately associated with the islands. (See note, 39, F.)

ORIGIN AND TRAITS OF THE ALEUTS.—The question as to the derivation of these natives is still a mooted one among ethnologists, for in all points of personal bearing, intelligence, character, as well as physical structure, they seem to form a perfect link of gradation between the Japanese and Eskimos, although their traditions and their language are entirely distinct and peculiar to themselves; not one word or numeral of their nomenclature resembles the dialect of either. They claim, however, to have come first to the Aleutian islands from a "big land to the westward", and that when they came there first they found the land uninhabited, and that they did not meet with any people, until their ancestors had pushed on to the eastward as far as the peninsula and Kadiak. Confirmatory of this legend, or rather highly suggestive of it, is the fact that repeated instances have occurred within our day where Japanese junks have been, in the stress of hurricanes and typhoons, dismantled, and have drifted clear over and on to the reefs and coasts of the Aleutian islands. Only a short time ago, in the summer of 1871, such a craft was so stranded, helpless and at the mercy of the sea, upon the rocky coast of Adak island, in this chain; the few surviving sailors, Japanese, five in number, were, I remember, rescued by a party of Aleutian sea-otter hunters, who took care of them until the vessel of a trader carried them back, by way of Oonalashka, to San Francisco, and from thence they returned to their native land.

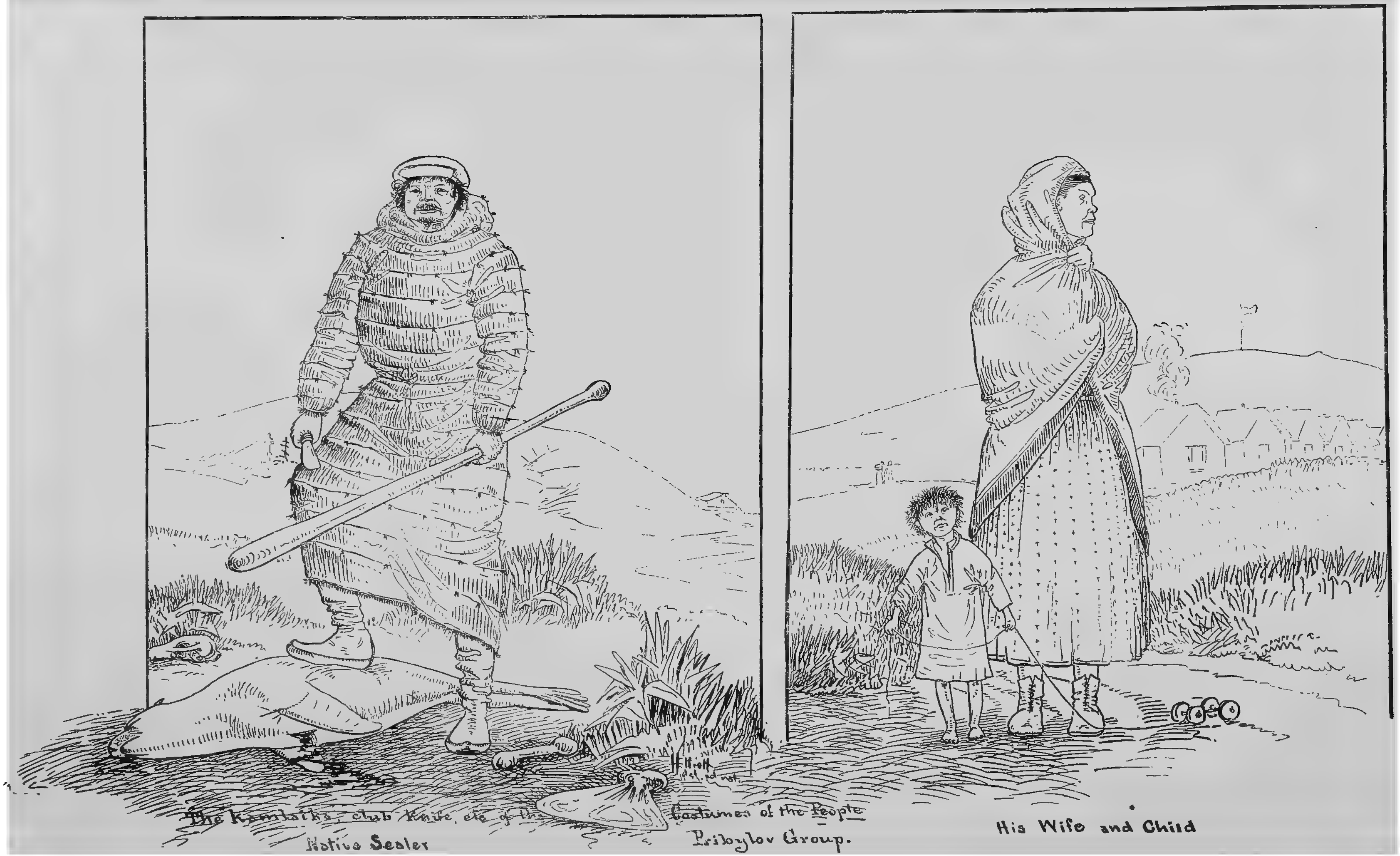
The Aleuts on the islands, as they appear to-day, have been so mixed up with Russian, Koloshian, and Kamschadale blood, that they present characteristics, in one way or another, of all the various races of men, from the negro up to the Caucasian. The predominant features among them are small, wide-set eyes, broad and high cheek-bones, causing the jaw, which is full and square, to often appear peaked; coarse, straight, black hair, small, neatly-shaped feet and hands, together with brownish-yellow complexion. The men will average in stature five feet four or five inches; the women less in proportion, although there are exceptions to this rule among them, some being over six feet in height, and others are decided dwarfs. The manners and customs of these people to-day possess nothing in themselves of a barbarous or remarkable character, aside from that which belongs to an advanced state of semi-civilization. They are exceedingly polite and civil, not only in their business with the agents of the company on the seal-islands, but among themselves; and they visit, the one with the other, freely and pleasantly, the women being great gossips. But, on the whole, their intercourse is subdued, for the simple reason that the topics of conversation are few, and, judging from their silent but unconstrained meetings, they seem to have a mutual knowledge, as if by sympathy, as to what may be occupying each other's minds, rendering speech superfluous. It is only when under the influence of beer or strong liquor, that they lose their naturally quiet and amiable disposition; they then relapse into low, drunken orgies and loud, brawling noises. Having been so long under the control and influence of the Russians, they have adopted many Sclavic customs, such as giving birthday-dinners, naming their children, etc.; they are remarkably attached to their church, and no other form of religion could be better adapted or have a firmer hold upon the sensibilities of the people. Their inherent chastity and sobriety cannot be commended. They have long since thrown away the uncouth garments of the Russian rule—the shaggy dog skin caps, with coats half seal and half sea-lion—for a complete outfit, *cap-à-pié*, such as our own people buy in any furnishing house; the same boots, socks, underclothing, and clothing, with ulsters and ulsterettes; but the violence of the wind prevents their selecting the hats of our *haut ton* and sporting fraternity. As for the women, they too have kept pace and even advanced to the level of the men, for in these lower races there is much more vanity displayed by the masculine element than the feminine, according to my observation; in other words, I have noticed a greater desire among the young men than among the young women of savage and semi-civilized people to be gaily dressed, and to look fine. But the visits of the wives of our treasury officials and the company's agents to these islands, during the last ten years, bringing with them a full outfit, as ladies always do, of everything under the sun that women want to wear, has given the native female mind an undue expansion up there, and stimulated it to unwonted activity. They watch the cut of the garments, and borrow the patterns; and some of them are very expert dress-makers to-day. When the Russians controlled affairs the women were the hewers of the drift-wood and the drawers of the water. At St. Paul there was no well of drinking-fluid about the village, nor within half a mile of the village; there was no drinking-water unless it was caught in cisterns, and the cistern-water, owing to the particles of seal-fat soot which fall upon the roofs of the houses, is rendered undrinkable; so that the supply for the town, until quite recently, used to be carried by the women from two little lakes at the head of the lagoon, a mile and a half, as the crow flies, from the village, and right under Telegraph hill. This is quite a journey, and when it is remembered that they drink so much tea, and that water has to go with it, some idea of the labor of the old and young females can be derived from an inspection of the map. Latterly, within the last four or five years, the company have opened a spring less than half a mile from the "gorode", which they have plumbed and regulated, so that it supplies them with water now, and renders the labor next to nothing, compared with the former difficulty. But to-day, when water is wanted in the Aleutian houses at St. Paul, the man has to get it, the woman does not; he trudges out with a little wooden firkin or tub on his back, and brings it to the house.

Some of the natives save their money; but there are very few among them, perhaps not more than a dozen, who have the slightest economical tendency. What they cannot spend for luxuries, groceries, and tobacco, they manage to get away with at the gaming-table. They have their misers and their spendthrifts, and they have the usual small proportion who know how to make money and then how to spend it. A few among them who are in the habit of saving, have opened a regular bank-account with the company; some of them have to-day two or three thousand dollars saved, drawing an interest of 9 per cent.

When the ships arrive and go, the great and necessary labor of lightering their cargoes off and on from the roadsteads where they anchor, is principally performed by these people, and they are paid so much a day for their labor, from 50 cents to $1, according to the character of the service they render; this operation, however, is much dreaded by the ship-captains and sea-going men, whose habits of discipline and automatic regularity and effect of working render them severe critics and impatient coadjutors of the natives, who, to tell the truth, hate to do anything after they have pocketed their reward for sealing; and when they do labor after this, they regard it as an act of very great condescension on their part.

As they are living to-day up there, there is no restraint, such as the presence of policemen, courts of justice, fines, etc., which we employ for the suppression of disorder and maintenance of the law in our own land. They understand that if it is necessary to make them law-abiding, and to punish crime, that such officers will be among them; and hence, perhaps, is due the fact that, from the time that the Alaska Commercial Company has taken charge, in 1870, there has not been one single occasion where the simplest functions of a justice of the peace would or could have been called in to settle any difficulty. This speaks eloquently for their docile nature and their amiable disposition.

FOOD.—Seal-meat is their staple food, and in the village of St. Paul they consume on an average fully 500 pounds a day the year round; and they are, by the permission of the Secretary of the Treasury, allowed every fall to kill 5,000 or 6,000 seal-pups, or an average of 22 to 30 young "kotickie" for each man, woman, and child in the settlements. The pups will dress 10 pounds each. This shows an average consumption of nearly 600 pounds of seal-meat by each person, large and small, during the year. To this diet the natives add a great deal of butter and many sweet crackers. They are passionately fond of butter—no epicure at home, or butter-taster in Goshen, knows or appreciates that article better than these people do. If they could get all that they desire, they would consume 1,000 pounds of butter and 500 pounds of sweet crackers every week, and indefinite quantities of sugar—the sweetest of all sweet teeth are found in the jaw of the average Aleut. But it is of course unwise to allow them full swing in this matter, for they would turn their stomachs into fermenting tanks if they had full access to an unlimited supply of saccharine food. The company allows them 200 pounds a week. If unable to get sweet crackers they will eat about 300 pounds of hard or pilot bread every week, and in addition to this nearly 700 pounds of flour at the same time. Of tobacco they are allowed 50 pounds per week; candles, 75 pounds; rice, 50 pounds. They burn, strange as it may seem, kerosene oil here to the exclusion of the seal-fat, which literally overruns the island. They ignite and consume over 600 gallons of kerosene oil a year in the village of St. Paul alone. They do not fancy vinegar very much—perhaps 50 gallons a year is used up there. Mustard and pepper are sparingly used, one to one and a half pounds a week for the whole village; beans they peremptorily reject—for some reason or other they cannot be induced to use them. Those who go about the vessels contract a taste for split-pea soup, and a few of them are sold in the village-store. Salt meat, beef or pork, they will take reluctantly, if it is given to and pressed upon them, but they will never buy it. I remember, in this connection, seeing two barrels of prime salt pork and a barrel of prime mess salt beef opened in the company's store, shortly after my arrival in 1872, and, though the people of the village were invited to help themselves, I think I am right in saying


The Kamlaika, club Knife, etc of the Native Sealer
Costumes of the People Pribylov Group.
His Wife and Child
Elliott del. ad nat.

TYPICAL DRESS OF PRIBYLOV NATIVES.

**Ordinary attire of men on the killing-grounds.**

**Ordinary attire of women and young children in the villages.**

that the barrels were not emptied when I left the island in 1873. They use a very little coffee during the year—not more than 100 pounds—but of tea a great deal. I do not know exactly—I cannot find among my notes a record as to this article—but I can say, that they do not drink less than a gallon of tea apiece per diem. The amount of this beverage which they sip, from the time they rise in the morning until they go to bed late at night, is astounding. Their "samovars", and, latterly, the regular tea-kettles of our American make, are bubbling and boiling from the moment the housewife stirs herself at daybreak until the fire goes out when they sleep. It should be stated in this connection, that they are supplied with a regular allowance of coal every year by the company, *gratis*, each family being entitled to a certain amount, which alone, if economically used, keeps them warm all winter in their new houses; but, for those who are extravagant and are itching to spend their extra wages, an extra supply is always kept in the storehouses of the company for sale. Their appreciation of and desire to possess all the canned fruit that is landed from the steamer, is marked to a great degree. If they had the opportunity, I doubt whether a single family on that island to-day would hesitate to bankrupt itself in purchasing this commodity. Potatoes they sometimes demand, as well as onions, and perhaps if these vegetables could be brought here and kept to an advantage, the people would soon become very fond of them. (See note, 39, G.)

OCCUPATION.—The question is naturally asked: How do these people employ themselves during the long nine months of every year after the close of the sealing season and until it begins again, when they have little or absolutely nothing to do? It may be answered, that they simply vegetate; or, in other words, are entirely idle, mentally and physically, during most of this period. But to their credit, let it be said, that mischief does not employ their idle hands; they are passive killers of time, drinking tea and sleeping, with a few disagreeable exceptions, such as the gamblers. There are a half-dozen of these characters at St. Paul, and perhaps as many at St. George, who pass whole nights at their sittings, even during the sealing season, playing games of cards, taught by Russians and persons who have been on the island since the transfer of the territory; but the majority of the men, women, and children, not being compelled to exert themselves to obtain any of the chief, or even the least, of the necessaries of life, such as tea and hard bread, sleep the greater portion of the time, when not busy in eating, and in the daily observances of the routine belonging to the Greek Catholic church. The teachings, pomp, and circumstance of the religious observances of this faith alone preserve these people from absolute stagnation. In obedience to its teachings they gladly attend church very regularly. They also make and receive calls on their saints' days, and these days are very numerous. I think some 290 of the whole year's calendar must be given up to the ceremonies attendant upon the celebration of some holy man's or woman's birth or death.

In early times the same disgraceful beer-drinking orgies which prevailed to so great an extent, and still cause so much misery and confusion seen elsewhere in the territory, prevailed here, and I remember very well the difficulty which I had in initiating the first steps taken by the Treasury Department to suppress this abominable nuisance. During the last four or five years, it gives me pleasure to say, since the new order of things was inaugurated, the present agents of the department have faithfully executed the law.

The natives add to these entertainments of their saints' day and birth festivals, or "Emannimiks", the music of accordeons and violins; upon the former and its variation, the concertina, they play a number of airs, and are very fond of the noise. A great many of the women, in particular, can render indifferently a limited selection of tunes, many of which are the old battle-songs, so popular during the Rebellion, woven into weird Russian waltzes and love ditties, which they have jointly gathered from their former masters and our soldiers, who were quartered here in 1869. From the Russians and the troops, also, they have learned to dance various figures, and have been taught to waltz. These dances, however, the old folks do not enjoy very much. They will come in and sit around and look at the young performers with stolid indifference; but, if they manage to get a strong current of tea setting in their direction, nicely sugared and toned up, they revive and join in the mirth. In old times they never danced here unless they were drunk, and it was the principal occupation of the amiable and mischievous treasury agents, and others, in the early days to open up this beery fun. Happily, that nuisance is abated.

As an illustration of their working ability on the seal-grounds, I offer the following table, which shows the actual time occupied by them in finishing up the three seasons' work which I personally supervised:

On St. Paul island:
In 1872, 50 days' work of 71 men secured 75,000 seal-skins.
In 1873, 40 days' work of 71 men secured 75,000 seal-skins.
In 1874, 39 days' work of 84 men secured 90,000 seal-skins.

This exhibit plainly presents the increased ability and consequent celerity of action among the natives, and furnishes also at the same time abundant proof of the statement which I make, of the full and undiminished supply of killable seals, or "holluschickie", from year to year.

THE INFLUENCE OF THE ALASKA COMMERCIAL COMPANY.—Before leaving the consideration of these people, who are so intimately associated with and blended into the business on these islands, it may be well to clearly define the relation existing between them, the government, and the company leasing the islands. When Congress granted to the Alaska Commercial Company of San Francisco the exclusive right of taking a certain number of fur-seals every year, for a period of twenty years on these islands, it did so with several reservations and conditions, which were confided in their detail to the Secretary of the Treasury. This officer and the president of the Alaska Commercial Company agreed upon a code of regulations which should govern their joint action in regard to the natives. It was a simple agreement that these people should have a certain amount of dried salmon furnished them for food every year, a certain amount of fuel, a school-house, and the right to go to and come from the islands as they chose; and also the right to work or not, understanding that in case they did not work, their places would and could be supplied by other people who would work.

The company, however, has gone far beyond this exaction of the government; it has added the inexpressible boon of comfort, in the formation of the dwellings now occupied by the natives, which was not expressed nor thought of at the time of the granting of the lease. An enlightened business-policy suggested to the company, that it would be much better for the natives, and much better for the company too, if these people were taken out of their filthy, unwholesome hovels, put into habitable dwellings, and taught to live cleanly, for the simple reason that by so doing the natives, living in this improved condition, would be able physically and mentally, every season when the sealing work began, to come out from their long inanition and go to work at once with vigor and energetic persistency. The sequel has proved the wisdom of the company.

Before this action on their part, it was physically impossible for the inhabitants of St. Paul or St. George islands to take the lawful quota of 100,000 seal-skins annually in less than three or four working months. They take them in less than thirty working days now with the same number of men. What is the gain? Simply this, and it is everything: The fur-seal skin, from the 14th of June, when it first arrives, as a rule, up to the 1st of August, is in prime condition; from that latter date until the middle of October it is rapidly deteriorating, to slowly appreciate again in value as it sheds and renews its coat; so much so that it is practically worthless in the markets of the world. Hence, the catch taken by the Alaska Commercial Company every year is a prime one, first to last—there are no low-grade "stagey" skins in it; but under the old regimen, three-fourths of the skins were taken in August, in September, and even in October, and were not worth their transportation to London. Comment on this is unnecessary; it is the contrast made between a prescient business-policy, and one that was as shiftless and improvident as language can well devise.

SCHOOLS AND CHURCHES.—The company found so much difficulty in getting the youth of the villages to attend their schools, taught by our own people, especially brought up there and hired by the company, that they have adopted the plan of bringing one or two of the brightest boys down every year and putting them into our schools, so that they may grow up here and be educated, in order to return and serve as teachers there. This policy is warranted by the success attending the experiment made at the time when I was up there first, whereby a son of the chief was carried down and over to Rutland, Vermont, for his education, remained there four years, then returned and took charge of the school on St. Paul, which he has had ever since, with the happiest results in increased attendance and attention from the children. But, of course, so long as the Russian church service is conducted in the Russian language, we will find on the islands more Russian-speaking people than our own. The non-attendance at school was not and is not to be ascribed to indisposition on the part of the children and parents. One of the oldest and most intelligent of the natives told me, explanatory of their feeling and consequent action, that he did not, nor did his neighbors, have any objection to the attendance of their children on our English school; but, if their boys and young men neglected their Russian lessons, they knew not who were going to take their places, when they died, in his church, at the christenings, and at their burial? To any one familiar with the teachings of the Greek-Catholic faith, the objection of old Philip Volkov seems reasonable. I hope, therefore, that, in the course of time, the Russian church service may be voiced in English; not that I want to substitute any other religion for it—far from it; in my opinion it is the best one we could have for these people—but until this substitution of our language for the Russian is done, no very satisfactory work, in my opinion, will be accomplished in the way of an English education on the seal-islands.

The fact that among all the savage races found on the northwest coast by Christian pioneers and teachers, the Aleutians are the only practical converts to Christianity, goes far, in my opinion, to set them apart as very differently constituted in mind and disposition from our Indians and our Eskimos of Alaska. To the latter, however, they seem to be intimately allied, though they do not mingle in the slightest degree. They adopted the Christian faith with very little opposition, readily exchanging their barbarous customs and wild superstitions for the rites of the Greek-Catholic church and its more refined myths and legends.

At the time of their first discovery, they were living as savages in every sense of the word, bold and hardy, throughout the Aleutian chain, but now they respond, on these islands, to all outward signs of Christianity, as sincerely as our own church-going people.

## 6. THE ALASKA COMMERCIAL COMPANY.

OCCUPATION OF THE ISLANDS BY AMERICANS IN 1868.—The Alaska Commercial Company deserves and will receive a brief but comprehensive notice at this point. In order that we may follow it to these islands, and clearly and correctly appreciate the circumstances which gave it footing and finally the control of the business, I will pass back and review the chain of evidence adduced in this direction from the time of our first occupation, in 1867, of the territory of Alaska.

It will be remembered by many people, that when we were ratifying the negotiation between our government and that of Russia, it was made painfully apparent that nobody in this country knew anything about the subject of Russian America. Every schoolboy knew where it was located, but no professor or merchant, however wise or shrewd, knew what was in it. Accordingly, immediately after the purchase was made and the formal transfer effected, a large number of energetic and speculative men, some coming from New England even, but most of them residents of the Pacific coast, turned their attention to Alaska. They went up to Sitka in a little fleet of sail- and steam-vessels, but among their number it appears there were only two of our citizens who knew of or had the faintest appreciation as to the value of the seal-islands. One of these, Mr. H. M. Hutchinson, a native of New Hampshire, and the other a Captain Ebenezer Morgan, a native of Connecticut, turned their faces in 1868 toward them. Mr. Hutchinson gathered his information at Sitka—Captain Morgan had gained his years before by experience on the South Sea sealing-grounds. Mr. Hutchinson represented a company of San Francisco or California capitalists when he landed on St. Paul; Captain Morgan represented another company of New London capitalists and whaling merchants. They arrived almost simultaneously, Morgan a few days or weeks anterior to Hutchinson. He had quietly enough commenced to survey and preempt the rookeries on the islands, or, in other words, the work of putting stakes down and recording the fact of claiming the ground, as miners do in the mountains; but later agreed to coöperate with Mr. Hutchinson. These two parties passed that season of 1868 in exclusive control of those islands, and they took an immense number of seals. They took so many that it occurred to Mr. Hutchinson unless something was done to check and protect these wonderful rookeries, which he saw here for the first time, and which filled him with amazement, that they would be wiped out by the end of another season; although he was the gainer then, and would be perhaps at the end, if they should be thus eliminated, yet he could not forbear saying to himself that it was wrong and should not be. To this Captain Morgan also assented.

ORGANIZATION OF THE ALASKA COMMERCIAL COMPANY.—In the fall of 1868 Mr. Hutchinson and Captain Morgan, by their personal efforts, interested and aroused the Treasury Department and Congress, so that a special resolution was enacted declaring the seal-islands a governmental reservation, and prohibiting any and all parties from taking seals thereon until further action by Congress. In 1869, seals were taken on those islands, under the direction of the Treasury Department, for the subsistence of the natives only; and in 1870 Congress passed the present law, a copy of which I append, for the protection of the fur-bearing animals on those islands, and under its provisions, and in accordance therewith, after an animated and bitter struggle in competition, the Alaska Commercial Company, of which Mr. Hutchinson was a prime organizer, secured the award and received the franchise which it now enjoys and will enjoy for another decade. The company is an American corporation, with a charter, rules, and regulations, which I reproduce in the appendix to this memoir. They employ a fleet of vessels, sail and steam: four steamers, a dozen or fifteen ships, barks, and sloops. Their principal occupation and attention is given naturally to the seal-islands, though they have stations scattered over the Aleutian islands and that portion of Alaska west and north of Kadiak. No post of theirs is less than 500 or 600 miles from Sitka.

Outside of the seal-islands all trade in this territory of Alaska is entirely open to the public. There is no need of protecting the fur-bearing animals elsewhere, unless it may be by a few wholesome general restrictions in regard to the sea-otter chase. The country itself protects the animals on the mainland and other islands by its rugged, forbidding, and inhospitable exterior.

The treasury officials on the seal-islands are charged with the careful observance of every act of the company; a copy of the lease and its covenant is conspicuously posted in their office; is translated into Russian, and is familiar to all the natives. The company directs its own labor, in accordance with the law, as it sees fit; selects its time of working, etc. The natives themselves work under the direction of their own chosen foremen, or "toyone". These chiefs call out the men at the break of every working-day, divide them into detachments according to the nature of the service, and order their doing. All communication with the laborers on the sealing-ground and the company passes through their hands; these chiefs having every day an understanding with the agent of the company as to his wishes, and they govern themselves thereby.

BUSINESS-METHODS.—The company pays 40 cents for the labor of taking each skin. The natives take the skins on the ground; each man tallying his work and giving the result at the close of the day to his chief or foreman. When the skins are brought up and counted into the salt-houses, where the agent of the company receives them from the hands of the natives, the two tallies usually correspond very closely, if they are not entirely alike. When the quota of skins is taken, at the close of two, three, or four weeks of labor, as the case may be, the total sum for the entire catch is paid over in a lump to the chiefs, and these men divide it among the laborers according to their standing as workmen, which they themselves have exhibited on their special tally-sticks. For instance, at the annual divisions, or "catch" settlement, made by the natives on St. Paul island among themselves, in 1872, when I was present, the proceeds of their work for that season in taking and skinning 75,000 seals, at 40 cents per skin, with extra work connected with it, making the sum of $30,637 37, was divided among them in this way: There were 74 shares made up, representing 74 men, though in fact only 56 men worked, but they wished to give a certain proportion to their church, a certain proportion to their priest, and a certain proportion to their widows; so they water their stock, commercially speaking. The 74 shares were proportioned as follows:

| | |
|---|---|
| 37 first-class shares, at | $451 22 each. |
| 23 second-class shares, at | 406 08 each. |
| 4 third-class shares, at | 360 97 each. |
| 10 fourth-class shares, at | 315 85 each. |

These shares do not represent more than 56 able-bodied men.

In August, 1873, while on St. George island, I was present at a similar division, under similar circumstances, which caused them to divide among themselves the proceeds of their work in taking and skinning 25,000 seals, at 40 cents a skin, $10,000. They made the following subdivision:

| | Per share. |
|---|---|
| 17 shares each, 961 skins | $384 40 |
| 2 shares each, 935 skins | 374 00 |
| 3 shares each, 821 skins | 328 40 |
| 1 share each, 820 skins | 328 00 |
| 3 shares each, 770 skins | 308 00 |
| 3 shares each, 400 skins | 160 00 |

These 29 shares referred to stated represent only 25 able-bodied men; two of them were women. This method of division as above given, is the result of their own choice. It is an impossible thing for the company to decide their relative merits as workmen on the ground, so they have wisely turned its entire discussion over to them. Whatever they do they must agree to—whatever the company might do they possibly and probably would never clearly understand, and hence dissatisfaction and suspicion would inevitably arise; as it is, the whole subject is most satisfactorily settled.

## 7. THE BUSINESS CONCERNED.

The methods of the Alaska Commercial Company.—Living as the seal-islanders do, and doing what they do, the seal's life is naturally their great study and objective point. It nourishes and sustains them. Without it they say they could not live, and they tell the truth. Hence, their attention to the few simple requirements of the law, so wise in its provisions, is not forced or constrained, but is continuous. Self-interest in this respect appeals to them keenly and eloquently. They know everything that is done and everything that is said by anybody and by everybody in their little community. Every seal-drive that is made, and every skin that is taken, is recorded and accounted for by them to their chiefs and their church, when they make up their tithing-roll at the close of each day's labor. Nothing can come to the islands, by day or by night, without being seen by them and spoken of. I regard the presence of these people on the islands at the transfer, and their subsequent retention and entailment in connection with the seal-business, as an exceedingly good piece of fortune, alike advantageous to the government, to the company, and to themselves.

It will be remembered that, at the time the question of leasing the islands was before Congress, much opposition to the proposal was made, on several grounds, by two classes, one of which argued against a "monopoly", the other urging that the government itself would realize more by taking the whole management of the business into its own hands. At that time far away from Washington, in the Rocky mountains, I do not know what arguments were used in the committee-rooms, or who made them; but since my careful and prolonged study of the subject on the ground itself, and of the trade and its conditions, I am now satisfied that the act of June, 1870, directing the Secretary of the Treasury to lease the seal-islands of Alaska to the highest bidder, under the existing conditions and qualifications, did the best and the only correct and profitable thing that could have been done in the matter, both with regard to the preservation of the seal-life in its original integrity, and the pecuniary advantage of the treasury itself. To make this statement perfectly clear, the following facts, by way of illustration, should be presented:

First. When the government took possession of these interests, in 1868 and 1869, the gross value of a seal-skin laid down in the best market, at London, was less in some instances, and in others but slightly above the present tax and royalty paid upon it by the Alaska Commercial Company.

Second. Through the action of the intelligent business-men who took the contract from the government, in stimulating and encouraging the dressers of the raw material, and in taking sedulous care that nothing but good skins should leave the islands, and in combination with leaders of fashion abroad, the demand for the fur, by this manipulation and management, has been wonderfully increased.

Third. As matters now stand, the greatest and best interests of the lessees are identical with those of the government; what injures one instantly injures the other. In other words, both strive to guard against anything that shall interfere with the preservation of the seal-life in its original integrity, and both having it to their interest, if possible, to increase that life; if the lessees had it in their power, which they certainly have not, to ruin these interests by a few seasons of rapacity, they are so bonded and so environed that prudence prevents it.

Fourth. The frequent changes in the office of the Secretary of the Treasury, who has very properly the absolute control of the business as it stands, do not permit upon his part that close, careful scrutiny which is exercised by the lessees, who, unlike him, have but their one purpose to carry out. The character of the leading men among them is enough to assure the public that the business is in responsible hands, and in the care of persons who will use every effort for its preservation and its perpetuation, as it is so plainly their best end to serve. Another great obstacle to the success of the business, if controlled entirely by the government, would be encountered in disposing of the skins after they had been brought down from the islands. It would not do to sell them up there to the highest bidder, since that would license the sailing of a thousand ships to be present at the sale. The rattling of their anchor-chains, and the scraping of their keels on the beaches of the two little islands, would alone drive every seal away and over to the Russian grounds in a remarkably short space of time. The government would therefore need to offer them at public auction in this country, and it would be simply history repeating itself—the government would be at the mercy of any well-organized combination of buyers. The agents conducting the sale could not counteract the effect of such a combination as can the agents of a private corporation, who may look after their interest in all the markets of the world in their own time and in their own way, according to the exigencies of the season and the demand, and who are supplied with money which they can use, without public scandal, in the manipulation of the market. On this ground I feel confident in stating, that the treasury of the United States receives more money, net, under the system now in operation, than it would by taking the exclusive control of the business. Were any capable government officer supplied with, say, $100,000, to expend in "working the market", and intrusted with the disposal of 100,000 seal-skins wherever he could do so to the best advantage of the government, and were this agent a man of first-class business ability and energy, I think it quite likely that the same success might attend his labor in the London market that distinguishes the management of the Alaska Commercial Company. But imagine the cry of fraud and embezzlement that would be raised against him, however honest he might be! This alone would bring the whole business into positive disrepute, and make it a national scandal. As matters are now conducted, there is no room for any scandal—not one single transaction on the islands but what is as clear to investigation and accountability as the light of the noon-day sun; what is done is known to everybody, and the tax now laid by the government upon, and paid into the treasury every year by the Alaska Commercial Company, yields alone a handsome rate of interest on the entire purchase-money expended for the ownership of all Alaska.

It is frequently urged with great persistency, by misinformed or malicious authority, that the lessees can and do take thousands of skins in excess of the law, and this catch in excess is shipped *sub rosa* to Japan from the Pribylov islands. To show the folly of such a move on the part of the company, if even it were possible, I will briefly recapitulate the conditions under which the skins are taken. The natives of St. Paul and St. George do themselves, in the manner I have indicated, all the driving and skinning of the seals for the company. No others are permitted or asked to land upon the islands to do this work, so long as the inhabitants of the islands are equal to it. They have been equal to it and they are more than equal to it. Every skin taken by the natives is counted by themselves, as they get 40 cents per pelt for that labor; and at the expiration of each day's work in the field, the natives know exactly how many skins have been taken by them, how many of these skins have been rejected by the company's agent because they were carelessly cut and damaged in skinning—usually about three-fourths of one per cent. of the whole catch—and they have it recorded every evening by those among them who are charged with the duty. Thus, were 101,000 skins taken, instead of 100,000 allowed by law, the natives would know it as quickly as it was done, and they would, on the strength of their record and their tally, demand the full amount of their compensation for the extra labor; and were any ship to approach the islands, at any hour, these people would know it at once, and would be aware of any shipment of skins that might be attempted. It would then be the common talk among the 398 inhabitants of the two islands, and it would be a matter of record, open to any person who might come upon the ground charged with investigation. (See note, 39, L.)

Furthermore, these natives are constantly going to and from Oonalashka, visiting their relations in the Aleutian settlements, hunting for wives, etc. On the mainland they have intimate intercourse with bitter enemies of the company, with whom they would not hesitate to talk over the whole state of affairs on the islands, as they always do; for they know nothing else and think of nothing else and dream of nothing else. Therefore, should anything be done contrary to the law, the act could and would be reported by these people. The government, on its part, through its four agents stationed on these islands, counts these skins into the ship, and one of their number goes down to San Francisco upon her. There the collector of the port details experts of his own, who again count them all out of the hold, and upon that record the tax is paid and the certificate signed by the government.

It will, therefore, at once be seen, by examining the state of affairs on the islands, and the conditions upon which the lease is granted, that the most scrupulous care in fulfilling the terms of the contract is compassed, and that this strict fulfillment is the most profitable course for the lessees to pursue; and that it would be downright folly in them to deviate from the letter of the law, and thus lay themselves open at any day to discovery, the loss of their contract, and forfeiture of their bonds. Their action can be investigated at any time, any moment, by Congress; of which they are fully aware. They cannot bribe these 398 people on the islands to secrecy, any more successfully than they could conceal their action from them on the sealing fields; and any man of average ability could go, and can go, among these natives and inform himself as to the most minute details of the catch, from the time the lease was granted up to the present hour, should he have reason to suspect the honesty of the treasury agents. The road to and from the islands is not a difficult one, though it is traveled only once a year.

The subject of the method and direction of the business of sealing on these islands, involving as it does a discussion of the law and the action of the Alaska Commercial Company and the natives combined, will form a thesis for another chapter.

# E. THE SEAL-LIFE ON THE PRIBYLOV ISLANDS.

## 8. THE HAIR-SEAL.

ENUMERATION OF THE VARIOUS SPECIES OF SEALS.—The history of the fur-seal, the one overshadowing and superlatively interesting subject of this discussion, I shall present in all its multitudinous details, even at the risk of being thought tedious. The aggregate of animal life shadowed every summer out upon the breeding grounds of the seal-islands is so vast, so anomalous, so interesting, and so valuable, that it deserves the fullest mention; and even when I shall have done, it will be but feebly expressed.

The seal-life on the Pribylov islands may be classified under the following heads, namely: (1) The fur-seal, *Callorhinus ursinus*, the "kautickie" of the Russians; (2) the sea-lion, *Eumetopias Stelleri*, the "seevitchie" of the Russians; (3) the hair-seal, *Phoca vitulina*, the "nearhpahsky" of the Russians; (4) the walrus, *Odobœnus obesus*, the "morsjee" of the Russians.

THE HAIR-SEAL.—The above short schedule embraces the titles of all the pinnipeds found in, on, and around the island group. Of this list the hair-seal is the animal which has done so much to found that erroneous, popular, and scientific opinion as to what a fur-seal appears like. *Phoca vitulina* has, in this manner, given to the people of the world a false idea of its relatives. It is so commonly distributed all over the littoral salt waters of the earth, seen in the harbors of nearly every marine port, or basking along the loneliest and least inhabited of desolate coasts far to the north, that everybody has noticed it, if not in life, then in its stuffed skins at the museums, sometimes very grotesquely stuffed. This copy, set everywhere before the eye of the naturalist, has rendered it so difficult for him to correctly discriminate between the *Phocidæ* and the *Otariidæ*, that the synonymy of the *Pinnipedia* has been expanded until it is replete with meaningless description and surmise.

Although the hair-seal belongs to the great group of pinnipeds, yet it does not have even a generic affinity with those seals with which it has been so persistently grouped, namely, the fur-seal and the sea-lion. It no more resembles them, than does the raccoon the black or grizzly bear.

I shall not enter into a detailed description of this seal; it is wholly superfluous, for excellent, and, I believe, trustworthy accounts have been repeatedly published by writers* who have treated of the subject as it was spread before their eyes on the coasts of Labrador, Newfoundland, and Greenland; to say nothing of the researches and notes made by European scientists. It differs completely in shape and habit from its congeners on these islands. Here, where I have studied its biology, it seldom comes up from the water more than a few rods at the farthest; generally hauling and resting at the margin of the surf-wash. It takes up no position on land to hold and protect a family or harem, preferring the detached water-worn rocks, especially those on the lonely north shore of St. Paul, although I have seen it resting at "Gorbotch", near the sea-margin of the great seal-rookery of that name, on the Reef point of St. Paul; its cylindrical, supine, gray and white body marked in strong contrast with the erect, black and ocher-colored forms of the *Callorhinus*, which swarmed around about it. On such small spots of rock, wet and isolated from the mainland, and in secluded places on the north shore, the "Nearhpah" brings forth its young, a single pup, perfectly white, covered with long woolly hair, and weighing from 3 to 7 pounds. This pup grows rapidly, and after the lapse of four or five months it tips the scales at 50 pounds; by that time it has shed its infant coat and donned the adult soft steel-gray hair over the head, limbs, and abdomen, with the back most richly mottled and barred lengthwise, by dark brown and brown-black streaks and blotches, suffused at their edges into the light steel-gray ground of the body. When they appear in the spring following, this bright gray tone to their color has ripened into a dingy ocher, and the mottling spread well over the head and down on the upper side or back of the flippers, but fades out as it progresses. It has no appreciable fur or under-wool. There is no noteworthy difference as to color or size between the sexes. So far as I have observed, they are not polygamous. They are exceedingly timid and wary at all times, and in this manner and method they are diametrically opposed, not by shape alone, but by habit and disposition, to the fashion of the fur-seal in especial, and the sea-lion. Their skin is of little value, comparatively, but their chief merit, according to the natives, is the relative greater juiciness and sweetness of their flesh, over even the best steaks of sea-lion or fur-seal pup meat.

One common point of agreement among all authors was, by my observations of fact, so strikingly refuted, that I will here correct a prevalent error made by naturalists who, comparing the hair-seal with the fur-seal, state that in consequence of the peculiar structure of their limbs, their progression on land is "mainly accomplished by a wriggling, serpentine motion of the body, slightly assisted by the extremities". This is not so in any respect; for whenever I have purposely surprised these animals, a few rods from the beach-margin, they would awake and excitedly scramble, or rather spasmodically exert themselves, to reach the water instantly, by striking out quickly with both fore-feet simultaneously, lifting in this way alone, and dragging the whole body forward, without any "wriggling motion" whatever to their back or posterior parts, moving from six inches to a foot in advance every time their fore-feet were projected forward, and the body drawn along according to the violence of the effort and the character of the ground; the body of the seal then falls flat upon its stomach, and the fore-feet or flippers are

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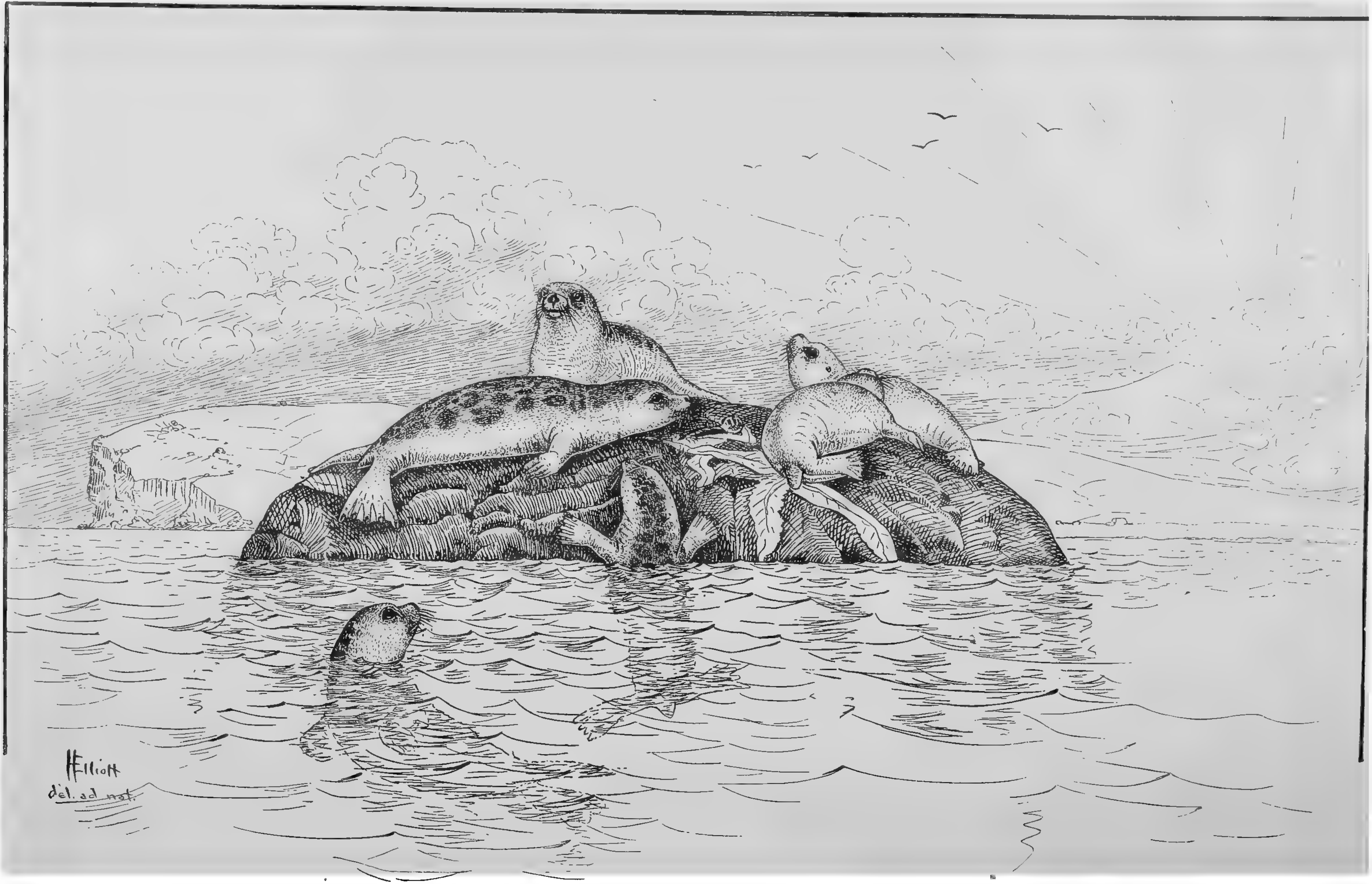
* A very complete *résumé* has been given by Allen, *Hist. North American Pinnipeds*, 1880.

Plate IV.

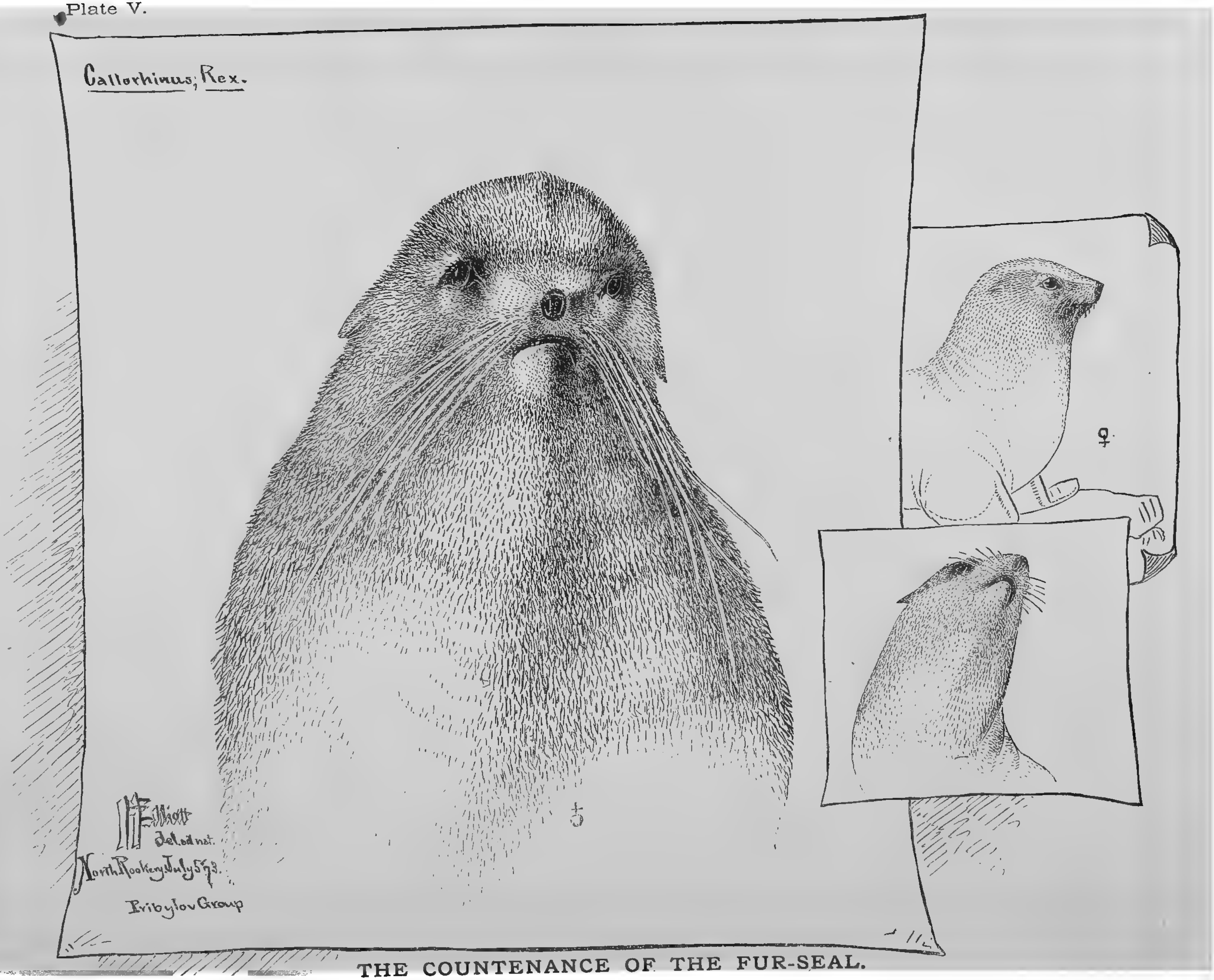


THE HAIR-SEAL.

(Phoca vitulina: male, female, and young.)

**A life-study by the author: Zapadnie, St. Paul Island, June 20, 1872.**

Plate V.


Callorhinus; Rex.
♂
♀
H. W. Elliott del. ad nat.
North Rookery July 5 '73.
Pribylov Group

THE COUNTENANCE OF THE FUR-SEAL.

Life-studies of Callorhinus by the author.

(Full face of old male; profile and under-view of female.)

free again for another similar motion. This action of *Phoca* is effected so continuously and so rapidly, that in attempting to head off a young "Nearhpah" from the water, at English bay, I was obliged to leave a brisk walk and take to a dog trot to do it. The hind-feet are not used when exerted in this rapid movement at all; they are dragged along in the wake of the body, perfectly limp and motionless. But they do use those posterior parts, however, when leisurely climbing up and over rocks undisturbed, or playing one with another; still it is always a weak, trembling terrestrial effort, and particularly impotent and clumsy. In their swift swimming the hind-feet of *Phocidæ* evidently do all the work; the reverse is the characteristic of the *Otariidæ*.

These remarks of mine, it should be borne in mind, apply directly to *Phoca vitulina*, and I presume indirectly with equal force to all the rest of its more important generic kindred, be they as large as *Phoca barbata* or less.

This hair-seal is found around these islands at all seasons of the year, but in very small numbers. I have never seen more than twenty-five or thirty at any one time, and I am told that its occidental distribution, although everywhere found, above and below, from the arctic to the tropics, and especially general over the North Pacific coast, nowhere exhibits any great number at any one place; but we know that it and its immediate kindred form a vast majority of the multitudinous seal-life peculiar to our North Atlantic shores, ice-floes, and contiguous waters. The scarcity of this species, and of all its generic allies, in the waters of the Pacific, is notable as compared with those of the circumpolar Atlantic, where these hair-seals are the seals of commerce, and are found in such immense numbers between Greenland and Labrador, and thence to the eastward at certain seasons* of every year, that employment is given to a fleet of about sixty sailing and steam vessels, which annually go forth† from St. John, Newfoundland, and elsewhere, fitted for seal-fishing, taking in all their voyages over 300,000 of these animals each season; the principal object of value, however, is the oil rendered from them, the skins having very small commercial importance.‡ Touching oil, etc., a business digest of this subject, as it refers to the seal-islands of Alaska, will be found in this memoir, in that portion descriptive of the methods employed by working the hauling-grounds of the "holluschickie".

## 9. LIFE-HISTORY OF THE FUR-SEAL.

DESCRIPTION OF AN ADULT MALE.—The fur-seal, *Callorhinus ursinus*, which repairs to these islands to breed and to shed its hair and fur, in numbers that seem almost fabulous, is the highest organized of all the *Pinnipedia*, and, indeed, for that matter, when land and water are weighed in the account together, there is no other animal known to man which can be truly, as it is, classed superior, from a purely physical point of view. Certainly there are few, if any, creatures in the animal kingdom that can be said to exhibit a higher order of instinct, approaching even our intelligence.

I wish to draw attention to a specimen of the finest of this race—a male in the flush and prime of his first maturity, six or seven years old, and full grown. When it comes up from the sea early in the spring, out to its station for the breeding season, we have an animal before us that will measure 6½ to 7¼ feet in length from tip of nose to the end of its abbreviated, abortive tail. It will weigh at least 400 pounds, and I have seen older specimens much more corpulent, which, in my best judgment, could not be less than 600 pounds in weight. The head of this animal now before us, appears to be disproportionately small in comparison with the immensely thick neck and shoulders; but, as we come to examine it we will find it is mostly all occupied by the brain. The light frame-work of the skull supports an expressive pair of large bluish hazel eyes; alternately burning with revengeful, passionate light, then suddenly changing to the tones of tenderness and good nature. It has a muzzle and jaws of about the same size and form observed in any full-blooded Newfoundland dog, with this difference, that the lips are not flabby and overhanging; they are as firmly lined and pressed against one another as our own. The upper lips support a yellowish white and gray moustache, composed of long, stiff bristles, and when it is not torn out and broken off in combat, it sweeps down and over the shoulders as a luxuriant plume. Look at it as it comes leisurely swimming on toward the land; see how high above the water it carries its head, and how deliberately it surveys the beach, after having stepped upon it (for it may be truly said to step with its fore-flippers, as they regularly alternate when it moves up), carrying the head well above them, erect and graceful, at least three feet from the ground. The fore-feet, or flippers, are a pair of dark bluish-black hands, about 8 or 10 inches broad at their junction with the body, and the metacarpal joint, running out to an ovate point at their extremity, some 15 to 18 inches from this union; all the rest of the forearm, the ulna, radius, and humerus being concealed under the skin and thick blubber-folds of the main body and neck, hidden entirely at this season, when it is so fat. But six weeks to three months after this time of landing, when that superfluous fat and flesh has been consumed by self-absorption, those bones show plainly under the shrunken skin. On the upper side of these flippers the hair of the body straggles down finer and fainter as it comes below to a point close by, and slightly beyond that spot of junction where the phalanges and the metacarpal bones unite, similar to that point on our own hand where our knuckles are placed; and here the hair ends, leaving the rest of the skin to the end of the flipper bare and wrinkled in places at the margin of the inner side; showing, also, fine small pits, containing abortive nails, which are situated immediately over the union of the phalanges with their cartilaginous continuations to the end of the flipper.

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* March and April.

† Sailing on the 10th of March, simultaneously: the Canadian law prohibits earlier work in this respect.

‡ An excellent, and, as far as I know, a correct description of this seal-fishery in the North Atlantic has been published by Michael Carroll, in his *Seal and Herring Fisheries of Newfoundland*. This gentleman writes in a manner indicative of much familiarity with the business, though it is to be regretted that his observations were not more systematized and concentrated. Mr. Carroll, when he published his work in 1873, had enjoyed a personal experience of over fifty years in the hair-seal hunting of the North Atlantic, and this report is, therefore, perhaps the best exposition of the habit and condition of those *Phocidæ* that is extant; at least I should judge so. Robert Brown, in 1868 (Proc. Zool. Society, London, pp. 413–418), gives a graphic sketch of the life of the Greenland hair-seal, while Ludwig Kumlein, in "Bulletin No. 15" of the United States National Museum, 1879, presents altogether the most interesting and valuable biology of the hair-seals in the waters of Cumberland sound that has as yet been printed. Allen, in his *History of the North American Pinnipeds*, 1880, has, with painstaking labor, carefully compiled the pertinent remarks of a whole army of lesser authorities upon the doing and well-being of the *Phocidæ*, and has arranged them in his memoir so that they appear to the best advantage. Carroll's report is exceedingly interesting, and could he be induced to rewrite his notes, systematising them, or permit some naturalist to do so who might draw out from him information on important points, now hidden, the result undoubtedly would accrue greatly to the benefit of all concerned, and cause him to reap a fitting recognition of his knowledge of the subject, which seems to be very full and exhaustive, as far as expressed by himself.

On the under side of the flipper the skin is entirely bare, from its outer extremity up to the body connection; it is sensibly tougher and thicker than elsewhere on the body; it is deeply and regularly wrinkled with seams and furrows, which cross one another so as to leave a kind of sharp diamond-cut pattern. When they are placed by the animal upon the smoothest rocks, shining and slippery from algoid growths and the sea-polish of restless waters, they seldom fail to adhere.

When we observe this seal moving out on the land, we notice that, though it handles its fore-feet in a most creditable manner, it brings up its rear in quite a different style; for, after every second step ahead with the anterior limbs, it will arch its spine, and in arching, it drags and lifts up, and together forward, the hind-feet, to a fit position under its body, giving it in this manner fresh leverage for another movement forward by the fore-feet, in which the spine is again straightened out, and then a fresh hitch is taken up on the posteriors once more, and so on as the seal progresses. This is the leisurely and natural movement on land, when not disturbed, the body all the time being carried clear of and never touching the ground. But if the creature is frightened, this method of progression is radically changed. It launches into a lope, and actually gallops so fast that the best powers of a man in running are taxed to head it off. Still, it must be remembered that it cannot run far before it sinks trembling, gasping, breathless, to the earth; thirty or forty yards of such speed marks the utmost limit of its endurance.

The radical difference in the form and action of the hind-feet cannot fail to strike the eye at once; they are one-seventh longer than the fore-hands, and very much lighter and more slender; they resemble, in broad terms, a pair of black kid gloves, flattened out and shriveled, as they lie in their box.

There is no suggestion of fingers on the fore-hands; but the hind-feet seem to be toes run into ribbons, for they literally flap about involuntarily from that point, where the cartilaginous processes unite with the phalangeal bones. The hind-feet are also merged in the body at their junction with it, like those anterior; nothing can be seen of the leg above the tarsal joint.

The shape of the hind-flipper is strikingly like that of a human foot, provided the latter were drawn out to a length of 20 or 22 inches, the instep flattened down, and the toes run out into thin, membraneous, oval-tipped points, only skin-thick, leaving three strong, cylindrical, grayish, horn-colored nails, half an inch long each, back six inches from these skinny toe-ends, without any sign of nails to mention on the outer big and little toes.

On the upper side of this hind-foot the body-hair comes down to that point where the metatarsus and phalangeal bones join and fade out. From this junction the phalanges, about six inches down to the nails above mentioned, are entirely bare, and stand ribbed up in bold relief on the membrane which unites them, as the web to a duck's foot; the nails just referred to mark the ends of the phalangeal bones, and their union in turn with the cartilaginous processes, which run rapidly tapering and flattening out to the ends of the thin toe-points. Now, as we are looking at this fur-seal's motion and progression, that which seems most odd, is the gingerly manner (if I may be allowed to use the expression) in which it carries these hind-flippers; they are held out at right angles from the body directly opposite the pelvis, the toe-ends or flaps slightly waving, curled, and drooping over, supported daintily, as it were, above the earth, the animal only suffering its weight behind to fall upon its heels, which are themselves opposed to each other, scarcely five inches apart.

We shall, as we see this seal again later in the season, have to notice a different mode of progression and bearing, both when it is lording over its harem, or when it grows shy and restless at the end of the breeding season, then faint, emaciated, and dejected; but we will now proceed to observe him in the order of his arrival and that of his family. His behavior during the long period of fasting and unceasing activity and vigilance, and other cares which devolve upon him as the most eminent of all polygamists in the brute world, I shall carefully relate; and to fully comprehend the method of this exceedingly interesting animal, it will be frequently necessary for the reader to refer to my sketch-maps of its breeding-grounds or rookeries, and the islands.

ARRIVAL AT THE SEAL-GROUNDS: COMING IN OF THE BULLS.—The adult males are the first examples of the *Callorhinus* to arrive in the spring on the seal-ground, which has been deserted by all of them since the close of the preceding year.

Between the 1st and 5th of May, usually, a few males will be found scattered over the rookeries, pretty close to the water. They are, at this time, quite shy and sensitive, seeming not yet satisfied with the land; and a great many spend day after day idly swimming out among the breakers, a little distance from the shore, before they come to it, perhaps somewhat reluctant at first to enter upon the assiduous duties and the grave responsibilities before them in fighting for and maintaining their positions in the rookeries.

The first arrivals are not always the oldest bulls, but may be said to be the finest and most ambitious of their class. They are full grown and able to hold their places on the rookeries or the breeding-flats, which they immediately take up after coming ashore. Their method of landing is to come collectively to those breeding-grounds where they passed the prior season; but I am not able to say authoritatively, nor do I believe it, strongly as it has been urged by many careful men who were with me on the islands, that these animals come back to and take up the same position on their breeding-grounds that they individually occupied when there last year. From my knowledge of their action and habit, and from what I have learned of the natives, I should say that very few, if any, of them make such a selection and keep these places year after year. Even did the seal itself intend to come directly from the sea to that spot on the rookery which it left last summer, what could it do if it came to that rookery-margin a little late, and found that another "see-catch" had occupied its ground? The bull could do nothing. It would either have to die in its tracks, if it persisted in attaining this supposed objective point, or do what undoubtedly it does do—seek the next best locality which it can attain adjacent.

One old "see-catch" was pointed out to me at the "Gorbatch" section of the Reef rookery, as an animal that was long known to the natives as a regular visitor, close by or on the same rock, every season during the past three years. They called him "Old John", and they said they knew him because he had one of his posterior digits missing, bitten off, perhaps, in a combat. I saw him in 1872, and made careful drawings of him in order that I might recognize his individuality, should he appear again in the following year, and when that time rolled by I found him not; he failed to reappear, and the natives acquiesced in his absence. Of course it was impossible to say that he was dead, when there were 10,000 rousing, fighting bulls to the right, left, and below us, under our eyes, for we could not approach for inspection. Still, if these animals came each to a certain place in any general fashion, or as a rule, I think there would be no difficulty in recognizing the fact; the natives certainly would do so; as it is, they do not. I think it very likely, however, that the older bulls come back to the same common rookery-ground where they spent the previous season; but they are obliged to take up their position on it just as the circumstances attending their arrival will permit, such as finding other seals which have arrived before them, or of being whipped out by stronger rivals from their old stands.

It is entertaining to note, in this connection, that the Russians themselves, with the object of testing this mooted query, during the later years of their possession of the islands, drove up a number of young males from Lukannon, cut off their ears, and turned them out to sea again. The following season, when the droves came in from the "hauling-grounds" to the slaughtering-fields, quite a number of those cropped seals were in the drives, but instead of being found all at one place—the place from whence they were driven the year before—they were scattered examples of croppies from every point on the island. The same experiment was again made by our people in 1870 (the natives having told them of this prior undertaking), and they went also to Lukannon, drove up 100 young males, cut off their left ears, and set them free in turn. Of this number, during the summer of 1872, when I was there, the natives found in their driving of 75,000 seals from the different hauling-grounds of St. Paul up to the village killing-grounds, two on Novastoshnah rookery, 10 miles north of Lukannon, and two or three from English bay and Tolstoi rookeries, 6 miles west by water; one or two were taken on St. George island, 36 miles to the southeast, and not one from Lukannon was found among those that were driven from there; probably, had all the young males on the two islands this season been examined, the rest of the croppies that had returned from the perils of the deep, whence they sojourned during the winter, would have been distributed quite equally about the Pribylov hauling-grounds. Although the natives say that they think the cutting off of the animal's ear gives the water such access to its head as to cause its death, yet I noticed that those examples which we had recognized by this auricular mutilation, were normally fat and well developed. Their theory does not appeal to my belief, and it certainly requires confirmation.

These experiments would tend to prove very cogently and conclusively, that when the seals approach the islands in the spring, they have nothing in their minds but a general instinctive appreciation of the fitness of the land, as a whole; and no special fondness or determination to select any one particular spot, not even the place of their birth. A study of my map of the distribution of the seal-life on St. Paul, clearly indicates that the landing of the seals on the respective rookeries is influenced greatly by the direction of the wind at the time of their approach to the islands in the spring and early summer. The prevailing airs, blowing, as they do at that season, from the north and northwest, carry far out to sea the odor of the old rookery-flats, together with the fresh scent of the pioneer bulls which have located themselves on these breeding-grounds, three or four weeks in advance of their kind. The seals come up from the great North Pacific, and hence it will be seen that the rookeries of the south and southeastern shores of St. Paul island receive nearly all the seal-life, although there are miles of perfectly eligible ground at Nahsayvernia, or north shore. To settle this matter beyond all argument, however, I know is an exceedingly difficult task, for the identification of individuals, from one season to another, among the hundreds of thousands, and even millions, that come under the eye on one of these great rookeries, is well nigh impossible.

From the time of the first arrival in May up to the beginning of June, or as late as the middle of that month, if the weather be clear, is an interval in which everything seems quiet. Very few seals are added to the pioneers that have landed, as we have described. By the 1st of June, however, sometimes a little before, and never much later, the seal-weather—the foggy, humid, oozy damp of summer—sets in; and with it, as the gray banks roll up and shroud the islands, the bull-seals swarm from the depths by hundreds and thousands, and locate themselves in advantageous positions for the reception of the females, which are generally three weeks or a month later than this date in arrival.

PRE-EMPTION OF THE ROOKERIES: BATTLES OF THE SEALS.—The labor of locating and maintaining a position on the rookery is really a terribly serious business for these bulls which come in last; and it is so all the time to those males that occupy the water-line of the breeding-grounds. A constantly-sustained fight between the newcomers and the occupants goes on morning, noon, and night, without cessation, frequently resulting in death to one or even both of the combatants.

It appears, from my survey of these breeding-grounds, that a well-understood principle exists among the able-bodied bulls, to wit: that each one shall remain undisturbed on his ground, which is usually about six to eight feet square; provided that at the start, and from that time until the arrival of the females, he is strong enough to hold this ground against all comers; inasmuch as the crowding in of the fresh arrivals often causes the removal of those which, though equally able-bodied at first, have exhausted themselves by fighting earlier and constantly; they are finally driven by these fresher animals back farther and higher up on the rookery; and sometimes off altogether.

Many of those bulls exhibit wonderful strength and desperate courage. I marked one veteran at Gorbatch, who was the first to take up his position early in May, and that position, as usual, directly at the water-line. This male seal had fought at least forty or fifty desperate battles, and fought off his assailants every time—perhaps nearly as many different seals which coveted his position—and when the fighting season was over (after the cows are mostly all hauled up), I saw him still there, covered with scars and frightfully gashed; raw, festering, and bloody, one eye gouged out, but lording it bravely over his harem of fifteen or twenty females, who were all huddled together on the same spot of his first location and around him.

This fighting between the old and adult males (for none others fight) is mostly, or rather entirely, done with the mouth. The opponents seize one another with their teeth, and, then clenching their jaws, nothing but the sheer strength of the one and the other tugging to escape can shake them loose, and that effort invariably leaves an ugly wound, the sharp canines tearing out deep gutters in the skin and furrows in the blubber, or shredding the flippers into ribbon-strips.

They usually approach each other with comically averted heads, just as though they were ashamed of the rumpus which they are determined to precipitate. When they get near enough to reach one another they enter upon the repetition of many feints or passes, before either one or the other takes the initiative by griping. The heads are darted out and back as quick as a flash; their hoarse roaring and shrill, piping whistle never ceases, while their fat bodies writhe and swell with exertion and rage; furious lights gleam in their eyes; their hair flies in the air, and their blood streams down; all combined, makes a picture so fierce and so strange that, from its unexpected position and its novelty, is perhaps one of the most extraordinary brutal contests man can witness.

In these battles of the seals, the parties are always distinct; the one is offensive, the other defensive. If the latter proves the weaker he withdraws from the position occupied, and is never followed by his conqueror, who complacently throws up one of his hind-flippers, fans himself, as it were, to cool his fevered wrath and blood from the heat of the conflict, sinks into comparative quiet, only uttering a peculiar chuckle of satisfaction or contempt, with a sharp eye open for the next covetous bull or "see-catch".*

ATTITUDES AND COLORATION OF THE FUR-SEALS.—The period occupied by the males in taking and holding their positions on the rookery, offers a very favorable opportunity to study them in the thousand and one different attitudes and postures assumed, between the two extremes of desperate conflict and deep sleep—sleep so profound that one can, if he keeps to the leeward, approach close enough, stepping softly, to pull the whiskers of any old male taking a nap on a clear place; but after the first touch to these moustaches, the trifler must jump with electrical celerity back, if he has any regard for the sharp teeth and tremendous shaking which will surely overtake him if he does not. The younger seals sleep far more soundly than the old ones, and it is a favorite pastime for the natives to surprise them in this manner—favorite, because it is attended with no personal risk; the little beasts, those amphibious sleepers, rise suddenly, and fairly shrink to the earth, spitting and coughing their terror and confusion.

The neck, chest, and shoulders of a fur-seal bull comprise more than two-thirds of his whole weight; and in this long, thick neck, and the powerful muscles of the fore-limbs and shoulders, is embodied the larger portion of his strength. When on land, with the fore-hands he does all climbing over the rocks and grassy hummocks back of the rookery, or shuffles his way over the smooth parades; the hind-feet being gathered up as useless trappings after every second step forward, which we have described at the outset of this chapter. These anterior flippers are

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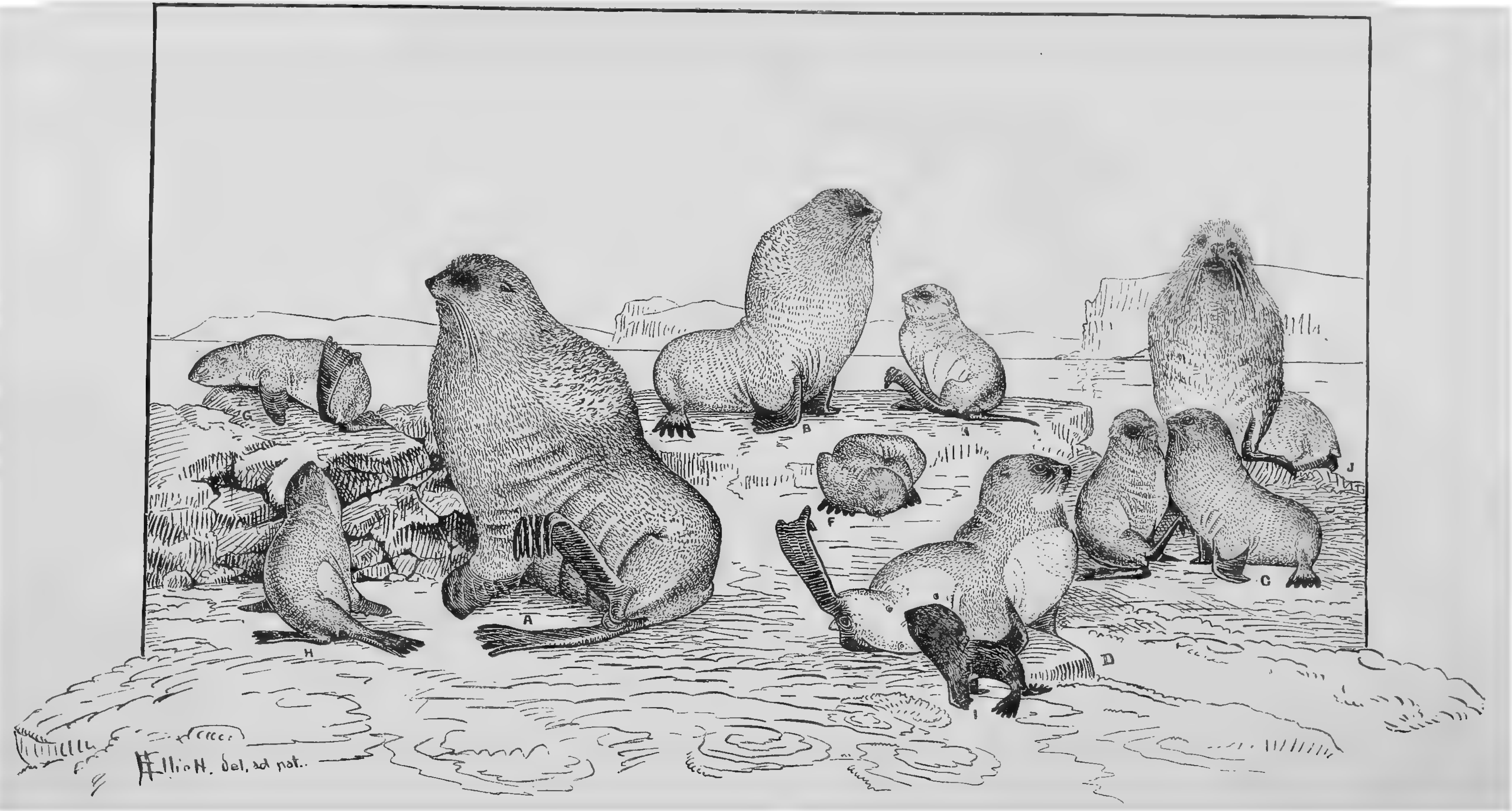
* "See-catch," native name for the bulls on the rookeries, especially those which are able to maintain their position.

Plate VI.



THE FUR-SEAL.

(Callorhinus ursinus.)

A. Old "Seecatch," or male, 8 to 24 years.
B. Young "Seecatch," 6 to 8 years.
C. "Holluschickie," or young males, 2 years.
D. "Matkah," or cow nursing her "pup," I.
E. Cow fanning herself.
F. Cow sleeping.
G. Cow napping and fanning herself.
H. Cow crooning to the male.
J. Characteristic twisting of bodies of old males.

Life-studies by the author: Pribylov Islands. 1872-'76.

also the propelling power when in water, the exclusive machinery with which they drive their rapid passage; the hinder ones, floating behind like the steering sweep to a whale-boat, used evidently as rudders, or as the tail of a bird is, while its wings sustain and force its rapid flight.

The covering to the body is composed of two coats, one being a short, crisp, glistening over-hair; and the other a close, soft, elastic pelage, or fur, which gives the distinctive value to the pelt. I can call it readily to the mind of my readers, when I say to them that the down and feathers on the breast of a duck lay relatively as the fur and hair do upon the skin of the seal.

At this season of first "hauling up",[*] in the spring, the prevailing color of the bulls, after they dry off and have been exposed to the weather, is a dark, dull brown, with a sprinkling in it of lighter brown-black, and a number of hoary or grizzly gray coats peculiar to the very old males. On the shoulders of all of them, that is, the adults, the over-hair is either a gray or rufous ocher, or a very emphatic "pepper and salt"; this is called the "wig". The body-colors are most intense and pronounced upon the back of the head, neck, and spine, fading down on the flanks lighter, to much lighter ground on the abdomen; still never white or even a clean gray, so beautiful and peculiar to them when young, and to the females. The skin of the muzzle and flippers is a dark bluish-black, fading in the older examples to a reddish and purplish tint. The color of the ears and tail is similar to that of the body, perhaps a trifle lighter; the ears on a bull fur-seal are from one inch to an inch and a half in length; the pavilions or auricles are tightly rolled up on themselves, so that they are similar in shape to, and exactly the size of, the little finger on the human hand, cut off at the second phalangeal joint, a trifle more cone-shaped, however, as they are greater at the base than they are at the tip. They are haired and furred as the body is.

I think it probable that this animal has and does exert the power of compressing or dilating this scroll-like pavilion to its ear, just according as it dives deeper or rises in the water; and also, I am quite sure that the hair-seal has this control over the *meatus externus*, from what I have seen of it. I have not been able to verify it in either case by actual observation: yet such opportunity as I have had gives me undoubted proof of the fact, that the hearing of the fur-seal is wonderfully keen and surpassingly acute. If you make any noise, no matter how slight, the alarm will be given instantly by these insignificant-looking auditors, and the animal, awaking from profound sleep, assumes, with a single motion, an erect posture, gives a stare of stupid astonishment, at the same time breaking out into incessant, surly roaring, growling, and "spitting".

VOICE OF THE FUR-SEAL.—This spitting, as I call it, is by no means a fair or full expression of the most characteristic sound or action, so far as I have observed, peculiar to the fur-seals alone, the bulls in particular. It is the usual prelude to all their combats, and it is their signal of astonishment. It follows somewhat in this way: when the two disputants are nearly within reaching or striking distance, they make a number of feints or false passes, as fencing-masters do, at one another, with the mouth wide open, lifting the lips or snarling so as to exhibit the glistening teeth, and with each pass of the head and neck they expel the air so violently through the larynx, as to make a rapid *choo-choo-choo* sound, like steam-puffs as they escape from the smoke-stack of a locomotive when it starts a heavy train, especially while the driving-wheels slip on the rail.

All of the bulls have the power and frequent inclination to utter four distinct calls or notes. This is not the case with the sea-lion,[†] whose voice is confined to a single bass roar, or that of the walrus, which is limited to a dull grunt, or that of the hair-seal,[‡] which is inaudible. This volubility of the fur-seal is decidedly characteristic and prominent; he utters a hoarse, resonant roar, loud and long; he gives vent to a low, entirely different, gurgling growl; he emits a chuckling, sibilant, piping whistle, of which it is impossible to convey an adequate idea, for it must be heard to be understood; and this spitting or *choo* sound just mentioned. The cows[§] have but one note—a hollow, prolonged, bla-a-ting call, addressed only to their pups; on all other occasions they are usually silent. It is something strangely like the cry of a calf or an old sheep. They also make a spitting sound or snort when suddenly disturbed—a kind of a cough, as it were. The pups "blaat" also, with little or no variation, their sound being somewhat weaker and hoarser than their mother's, after birth; they, too, comically spit or cough when aroused suddenly from a nap or driven into a corner, opening their little mouths like young birds in a nest, when at bay, backed up in some crevice, or against some tussock.

Indeed, so similar is the sound, that I noticed that a number of sheep which the Alaska Commercial Company had brought up from San Francisco to St. George island, during the summer of 1873, were constantly attracted to the rookeries, and were running in among the "holluschickie"; so much so, that they neglected the good pasturage on the uplands beyond, and a small boy had to be regularly employed to herd them where they could feed to advantage. These transported *Ovidæ*, though they could not possibly find anything in their eyes suggestive of companionship among the seals, had their ears so charmed by the sheep-like accents of the female pinnipeds, as to persuade them against their senses of vision and smell.

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[*] "Hauling up," a technical term, applied to the action of the seals when they land from the surf and haul up or drag themselves over the beach. It is expressive and appropriate, as are most of the sealing phrases.

[†] *Eumetopias Stelleri.*

[‡] *Phoca vitulina.*

[§] Without explanation, I may be considered as making use of paradoxical language by using these terms of description; for the inconsistency of talking of "pups", with "cows", and "bulls", and "rookeries", on the breeding-grounds of the same, cannot fail to be noticed; but this nomenclature has been given and used by the American and English whaling and sealing parties for many years, and the characteristic features of the seals themselves so suit the naming, that I have felt satisfied to retain the style throughout as rendering my description more intelligible, especially so to those who are engaged in the business, or may be hereafter. The Russians are more consistent, but not so "pat"; they call the bull "see-catch", a term implying strength, vigor, etc.; the cow, "matkah," or mother; the pups, "kotickie," or little seals; the non-breeding males under six and seven years, "holluschickie," or bachelors. The name applied collectively to the fur-seal by them is "morskie-kot," or sea-cat.

The sound which arises from these great breeding-grounds of the fur-seal, where thousands upon tens of thousands of angry, vigilant bulls are roaring, chuckling, and piping, and multitudes of seal-mothers are calling in hollow, blaating tones to their young, that in turn respond incessantly, is simply defiance to verbal description. It is, at a slight distance, softened into a deep booming, as of a cataract; and I have heard it, with a light, fair wind to the leeward, as far as six miles out from land on the sea; and even in the thunder of the surf and the roar of heavy gales, it will rise up and over to your ear for quite a considerable distance away. It is the monitor which the sea-captains anxiously strain their ears for, when they run their dead reckoning up, and are laying to for the fog to rise, in order that they may get their bearings of the land; once heard, they hold on to the sound and feel their way in to anchor. The seal-roar at "Novastoshnah" during the summer of 1872, saved the life of the surgeon*, and six natives belonging to the island, who had pushed out on an egging-trip from Northeast point to Walrus island. I have sometimes thought, as I have listened through the night to this volume of extraordinary sound, which never ceases with the rising or the setting of the sun throughout the entire season of breeding, that it was fully equal to the churning boom of the waves of Niagara. Night and day, throughout the season, this din upon the rookeries is steady and constant.

EFFECTS OF HEAT ON THE SEALS.—The seals seem to suffer great inconvenience and positive misery from a comparatively low degree of heat. I have often been surprised to observe that, when the temperature was 46° and 48° Fahr. on land during the summer, they would show everywhere signs of distress, whenever they made any exertion in moving or fighting, evidenced by panting and the elevation of their hind-flippers, which they used incessantly as so many fans. With the thermometer again higher, as it is at rare intervals, standing at 55° and 60°, they then seem to suffer even when at rest; and at such times the eye is struck by the kaleidoscopic appearance of a rookery—in any of these rookeries where the seals are spread out in every imaginable position their lithesome bodies can assume, all industriously fan themselves; they use sometimes the fore-flippers as ventilators, as it were, by holding them aloft motionless, at the same time fanning briskly with the hinder ones, according as they sit or lie. This wavy motion of fanning or flapping gives a hazy indistinctness to the whole scene, which is difficult to express in language; but one of the most prominent characteristics of the fur-seal, and perhaps the most unique feature, is this very fanning manner in which they use their flippers, when seen on the breeding-grounds at this season. They also, when idle, as it were, off-shore at sea, lie on their sides in the water with only a partial exposure of the body, the head submerged, and then hoist up a fore- or hind-flipper clear out of the water, at the same time scratching themselves or enjoying a momentary nap; but in this position there is no fanning. I say "scratching", because the seal, in common with all animals, is preyed upon by vermin, and it has a peculiar species of louse, or parasitic tick, that belongs to it.

SLEEPING AFLOAT.—Speaking of the seal as it rests in the water, leads me to remark that they seem to sleep as sound and as comfortably, bedded on the waves or rolled by the swell, as they do on the land; they lie on their backs, fold the fore-flippers down across the chest, and turn the hind ones up and over, so that the tips rest on their necks and chins, thus exposing simply the nose and the heels of the hind-flippers above water, nothing else being seen. In this position, unless it is very rough, the seal sleeps as serenely as did the prototype of that memorable song, who was "rocked in the cradle of the deep".

FASTING OF THE SEALS AT THE ROOKERIES: INTESTINAL WORMS.—All the bulls, from the very first, that have been able to hold their positions, have not left them from the moment of their landing for a single instant, night or day; nor will they do so until the end of the rutting season, which subsides entirely between the 1st and 10th of August, beginning shortly after the coming of the cows in June. Of necessity, therefore, this causes them to fast, to abstain entirely from food of any kind, or water, for three months at least; and a few of them actually stay out four months, in total abstinence, before going back into the water for the first time after "hauling up" in May; they then return as so many bony shadows of what they were only a few months anteriorly; covered with wounds, abject and spiritless, they laboriously crawl back to the sea to renew a fresh lease of life.

Such physical endurance is remarkable enough alone; but it is simply wonderful, when we come to associate this fasting with the unceasing activity, restlessness, and duty devolved upon the bulls as the heads of large families. They do not stagnate like hibernating bears in caves; there is not one torpid breath drawn by them in the whole period of their fast; it is evidently sustained and accomplished by the self-absorption of their own fat, with which they are so liberally supplied when they first come out from the sea and take up their positions on the breeding-grounds; and which gradually disappears, until nothing but the staring hide, protruding tendons and bones mark the limit of their abstinence. There must be some remarkable provision made by nature for the entire torpidity of the seals' stomachs and bowels, in consequence of their being empty and unsupplied during this long period, coupled with the intense activity and physical energy of the animals throughout that time, which, however, in spite of the violation of a supposed physiological law, does not seem to affect them, for they come back just as sleek, fat, and ambitious as ever, in the following season.

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* Dr. Otto Cramer. The suddenness with which fog and wind shut down and sweep over the sea here, even when the day opens most auspiciously for a short boat-voyage, has so alarmed the natives in times past, that a visit is now never made by them from island to island, unless on one of the company's vessels. Several bidarrahs have never been heard from, which, in earlier times, attempted to sail, with picked crews of the natives, from one island to the other.

I have examined the stomachs of hundreds which were driven up and killed immediately after their arrival in the spring, near the village; I have the word of the natives here, who have seen hundreds of thousands of them opened during the slaughtering-seasons past, but in no single case has anything ever been found, other than the bile and ordinary secretions of healthy organs of this class, with the marked exception of finding in every one a snarl or cluster of worms,* from the size of a walnut to a bunch as large as a man's fist. Fasting apparently has no effect upon the worms, for on the rare occasion, and perhaps the last one that will ever occur, of killing three or four hundred old bulls late in the fall to supply the natives with canoe skins, I was present, and again examined their paunches, finding the same *ascaridae* within. They were lively in these empty stomachs, and their presence, I think, gives some reason for the habit which the old bulls have (the others do not) of swallowing small water-worn bowlders, the stones in some of the stomachs weighing half a pound apiece, in others much smaller. In one paunch I found over five pounds, in the aggregate, of large pebbles, which, in grinding against one another, I believe, must comfort the seal by aiding to destroy, in a great measure, those intestinal pests.

The sea-lion is also troubled in the same way by a similar species of worm, and I preserved the stomach of one of these animals in which there was more than ten pounds of stones, some of them alone very great in size. Of this latter animal, I suppose it could swallow bowlders that weigh two and three pounds each. I can ascribe no other cause for this habit among those animals than that given, as they are the highest type of the carnivora, eating fish as a regular means of subsistence, varying the monotony of this diet with occasional juicy fronds of sea-weed or kelp, and perhaps a crab or such once in a while, provided it is small and tender or soft-shelled. I know that the sailors say that the *Callorhinus* swallows these stones to "ballast" himself; in other words, to enable him to dive deeply and quickly; but I noticed that the females and the "holluschickie" dive quicker and swim better than the old fellows above specified, and they do so without any ballast. They also have less muscular power, only a tithe of that which the "see-catch" possesses. No, the ballast theory is not tenable. (See note, 39, J.)

ARRIVAL OF THE COW-SEALS AT THE ROOKERIES.—Between the 12th and 14th of June, the first of the cow-seals, as a rule, come up from the sea; then the long agony of the waiting bulls is over, and they signalize it by a period of universal, spasmodic, desperate fighting among themselves. Though they have quarreled all the time from the moment they first landed, and continue to do so until the end of the season, in August, yet that fighting which takes place at this date is the bloodiest and most vindictive known to the seal. I presume that the heaviest percentage of mutilation and death among the old males from these brawls, occur in this week of the earliest appearance of the females.

A strong contrast now between the males and females looms up, both in size and shape, which is heightened by the air of exceeding peace and dove-like amiability which the latter class exhibit, in contradistinction to the ferocity and saturnine behavior of the former.

DESCRIPTION OF THE COW-SEAL.—The cows are from 4 to 4½ feet in length from head to tail, and much more shapely in their proportions than the bulls; there is no wrapping around their necks and shoulders of unsightly masses of blubber; their lithe, elastic forms, from the first to the last of the season, are never altered; this they are, however, enabled to keep, because in the provision of seal-economy, they sustain no protracted fasting period; for, soon after the birth of their young they leave it on the ground and go to the sea for food, returning perhaps to-morrow, perhaps later, even not for several days in fact, to again suckle and nourish it; having in the mean time sped far off to distant fishing banks, and satiated a hunger which so active and highly organized an animal must experience, when deprived of sustenance for any length of time.

As the females come up wet and dripping from the water, they are at first a dull, dirty-gray color, dark on the back and upper parts, but in a few hours the transformation in their appearance made by drying is wonderful. You would hardly believe that they could be the same animals, for they now fairly glisten with a rich steel and maltese gray luster on the back of the head, the neck, and along down the spine, which blends into an almost snow-white over the chest and on the abdomen. But this beautiful coloring in turn is again altered by exposure to the same weather; for after a few days it will gradually change, so that by the lapse of two or three weeks it is a dull, rufous-ocher below, and a cinereous brown and gray mixed above. This color they retain throughout the breeding-season, up to the time of shedding their coat in August.

The head and eye of the female are exceedingly beautiful; the expression is really attractive, gentle, and intelligent; the large, lustrous, blue-black eyes are humid and soft with the tenderest expression, while the small, well-formed head is poised as gracefully on her neck as can be well imagined; she is the very picture of benignity and satisfaction, when she is perched up on some convenient rock, and has an opportunity to quietly fan herself, the eyes half-closed and the head thrown back on her gently-swelling shoulders.

The females land on these islands not from the slightest desire to see their uncouth lords and masters, but from an accurate and instinctive appreciation of the time in which their period of gestation ends. They are in fact driven up to the rookeries by this cause alone; the young cannot be brought forth in the water, and in all cases marked by myself, the pups were born soon after landing, some in a few hours, but most usually a day or so elapses before delivery.

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* *Nematoda.*

ORGANIZATION OF THE ROOKERIES.—They are noticed and received by the males on the water-line stations with attention; they are alternately coaxed and urged up on to the rocks, as far as these beach-masters can do so, by chuckling, whistling, and roaring, and then they are immediately under the most jealous supervision; but, owing to the covetous and ambitious nature of the bulls which occupy these stations to the rear of the water-line and way back, the little cows have a rough-and-tumble time of it when they begin to arrive in small numbers at first; for no sooner is the pretty animal fairly established on the station of male number one, who has welcomed her there, then he, perhaps, sees another one of her style in the water from whence she has come, and, in obedience to his polygamous feeling, devotes himself anew to coaxing the later arrival, by that same winning manner so successful in the first case; then when bull number two, just back, observes bull number one off guard, he reaches out with his long strong neck and picks up the unhappy but passive cow by the scruff of her's, just as a cat does a kitten, and deposits her upon his seraglio ground; then bulls number three and four, and so on, in the vicinity, seeing this high-handed operation, all assail one another, especially number two, and for a moment have a tremendous fight, perhaps lasting half a minute or so, and during this commotion the little cow is generally moved, or moves, farther back from the water, two or three stations more, where, when all gets quiet again, she usually remains in peace. Her last lord and master, not having the exposure to such diverting temptation as her first, gives her such care that she not only is unable to leave, did she wish, but no other bull can seize upon her. This is only a faint (and I fully appreciate it), wholly inadequate description of the hurly-burly and the method by which the rookeries are filled up, from first to last, when the females arrive. That is only one instance of the many trials and tribulations which both parties on the rookery subject themselves to, before the harems are filled.

Far back, fifteen or twenty "see-catchie" stations deep from the water-line, and sometimes more, but generally not over an average of ten or fifteen, the cows crowd in at the close of the season for arriving, which is by the 10th or 14th of July; then they are able to go about pretty much as they please, for the bulls have become so greatly enfeebled by this constant fasting, fighting, and excitement during the past two months, that they are quite content now even with only one or two partners, if they should have no more.

The cows seem to haul up in compact bodies from the water, filling in the whole ground to the rear of the rookeries, never scattering about over the surface of this area; they have mapped out from the first their chosen resting places, and they will not lie quietly in any position outside of the great mass of their kind. This is due to their intensely gregarious nature, and admirably adapted for their protection. And here I should call attention to the fact, that they select this rookery-ground with all the skill of civil engineers. It is preferred with special reference to the drainage, for it must lie so that the produce of the constantly dissolving fogs and rain-clouds shall not lie upon them, having a great aversion to, and a firm determination to rest nowhere on water-puddled ground. This is admirably exhibited, and will be understood by a study of my sketch-maps which follow, illustrative of these rookeries and the area and position of the seals upon them. Every one of those breeding-grounds slopes up gently from the sea, and on no one of them is there anything like a muddy flat.

I found it an exceedingly difficult matter to satisfy myself as to a fair general average number of cows to each bull on the rookery; but, after protracted study, I think it will be nearly correct when I assign to each male a general ratio of from fifteen to twenty females at the stations nearest the water; and for those back in order from that line to the rear, from five to twelve; but there are so many exceptional cases, so many instances where forty-five and fifty females are all under the charge of one male; and then, again, where there are two or three females only, that this question was and is not entirely satisfactory in its settlement to my mind.

Near Ketavie point, and just above it to the north, is an odd wash-out of the basalt by the surf, which has chiseled, as it were, from the foundation of the island, a lava table, with a single roadway or land passage to it. Upon the summit of this footstool I counted forty-five cows, all under the charge of one old veteran. He had them penned up on this table-rock by taking his stand at the gate, as it were, through which they passed up and passed down—a Turkish brute typified.

UNATTACHED MALES.—At the rear of all these rookeries there is invariably a large number of able-bodied males which have come late, but wait patiently, yet in vain, for families; most of them having had to fight as desperately for the privilege of being there as any of their more fortunately-located neighbors, who are nearer the water, and in succession from there to where they are themselves; but the cows do not like to be in any outside position. They cannot be coaxed out where they are not in close company with their female mates and masses. They lie most quietly and contentedly in the largest harems, and cover the surface of the ground so thickly that there is hardly moving or turning room until the females cease to come from the sea. The inaction on the part of the males in the rear during the breeding-season only serves to qualify them to move into the places which are necessarily vacated by those males that are, in the mean-time, obliged to leave from virile exhaustion, or incipient wounds. All the surplus able-bodied males, that have not been successful in effecting a landing on the rookeries, cannot at any one time during the season be seen here on this rear line. Only a portion of their number are in sight; the others are either loafing at sea, adjacent, or are hauled out in morose squads between the rookeries on the beaches.

COURAGE OF THE FUR-SEALS.—The courage with which the fur-seal holds his position as the head and guardian of a family, is of the highest order. I have repeatedly tried to drive them from their harem posts, when they were fairly established on their stations, and have always failed, with few exceptions. I might use every stone at my command, making all the noise I could. Finally, to put their courage to the fullest test, I have walked up to within twenty feet of an old veteran, toward the extreme end of Tolstoi, who had only four cows in charge, and commenced with my double-barreled fowling-piece to pepper him all over with fine mustard-seed shot, being kind enough, in spite of my zeal, not to put out his eyes. His bearing, in spite of the noise, smell of powder, and painful irritation which the fine shot must have produced, did not change in the least from the usual attitude of determined, plucky defense, which nearly all of the bulls assumed when attacked with showers of stones and noise; he would dart out right and left with his long neck and catch the timid cows, that furtively attempted to run after each report of my gun, fling and drag them back to their places under his head; and then, stretching up to his full height look me directly and defiantly in the face, roaring and chuckling most vehemently. The cows, however, soon got away from him; they could not stand my racket in spite of their dread of him; but he still stood his ground, making little charges on me of ten or fifteen feet, in a succession of gallops or lunges, spitting furiously, and then comically retreating to the old position, with an indescribable leer and swagger, back of which he would not go, fully resolved to hold his own or die in the attempt.

This courage is all the more noteworthy from the fact that, in regard to man, it is invariably of a defensive character. The seal is always on the defensive; he never retreats, and he will not attack. If he makes you return when you attack him, he never follows you much farther than the boundary of his station, and then no aggravation will compel him to take the offensive, so far as I have been able to observe. I was very much impressed by this trait.

BEHAVIOR OF THE FEMALE SEALS ON THE ROOKERIES.—The cows, during the whole season, do great credit to their amiable expression, by their manner and behavior on the rookery; they never fight or quarrel one with another, and never or seldom utter a cry of pain or rage when they are roughly handled by the bulls, which frequently get a cow between them and actually tear the skin from her back with their teeth, cutting deep gashes in it as they snatch her from mouth to mouth. If sand does not get into these wounds it is surprising how rapidly they heal; and, from the fact that I never could see scars on them anywhere except the fresh ones of this year, they must heal effectually and exhibit no trace the next season.

The cows, like the bulls, vary much in weight, but the extraordinary disparity in the size of the sexes, adult, is exceedingly striking. Two females taken from the rookery nearest to St. Paul village, right under the bluffs, and almost beneath the eaves of the natives' houses, called "Nah Speel", after they had brought forth their young, were weighed by myself, and their respective returns on the scales were 56 and 100 pounds each; the former being about three or four years old, and the latter over six—perhaps ten; both were fat, or rather in good condition—as good as they ever are. Thus the female is just about one-sixth the size of the male.* Among the sea-lions the proportion is just one-half the bulk of the male,† while the hair-seals, as I have before stated, are not distinguishable in this respect, as far as I could observe, but my notice was limited to a few specimens only.

ATTITUDES OF FUR-SEALS ON LAND.—It is quite beyond my power, indeed entirely out of the question, to give a fair idea of the thousand and one positions in which the seals compose themselves and rest when on land. They may be said to assume every possible attitude which a flexible body can be put into, no matter how characteristic or seemingly forced or constrained. Their joints seem to be double-hinged; in fact, all ball and socket union of the bones. One favorite position, especially with the females, is to perch upon a point or edge-top of some rock, and throw their heads back upon their shoulders, with the nose held directly up and aloft; and then closing their eyes, to take short naps without changing their attitude, now and then softly lifting one or the other of their long, slender hind-flippers, which they slowly wave with that peculiar fanning motion to which I have alluded heretofore. Another attitude, and one of the most common, is to curl themselves up just as a dog does on a hearth-rug, bringing the tail and nose close together. They also stretch out, laying the head close to the body, and sleep an hour or two without rising, holding one of the hind-flippers up all the time, now and then gently moving it, the eyes being tightly closed.

I ought, perhaps, to define the anomalous tail of the fur-seal here. It is just about as important as the caudal appendage to a bear, even less significant; it is the very emphasis of abbreviation. In the old males it is positively only four or five inches in length, while among the females only two and a half to three inches, wholly inconspicuous, and not even recognized by the casual observer.

SLEEPING SEALS.—I come now to speak of another feature which interested me nearly, if not quite, as much as any other characteristic of this creature; and that is their fashion of slumber. The sleep of the fur-seal, seen on land, from the old male down to the youngest, is always accompanied by an involuntary, nervous, muscular twitching and slight shifting of the flippers, together with ever and anon quivering and uneasy rollings of the body, accompanied by a quick folding anew of the fore-flippers; all of which may be signs, as it were, in fact, of their simply having nightmares, or of sporting, in a visionary way, far off in some dream-land sea; but perhaps very much as an old nurse said, in reference to the smiles on a sleeping child's face, they are disturbed by their intestinal parasites. I have studied hundreds of such somnolent examples. Stealing softly up so closely that I could lay my hand upon them from the point where I was sitting, did I wish to, and watching the sleeping seals, I have always found their sleep to be of this nervous description. The respiration is short and rapid, but with no breathing (unless the ear is brought very close) or snoring sound; the quivering, heaving of the flanks only indicates the action of the lungs. I have frequently thought that I had succeeded in finding a snoring seal, especially among the pups; but a close examination always gave some abnormal reason for it; generally a slight distemper, never anything severer, however, than some trifle, by which the nostrils were stopped up to a greater or less degree.

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* Adult male and female.

† Adult male and female; *Eumetopias Stelleri*.

The cows on the rookeries sleep a great deal, but the males have the veriest cat-naps that can be imagined. I never could time the slumber of any old male on the breeding-grounds, which lasted without interruption longer than five minutes, day or night; while away from these places, however, I have known them to lie sleeping in the manner I have described, broken by these fitful, nervous, dreamy starts, yet without opening the eyes, for an hour or so at a time.

With the exception of the pups, the fur-seal seems to have very little rest awake or sleeping; perpetual motion is well nigh incarnate with its being.

FUR-SEAL PUPS.—As I have said before, the females, soon after landing, are delivered of their young. Immediately after the birth of the pup (twins are rare, if ever) the little creature finds its voice, a weak, husky blaat, and begins to paddle about with its eyes wide open from the start, in a confused sort of way for a few minutes, until the mother turns around to notice her offspring and give it attention, and still later to suckle it; and for this purpose she is supplied with four small, brown nipples, almost wholly concealed in the fur, and which are placed about eight inches apart, lengthwise with the body, on the abdomen, between the fore- and hind-flippers, with about four inches of space between them transversely. These nipples are seldom visible, and then faintly seen through the hair and fur. The milk is abundant, rich, and creamy. The pups nurse very heartily, almost gorging themselves, so much so that they often have to yield up the excess of what they have taken down, mewling and puking in the most orthodox manner.

The pup from birth, and for the next three months, is of a jet-black color, hair and flippers, save a tiny white patch just back of each forearm. It weighs first from three to four pounds, and is twelve to fourteen inches long. It does not seem to nurse more than once every two or three days, but in this I am very likely mistaken, for they may have received attention from the mother in the night, or other times in the day when I was unable to keep up my watch over the individuals which I had marked for this supervision.

The apathy with which the young are treated by the old on the breeding-grounds, especially by the mothers, was very strange to me, and I was considerably surprised at it. I have never seen a seal-mother caress or fondle her offspring; and should it stray to a short distance from the harem, I could step to and pick it up, and even kill it before the mother's eye, without causing her the slightest concern, as far as all outward signs and manifestation would indicate. The same indifference is also exhibited by the male to all that may take place of this character outside of the boundary of his seraglio; but the moment the pups are inside the limits of his harem-ground, he is a jealous and a fearless protector, vigilant and determined; but if the little animals are careless enough to pass beyond this boundary, then I can go up to them and carry them off before the eye of the old Turk without receiving from him the slightest attention in their behalf—a curious guardian, forsooth!

It is surprising to me how few of these young pups get crushed to death while the ponderous males are floundering over them, engaged in fighting and quarreling among themselves. I have seen two bulls dash at each other with all the energy of furious rage, meeting right in the midst of a small "pod" of forty or fifty pups, tramp over them with all their crushing weight, and bowling them out right and left in every direction by the impetus of their movements, without injuring a single one, as far as I could see. Still, when we come to consider the fact that, despite the great weight of the old males, their broad, flat flippers and yielding bodies may press down heavily on these little fellows without actually breaking bones or mashing them out of shape, it seems questionable whether more than one per cent. of all the pups born each season on these great rookeries of the Pribylov islands are destroyed in this manner on the breeding-grounds.*

The vitality of the fur-seal is simply astonishing. His physical organization passes beyond the fabled nine lives of the cat. As a slight illustration of its tenure of life, I will mention the fact, that one morning the chief came to me with a pup in his arms, which had just been born, and was still womb-moist, saying that the mother had been killed at Tolstoi by accident, and he supposed that I would like to have a "choochil".† I took it up into my laboratory, and finding that it could walk about and make a great noise, I attempted to feed it, with the idea of having a comfortable subject to my pencil, for life-study, of the young in the varied attitudes of sleep and motion. It refused everything that I could summon to its attention as food; and, alternately sleeping and walking, in its clumsy fashion, about the floor, it actually lived nine days—spending the half of every day in floundering over the floor, accompanying all movement with a persistent, hoarse, blaating cry—and I do not believe it ever had a single drop of its mother's milk.

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* The only damage which these little fellows have up here, is being caught by an October gale down at the surf-margin, when they have not fairly learned to swim; large numbers have been destroyed by sudden "nips" of this character.

† Specimen to stuff.

In the pup, the head is the only disproportionate feature at birth, when it is compared with the adult form; the neck being also relatively shorter and thicker. The eye is large, round and full, but almost a "navy blue" at times, it soon changes into the blue-black of adolescence.

The females appear to go to and come from the water to feed and bathe, quite frequently, after bearing their young, and the immediate subsequent coitus with the male; and usually return to the spot or its immediate neighborhood, where they leave their pups, crying out for them, and recognizing the individual replies, though ten thousand around, all together, should blaat at once. They quickly single out their own and nurse them. It would certainly be a very unfortunate matter if the mothers could not identify their young by sound, since their pups get together like a great swarm of bees, and spread out upon the ground in what the sealers call "pods", or clustered groups, while they are young and not very large; but from the middle or end of September, until they leave the islands for the dangers of the great Pacific, in the winter, along by the first of November, they gather in this manner, sleeping and frollicking by tens of thousands, bunched together at various places all over the islands contiguous to the breeding-grounds, and right on them. A mother comes up from the sea, whither she has been to wash, and perhaps to feed, for the last day or two, feeling her way along to about where she thinks her pup should be—at least where she left it last—but perhaps she misses it, and finds instead a swarm of pups in which it has been incorporated, owing to its great fondness for society. The mother, without first entering into the crowd of thousands, calls out just as a sheep does for a lamb; and, out of all the din she—if not at first, at the end of a few trials—recognizes the voice of her offspring, and then advances, striking out right and left, toward the position from which it replies. But if the pup happens at this time to be asleep, it gives, of course, no response, even though it were close by; in the event of this silence the cow, after calling for a time without being answered, curls herself up and takes a nap, or lazily basks, to be usually more successful, or wholly so, when she calls again.

The pups themselves do not know their own mothers—a fact which I ascertained by careful observation—but they are so constituted that they incessantly cry out at short intervals during the whole time they are awake, and in this way the mother can pick out from the monotonous blaating of thousands of pups, her own, and she will not permit any other to suckle it; but the "kotickie" themselves attempt to nose around every seal-mother that comes in contact with them. (See note, 39, I.)

Disorganization of the rookeries.—Between the end of July and the 5th or 8th of August of every year, the rookeries are completely changed in appearance; the systematic and regular disposition of the families or harems over the whole extent of breeding-ground has disappeared; all that clock-work order which has heretofore existed seems to be broken up. The breeding-season over, those bulls which have held their positions since the first of May leave, most of them thin in flesh and weak, and of their number a very large proportion do not come out again on land during the season; but such as are seen at the end of October and November, are in good flesh. They have a new coat of rich, dark, grey-brown hair and fur, with gray or grayish ocher "wigs" of longer hair over the shoulders, forming a fresh, strong contrast to the dull, rusty, brown and umber dress in which they appeared to us during the summer, and which they had begun to shed about the first of August, in common with the females and the "holluschickie". After these males leave, at the close of their season's work and of the rutting for the year, those of them that happen to return to the land in any event do not come back until the end of September, and do not haul upon the rookery-grounds again. As a rule they prefer to herd together, like the younger males, upon the sand-beaches and rocky points close to the water.

The cows and pups, together with those bulls which we have noticed in waiting in the rear of the rookeries, and which have been in retirement throughout the whole of the breeding-season, now take possession, in a very disorderly manner, of the rookeries. There come, also, a large number of young, three, four, and five-year old males, which have been prevented by the menacing threats of the older, stronger bulls, from landing among the females during the rutting-season.

Before the middle of August three-fourths, at least, of the cows at this date are off in the water, only coming ashore at irregular intervals to nurse and look after their pups a short time. They presented to my eye, from the summits of the bluffs round about, a picture more suggestive than anything I have ever seen presented by animal life, of entire comfort and enjoyment. Here, just out and beyond the breaking of the rollers, they idly lie on the rocks or sand-beaches, ever and anon turning over and over, scratching their backs and sides with their fore- and hind-flippers. The seals on the breeding-ground appear to get very lousy. (See note, 39, K.)

Mangy cows and pups.—The frequent winds and showers drive and spatter sand into their fur and eyes, often making the latter quite sore. This occurs when they are obliged to leave the rocky rookeries and follow their pups out over the sand-ridges and flats, to which they always have a natural aversion. On the hauling-grounds they pack the soil under foot so hard and tightly in many places, that it holds water in the surface depressions, just like so many rock-basins. Out of and into these puddles the pups and the females flounder and patter incessantly, until evaporation slowly abates the nuisance. This is for the time only, inasmuch as the next day, perhaps, brings more rain, and the dirty pools are replenished.

The pups sometimes get so thoroughly plastered in these muddy, slimy puddles, that the hair falls off in patches, giving them, at first sight, the appearance of being troubled with scrofula or some other plague: from my investigations, directed to this point, I became satisfied that they were not permanently injured, though evidently very much annoyed. With reference to this suggestion as to sickness or distemper among the seals, I gave the subject direct and continued attention, and in no one of the rookeries could I discover a single seal, no matter how old or young, which appeared to be suffering in the least from any physical disorder, other than that which they themselves had inflicted, one upon the other, by fighting. The third season, passing directly under my observation, failed to reward my search with any manifestation of disease among the seals which congregate in such mighty numbers on the rookeries of St. Paul and St. George. The remarkable freedom from all such complaints enjoyed by these animals is noteworthy, and the most trenchant and penetrating cross-questioning of the natives, also, failed to give me any history or evidence of an epidemic in the past.

HOSPITALS.—The observer will, however, notice every summer, gathered in melancholy squads of a dozen to one hundred or so, scattered along the coast where the healthy seals never go, those sick and disabled bulls which have, in the earlier part of the season, been either internally injured or dreadfully scarred by the teeth of their opponents in fighting. Sand is blown by the winds into the fresh wounds and causes an inflammation and a sloughing, which very often finishes the life of the victim. The sailors term these invalid gatherings "hospitals", a phrase which, like most of their homely expressions, is quite appropriate.

YOUNG SEALS LEARNING TO SWIM.—Early in August, usually by the 8th or 10th, I noticed one of the remarkable movements of the season. I refer to the pup's first essay in swimming. Is it not odd—paradoxical—that the young seal, from the moment of his birth until he is a month or six weeks old, is utterly unable to swim? If he is seized by the nape of the neck and pitched out a rod into the water from shore, his bullet-like head will drop instantly below the surface, and his attenuated posterior extremities flap impotently on it; suffocation is the question of only a few minutes, the stupid little creature not knowing how to raise his immersed head and gain the air again. After they have attained the age I indicate, their instinct drives them down to the margin of the surf, where the alternate ebbing and flowing of its wash covers and uncovers the rocky or sandy beaches. They first smell and then touch the moist pools, and flounder in the upper wash of the surf, which leaves them as suddenly high and dry as it immersed them at first. After this beginning they make slow and clumsy progress in learning the knack of swimming. For a week or two, when overhead in depth, they continue to flounder about in the most awkward manner, thrashing the water as little dogs do, with their fore-feet, making no attempt whatever to use the hinder ones. Look at that pup now, launched out for the first time beyond his depth; see how he struggles—his mouth wide open, and his eyes fairly popping. He turns instantly to the beach, ere he has fairly struck out from the point whence he launched in, and, as the receding swell which at first carried him off his feet and out, now returning, leaves him high and dry, for a few minutes he seems so weary that he weakly crawls up, out beyond its swift returning wash, and coils himself up immediately to take a recuperative nap. He sleeps a few minutes, perhaps half an hour, then awakes as bright as a dollar, apparently rested, and at his swimming lesson he goes again. By repeated and persistent attempts, the young seal gradually becomes familiar with the water and acquainted with his own power over that element, which is to be his real home and his whole support. Once boldly swimming, the pup fairly revels in his new happiness. He and his brethren have now begun to haul and swarm along the whole length of St. Paul coast, from Northeast point down and around to Zapadnie, lining the alternating sand-beaches and rocky shingle with their plump, black forms. How they do delight in it! They play with a zest, and chatter like our own children in the kindergartens—swimming in endless evolutions, twisting, turning, or diving—and when exhausted, drawing their plump, round bodies up again on the beach. Shaking themselves dry as young dogs would do, they now either go to sleep on the spot, or have a lazy terrestrial frolic among themselves.

How an erroneous impression ever got into the mind of any man in this matter of the pup's learning to swim, I confess that I am wholly unable to imagine. I have not seen any "driving" of the young pups into the water by the old ones, in order to teach them this process, as certain authors have positively affirmed.* There is not the slightest supervision by the old mother or father of the pup, from the first moment of his birth, in this respect, until he leaves for the North Pacific, full-fledged with amphibious power. At the close of the breeding season, every year, the pups are restlessly and constantly shifting back and forth over the rookery ground of their birth, in large squads, sometimes numbering thousands upon thousands. In the course of this change of position they all sooner or later come in contact with the sea; they then blunder into the water for the first time, in a most awkward, ungainly manner, and get out as quick as they can; but so far from showing any fear or dislike of this, their most natural element, as soon as they rest from their exertion they are immediately ready for a new trial, and keep at it, provided the sea is not too stormy or rough. During all this period of self-tuition they seem thoroughly to enjoy the exercise, in spite of their repeated and inevitable discomfitures at the beginning.

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*Allen. *History of North American Pinnipeds*, p. 387.

PODDING OF THE PUPS.—The "podding" of these young pups in the rear of the great rookeries of St. Paul, is one of the most striking and interesting phases of this remarkable exhibition of highly-organized life. When they first bunch together they are all black, for they have not begun to shed the natal coat: they shine with an unctuous, greasy reflection, and grouped in small armies or great regiments on the sand-dune tracts at Northeast point, they present a most extraordinary and fascinating sight. Although the appearance of the "holluschickie" at English bay fairly overwhelms the observer with the impression of its countless multitudes, yet I am free to declare, that at no one point in this evolution of the seal-life, during the reproductive season, have I been so deeply stricken by the sense of overwhelming enumeration, as I have when, standing on the summit of Cross hill, I looked down to the southward and westward over a reach of six miles of alternate grass and sand-dune stretches, mirrored upon which were hundreds of thousands of these little black pups, spread in sleep and sport within this restricted field of vision. They appeared as countless as the grains of the sand upon which they rested.

SECOND CHANGE OF COAT.—By the 15th of September, all the pups born during the year have become familiar with the water; they have all learned to swim, and are now nearly all down by the water's edge, skirting in large masses the rocks and beaches previously this year unoccupied by seals of any class. Now they are about five or six times their original weight, or, in other words, they are 30 to 40 pounds avoirdupois, as plump and fat as butter-balls, and they begin to take on their second coat, shedding their black pup-hair completely. This second coat does not vary in color, at this age, between the sexes. They effect this transformation in dress very slowly, and cannot, as a rule, be said to have ceased their molting until the middle or 20th of October.

This second coat, or sea-going jacket, of the pup, is a uniform, dense, light-gray over-hair, with an under-fur which is slightly grayish in some, but is, in most cases, a soft, light-brown hue. The over-hair is fine, close, and elastic, from two-thirds of an inch to an inch in length, while the fur is not quite half an inch long. Thus the coarser hair shingles over and conceals the soft under-wool completely, giving the color by which, after the second year, the sex of the animal is recognized. The pronounced difference between the sexes is not effected, however, by color alone until the third year of the animal. This over-hair of the young pup's new jacket on the back, neck, and head, is a dark chinchilla-gray, blending into a stone-white, just tinged with a grayish tint on the abdomen and chest. The upper lip, upon which the whiskers or moustaches take root, is covered with hair of a lighter gray than that of the body. This moustache consists of fifteen or twenty longer or shorter bristles, from half an inch to three inches in length, some brownish, horn-colored, and others whitish-gray and translucent, on each side and back and below the nostrils, leaving the muzzle quite prominent and hairless. The nasal openings and their surroundings are, as I have before said when speaking of this feature, similar to those of a dog.

EYES OF THE PUP-SEALS.—The most attractive feature about the fur-seal pup, and that which holds this place as it grows on and older, is the eye. This organ is exceedingly clear, dark, and liquid, with which, for beauty and amiability, together with real intelligence of expression, those of no other animal that I have ever seen, or have ever read of, can be compared; indeed, there are few eyes in the orbits of men and women which suggest more pleasantly the ancient thought of their being "windows to the soul". The lids to the eye are fringed with long, perfect lashes, and the slightest irritation in the way of dust or sand, or other foreign substances, seems to cause them exquisite annoyance, accompanied by immoderate weeping. This involuntary tearfulness so moved Steller that he ascribed it to the processes of the seal's mind, and declared that the seal-mothers actually shed tears.

RANGE OF VISION.—I do not think that their range of vision on land, or out of the water, is very great. I have frequently experimented with adult fur-seals, by allowing them to catch sight of my person, so as to distinguish it as of foreign character, three and four hundred paces off, taking the precaution of standing to the leeward of them when the wind was blowing strong, and then walking unconcernedly up to them. I have invariably noticed, that they would allow me to approach quite close before recognizing my strangeness; this occurring to them, they at once made a lively noise, a medley of coughing, spitting, snorting, and blaating, and plunged in spasmodic lopes and shambled to get away from my immediate neighborhood; as to the pups, they all stupidly stare at the form of a human being until it is fairly on them, when they also repeat in miniature these vocal gymnastics and physical efforts of the older ones, to retreat or withdraw a few rods, sometimes only a few feet, from the spot upon which you have cornered them, after which they instantly resume their previous occupation of either sleeping or playing, as though nothing had happened. (See note, 39, M.)

POWER OF SCENT: ODOR OF THE SEALS.—The greatest activity displayed by any one of the five senses of the seal, is evidenced in its power of scent. This faculty is all that can be desired in the line of alertness. I never failed to awaken an adult seal from the soundest sleep, when from a half to a quarter of a mile distant, no matter how softly I proceeded, if I got to the windward, though they sometimes took alarm when I was a mile off.

They leave evidences of their being on these great reproductive fields, chiefly at the rookeries, in the hundreds of dead carcasses which mark the last of those animals that have been rendered infirm, sick, or were killed by fighting among themselves in the early part of the season, or of those which have crawled far away from the scene of battle to die from death-wounds received in the bitter struggle for a harem. On the rookeries, wherever these lifeless bodies rest, the living, old and young, clamber and patter backward and forward over and on the putrid remains, and by this constant stirring up of decayed matter, give rise to an exceedingly disagreeable and far-reaching "funk". This has been, by all writers who have dwelt on the subject, referred to as the smell which these animals emit for another reason—erroneously called the "rutting odor". If these creatures have any odor peculiar to them when in this condition, I will frankly confess that I am unable to distinguish it from the fumes which are constantly being stirred up and rising out of those decaying carcasses of the older seals, as well as from the bodies of the few pups which have been killed accidentally by the heavy bulls fighting over them, charging back and forth against one another, so much of the time.

They have, however, a very characteristic and peculiar smell, when they are driven and get heated; their breath exhalations possess a disagreeable, faint, sickly odor, and when I have walked within its influence at the rear of a seal-drive, I could almost fancy, as it entered my nostrils, that I stood beneath an ailanthus tree in bloom; but this odor can by no means be confounded with what is universally ascribed to another cause. It is also noteworthy, that if your finger is touched ever so lightly to a little fur-seal blubber, it will smell very much like that which I have appreciated and described as peculiar to their breath, which arises from them when they are driven, only it is a little stronger. Both the young and old fur-seals have this same breath-taint at all seasons of the year.

REVIEW OF STATEMENTS CONCERNING LIFE IN THE ROOKERIES.—To recapitulate and sum up the system and regular method of life and reproduction on these rookeries of St. Paul and St. George, as the seals seem to have arranged it, I shall say that—

First. The earliest bulls land in a negligent, indolent way, at the opening of the season, soon after the rocks at the water's edge are free from ice, frozen snow, etc. This is, as a rule, about the 1st to the 5th of every May. They land from the beginning to the end of the season in perfect confidence and without fear; they are very fat, and will weigh at an average 500 pounds each; some stay at the water's edge, some go to the tier back of them again, and so on until the whole rookery is mapped out by them, weeks in advance of the arrival of the first female.

Second. That by the 10th or 12th of June, all the male stations on the rookeries have been mapped out and fought for, and held in waiting by the "see-catchie". These males are, as a rule, bulls rarely ever under six years of age; most of them are over that age, being sometimes three, and occasionally doubtless four, times as old.

Third. That the cows make their first appearance, as a class, on or after the 12th or 15th of June, in very small numbers; but rapidly after the 23d and 25th of this month, every year, they begin to flock up in such numbers as to fill the harems very perceptibly; and by the 8th or 10th of July, they have all come, as a rule—a few stragglers excepted. The average weight of the females now will not be much more than 80 to 90 pounds each.

Fourth. That the breeding-season is at its height from the 10th to the 15th of July every year, and that it subsides entirely at the end of this month and early in August: also, that its method and system are confined entirely to the land, never effected in the sea.

Fifth. That the females bear their first young when they are three years old, and that the period of gestation is nearly twelve months, lacking a few days only of that lapse of time.

Sixth. That the females bear a single pup each, and that this is born soon after landing; no exception to this rule has ever been witnessed or recorded.

Seventh. That the "see-catchie" which have held the harems from the beginning to the end of the season, leave for the water in a desultory and straggling manner at its close, greatly emaciated, and do not return, if they do at all, until six or seven weeks have elapsed, when the regular systematic distribution of the families over the rookeries is at an end for this season. A general medley of young males now are free, which come out of the water, and wander over all these rookeries, together with many old males, which have not been on seraglio duty, and great numbers of the females. An immense majority over all others present are pups, since only about 25 per cent. of the mother-seals are out of the water now at any one time.

Eighth. That the rookeries lose their compactness and definite boundaries of true breeding-limit and expansion by the 25th to the 28th of July every year; then, after this date, the pups begin to haul back, and to the right and left, in small squads at first, but as the season goes on, by the 18th of August, they depart without reference to their mothers; and when thus scattered, the males, females, and young swarm over more than three and four times the area occupied by them when breeding and born on the rookeries. The system of family arrangement and uniform compactness of the breeding classes breaks up at this date.

Ninth. That by the 8th or 10th of August the pups born nearest the water first begin to learn to swim; and that by the 15th or 20th of September they are all familiar, more or less, with the exercise.

Tenth. That by the middle of September the rookeries are entirely broken up; confused, straggling bands of females are seen among bachelors, pups, and small squads of old males, crossing and recrossing the ground in an aimless, listless manner. The season now is over.

Eleventh. That many of the seals do not leave these grounds of St. Paul and St. George before the end of December, and some remain even as late as the 12th of January; but that by the end of October and the beginning of November every year, all the fur-seals of mature age—five and six years, and upward—have left the islands. The younger males go with the others: many of the pups still range about the islands, but are not hauled to any great extent on the beaches or the flats. They seem to prefer the rocky shore-margin, and to lie as high up as they can get on such bluffy rookeries as Tolstoi and the Reef. By the end of this month, November, they are, as a rule, all gone.

Such is the sum and the substance of my observations which relate to the breeding-grounds alone on St. Paul and St. George. It is the result of summering and wintering on them, and these definite statements I make with that confidence which one always feels, when he speaks of that which has entered into his mind by repeated observation, and has been firmly grounded by careful deductions therefrom.

## 10. THE "HOLLUSCHICKIE" OR "BACHELOR" SEALS—A DESCRIPTION.

**THE HAULING-GROUNDS AND THEIR OCCUPANTS.**—I now call the attention of the reader to another very remarkable feature in the economy of the seal-life on these islands. The great herds of "holluschickie",* numbering from one-third to one-half, perhaps, of the whole aggregate of near 5,000,000 seals known to the Pribylov group, are never allowed by the "see-catchie", under the pain of frightful mutilation or death, to put their flippers on or near the rookeries.

By reference to my map, it will be observed that I have located a large extent of ground—markedly so on St. Paul—as that occupied by the seals' "hauling-grounds"; this area, in fact, represents those portions of the island upon which the "holluschickie" roam in their heavy squadrons, wearing off and polishing the surface of the soil, stripping every foot, which is indicated on the chart as such, of its vegetation and mosses, leaving the margin as sharply defined on the bluffy uplands and sandy flats as it is on the map itself.

The reason that so much more land is covered by the "holluschickie" than by the breeding-seals—ten times as much at least—is due to the fact, that though not as numerous, perhaps, as the breeding-seals, they are tied down to nothing, so to speak—are wholly irresponsible, and roam hither and thither as caprice and the weather may dictate. Thus they wear off and rub down a much larger area than the rookery-seals occupy; wandering aimlessly, and going back, in some instances, notably at English bay, from one-half to a whole mile inland, not traveling in desultory files along winding, straggling paths, but sweeping in solid platoons, they obliterate every spear of grass and rub down nearly every hummock in their way.

**DEFINITION OF "HOLLUSCHICKIE".**—All the male seals, from six years of age, are compelled to herd apart by themselves and away from the breeding-grounds, in many cases far away; the large hauling-grounds at Southwest point being about two miles from the nearest rookery. This class of seals is termed "holluschickie" or the "bachelor" seals by the people, a most fitting and expressive appellation.

The seals of this great subdivision are those with which the natives on the Pribylov group are the most familiar: naturally and especially so, since they are the only ones, with the exception of a few thousand pups, and occasionally an old bull or two, taken late in the fall for food and skins, which are driven up to the killing-grounds at the village for slaughter. The reasons for this exclusive attention to the "bachelors" are most cogent, and will be given hereafter when the "business" is discussed.

**LOCATING THE HAULING-GROUNDS: PATHS THROUGH THE ROOKERIES.**—Since the "holluschickie" are not permitted by their own kind to land on the rookeries and stop there, they have the choice of two methods of locating, one of which allows them to rest in the rear of the rookeries, and the other on the free beaches. The most notable illustration of the former can be witnessed on Reef point, where a pathway is left for their ingress and egress through a rookery—a path left by common consent, as it were, between the harems. On these trails of passage they come and go in steady files all day and all night during the season, unmolested by the jealous bulls which guard the seraglios on either side as they travel; all peace and comfort to the young seal if he minds his business and keeps straight on up or down, without stopping to nose about right or left; all woe and desolation to him, however, if he does not, for in that event he will be literally torn in bloody griping, from limb to limb, by the vigilant old "see-catchie".

Since the two and three-year old "holluschickie" come up in small squads with the first bulls in the spring, or a few days later, such common highways as those between the rookery-ground and the sea are traveled over before the arrival of the cows, and get well defined. A passage for the "bachelors", which I took much pleasure in observing day after day at Polavina, another at Tolstoi, and two on the Reef, in 1872, were entirely closed up by the "see-catchie" and obliterated, when I again searched for them in 1874. Similar passages existed, however, on several of the large rookeries of St. Paul; one of those at Tolstoi exhibits this feature very finely, for here the hauling-ground extends around from English bay, and lies up back of the Tolstoi rookery, over a flat and rolling summit, from 100 to 120 feet above the sea-level. The young males and yearlings of both sexes come through and between the harems, at the height of the breeding-season, on two of these narrow pathways, and before reaching the ground above, are obliged to climb up an almost abrupt bluff, which they do by following and struggling in the water-runs and washes that are worn into its face. As this is a large hauling-ground, on which, every favorable day during the season, fifteen or twenty thousand commonly rest, the sight of skillful seal-climbing can be witnessed here at any time during that period; and the sight of such climbing as this of Tolstoi is exceedingly novel and interesting. Why, verily, they ascend over and upon places where an ordinary man might, at first sight, with great positiveness say that it was utterly impossible for him to climb.

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* The Russian term "holluschickie" or "bachelors" is very appropriate, and is usually employed.

HAULING-GROUNDS ON THE BEACHES.—The other method of coming ashore, however, is the one most followed and favored. In this case they avoid the rookeries altogether, and repair to the unoccupied beaches between them, and then extend themselves out all the way back from the sea, as far from the water, in some cases, as a quarter and even half of a mile. I stood on the Tolstoi sand-dunes one afternoon, toward the middle of July, and had under my eyes, in a straightforward sweep from my feet to Zapadnie, a million and a half of seals spread out on those hauling-grounds. Of these, I estimated that fully one-half, at that time, were pups, yearlings, and "holluschickie". The rookeries across the bay, though plainly in sight, were so crowded, that they looked exactly as I have seen surfaces appear upon which bees had swarmed in obedience to that din and racket made by the watchful apiarian, when he desires to hive the restless honey-makers.

The great majority of yearlings and "holluschickie" are annually hauled out and packed thickly over the sand-beach and upland hauling-grounds, which lay between the rookeries on St. Paul island. At St. George there is nothing of this extensive display to be seen, for here is only a tithe of the seal-life occupying St. Paul, and no opportunity whatever is afforded for an amphibious parade.

GENTLENESS OF THE SEALS.—Descend with me from this sand-dune elevation of Tolstoi, and walk into that drove of "holluschickie" below us; we can do it; you do not notice much confusion or dismay as we go in among them; they simply open out before us and close in behind our tracks, stirring, crowding to the right and left as we go, twelve or twenty feet away from us on each side. Look at this small flock of yearlings, some one, others two, and even three years old, which are coughing and spitting around us now, staring up at our faces in amazement as we walk ahead; they struggle a few rods out of our reach, and then come together again behind us, showing no further sign of notice of ourselves. You could not walk into a drove of hogs, at Chicago, without exciting as much confusion and arousing an infinitely more disagreeable tumult; and as for sheep on the plains, they would stampede far quicker. Wild animals indeed! You can now readily understand how easy it is for two or three men, early in the morning, to come where we are, turn aside from this vast herd in front of and around us two or three thousand of the best examples, and drive them back, up, and over to the village. That is the way they get the seals; there is not any "hunting" or "chasing" or "capturing" of fur-seals on these islands.

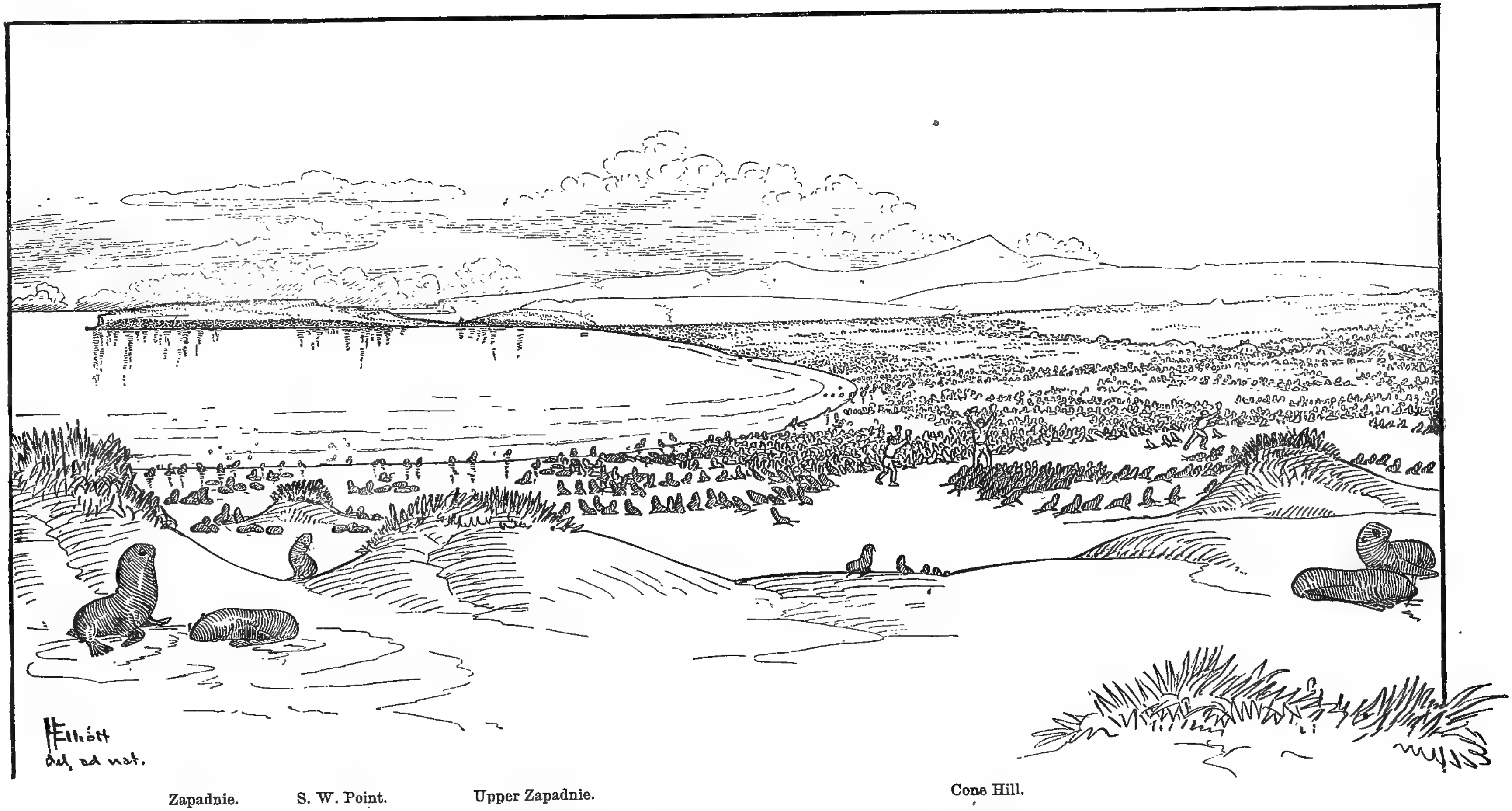
"HOLLUSCHICKIE" DO NOT FAST.—While the young male seals undoubtedly have the power of going for lengthy intervals without food, they, like the female seals on the breeding-grounds, certainly do not maintain any long fasting periods on land; their coming and going from the shore is frequent and irregular, largely influenced by the exact condition of the weather from day to day; for instance, three or four thick, foggy days seem to call them out from the water by hundreds of thousands upon the different hauling-grounds (which the reader observes recorded on my map). In some cases, I have seen them lie there so close together that scarcely a foot of ground, over whole acres, is bare enough to be seen; then a clear and warmer day follows, and this seal-covered ground, before so thickly packed with animal life, will soon be almost deserted: comparatively so at least, to be filled up immediately as before, when favorable weather shall again recur. They must frequently eat when here, because the first yearlings and "holluschickie" that appear in the spring are no fatter, sleeker, or livelier than they are at the close of the season; in other words, their condition, physically, seems to be the same from the beginning to the end of their appearance here during the summer and fall. It is quite different, however, with the "see-catch"; we know how and where it spends two to three months, because we find it on the grounds at all times, day or night, during that period.

SPORTS AND PASTIMES OF THE YOUNG "BACHELORS".—A small flock of the young seals, one to three years old, generally, will often stray from these hauling-ground margins, up and beyond, over the fresh mosses and grasses, and there sport and play one with another, just as little puppy-dogs do; and when weary of this gamboling a general disposition to sleep is suddenly manifested, and they stretch themselves out and curl up in all the positions and all the postures that their flexible spines and ball-and-socket joints will permit. They seem to revel in the unwonted vegetation, and to be delighted with their own efforts in rolling down and crushing the tall stalks of the grasses and umbelliferous plants; one will lie upon its back, hold up its hind-flippers, and lazily wave them about, while it scratches, or rather rubs, its ribs with the fore-hands alternately, the eyes being tightly closed during the whole performance; the sensation is evidently so luxurious that it does not wish to have any side-issue draw off its blissful self-attention. Another, curled up like a cat on a rug, draws its breath, as indicated by the heaving of its flanks, quickly but regularly, as though in heavy sleep; another will lie flat upon its stomach, its hind-flippers covered and concealed, while it tightly folds its fore-feet back against its sides, just as a fish carries its pectoral fins—and so on to no end of variety, according to the ground and the fancy of the animals.

These "bachelor" seals are, I am sure, without exception, the most restless animals in the whole brute creation, which can boast of a high organization. They frolic and lope about over the grounds for hours, without a moment's cessation, and their sleep, after this, is exceedingly short, and it is ever accompanied with nervous twitchings and uneasy muscular movements; they seem to be fairly brimful and overrunning with spontaneity—to be surcharged with fervid, electric life.

Another marked feature which I have observed among the multitudes of "holluschickie", which have come under my personal observation and auditory, and one very characteristic of this class, is, that nothing like ill-humor

Plate VII.


H Elliott
del. ad nat.
Zapadnie.
S. W. Point.
Upper Zapadnie.
Cone Hill.

NATIVES SELECTING A DRIVE.

View over hauling-grounds of "holluschickie" at English Bay, looking west from Tolstoi Sand-dunes.

appears in all of their playing together; they never growl or bite, or show even the slightest angry feeling, but are invariably as happy, one with another, as can be imagined. This is a very singular trait; they lose it, however, with astonishing rapidity, when their ambition and strength develops and carries them, in due course of time, to the rookery. (See note, 39, N.)

The pups and yearlings have an especial fondness for sporting on the rocks which are just at the water's level and awash, so as to be covered and uncovered as the surf rolls in. On the bare summit of these wave-worn spots, they will struggle and clamber in groups of a dozen or two at a time throughout the whole day, in endeavoring to push off that one of their number which has just been fortunate enough to secure a landing; the successor has, however, but a brief moment of exultation in victory, for the next roller that comes booming in, together with the pressure by its friends, turns the table, and the game is repeated, with another seal on top. Sometimes, as well as I could see, the same squad of "holluschickie" played for a whole day and night, without a moment's cessation, around such a rock as this, off "Nah Speel" rookery; but in this observation I may be mistaken, because the seals cannot be told apart.

SEALS AMONG THE BREAKERS.—The graceful unconcern with which the fur-seal sports safely in, among, and under booming breakers, during the prevalence of the numerous heavy gales at the islands, has afforded me many consecutive hours of spell-bound attention to them, absorbed in watching their adroit evolutions within the foaming surf, that seemingly, every moment, would, in its fierce convulsions, dash these hardy swimmers, stunned and lifeless, against the iron-bound foundations of the shore, which alone checked the furious rush of the waves. Not at all. Through the wildest and most ungovernable mood of the roaring tempest and storm-tossed waters attending its transit, I never failed, on creeping out, and peering over the bluffs, in such weather, to see squads of these perfect watermen—the most expert of all amphibians—gamboling in the seething, creamy wake of mighty rollers, which constantly broke in thunder tones over their alert, dodging heads. The swift succeeding seas seemed, every instant, to poise the seals at the very verge of death. Yet the *Callorhinus*, exulting in his skill and strength, bade defiance to their wrath, and continued his diversions.

SWIMMING FEATS OF THE "BACHELORS".—The "holluschickie" are the champion swimmers of all the seal-tribe; at least, when in the water around the islands, they do nearly every fancy tumble and turn that can be executed. The grave old males and their matronly companions seldom indulge in any extravagant display, as do these youngsters, jumping out of the water like so many dolphins, describing beautiful elliptic curves sheer above its surface, rising three and even four feet from the sea, with the back slightly arched, the fore-flippers folded tightly against the sides, and the hinder ones extended and pressed together straight out behind, plumping in head first, to reappear in the same manner, after an interval of a few seconds of submarine swimming, like the flight of a bird, on their course. Sea-lions and hair-seals never jump in this manner. (See note, 39, O.)

All classes will invariably make these dolphin-jumps, when they are surprised or are driven into the water, curiously turning their heads while sailing in the air, between the "rises" and "plumps", to take a look at the cause of their disturbance. They all swim rapidly, with the exception of the pups, and may be said to dart under the water with the velocity of a bird on the wing; as they swim they are invariably submerged, running along horizontally about two or three feet below the surface, guiding their course with the hind-flippers as by an oar, and propelling themselves solely by the fore-feet, rising to breathe at intervals which are either very frequent or else so wide apart that it is impossible to see the speeding animal when he rises a second time.

How long they can remain under water without taking a fresh breath, is a problem which I had not the heart to solve, by instituting a series of experiments at the island; but I am inclined to think that, if the truth were known in regard to their ability of going without rising to breathe, it would be considered astounding. On this point, however, I have no data worth discussing, but will say that, in all their swimming which I have had a chance to study, as they passed under the water, mirrored to my eyes from the bluff above by the whitish-colored rocks below the rookery waters at Great Eastern rookery, I have not been able to satisfy myself how they used their long, flexible hind-feet, other than as steering media. If these posterior members have any perceptible motion, it is so rapid that my eye is not quick enough to catch it; but the fore-flippers, however, can be most distinctly seen, as they work in feathering forward and sweeping flatly back, opposed to the water, with great rapidity and energy. They are evidently the sole propulsive power of the fur-seal in the water, as they are its main fulcrum and lever combined, for progression on land. I regret that the shy nature of the hair-seal never allowed me to study its swimming motions, but it seems to be a general point of agreement among authorities on the *Phocidæ*, that all motion in water by them arises from that power which they exert and apply with the hind-feet. So far as my observations on the hair-seal go, I am inclined to agree with this opinion.

All their movements in water, whether they are traveling to some objective point or are in sport, are quick and joyous; and nothing is more suggestive of intense satisfaction and pure physical comfort, than is that spectacle which we can see every August, a short distance out at sea from any rookery where thousands of old males and females are idly rolling over in the billows side by side, rubbing and scratching with their fore- and hind-flippers, which are here and there stuck up out of the water by their owners, like the lateen-sails of the Mediterranean feluccas, or, when the hind-flippers are presented, like a "cat-o'-nine tails". They sleep in the water a great deal, too, more than is generally supposed, showing that they do not come on land to rest—very clearly not.

CLASSING THE "HOLLUSCHICKIE" BY AGE.—When the "holluschickie" are up on land they can be readily separated into their several classes as to age, by the color of their coats and size, when noted, namely, the yearlings, the two, three, four, and five years old males. When the yearlings, or the first class, haul out, they are dressed just as they were after they shed their pup-coats and took on the second covering, during the previous year in September and October; and now, as they come out in the spring and summer, one year old, the males and females cannot be distinguished apart, either by color or size, shape or action; the yearlings of both sexes have the same steel-gray backs and white stomachs, and are alike in behavior and weight.

Next year these yearling females, which are now trooping out with the youthful males on the hauling-grounds, will repair to the rookeries, while their male companions will be obliged to come again to this same spot.

SHEDDING THE HAIR: STAGEY SEALS.—About the 15th and 20th of every August, they have become perceptibly "stagey", or, in other words, their hair is well under way in shedding. All classes, with the exception of the pups, go through this process at this time every year. The process requires about six weeks between the first dropping or falling out of the old over-hair, and its full substitution by the new. This takes place, as a rule, between August 1 and September 28.

The fur is shed, but it is so shed that the ability of the seal to take to the water and stay there, and not be physically chilled or disturbed during the process of molting, is never impaired. The whole surface of these extensive breeding-grounds, traversed over by us after the seals had gone, was literally matted with the shed hair and fur. This under-fur or pelage is, however, so fine and delicate, and so much concealed and shaded by the coarser over-hair, that a careless eye or a superficial observer might be pardoned in failing to notice the fact of its dropping and renewal.

The yearling cows retain the colors of the old coat in the new, when they shed it for the first time, and from that time on, year after year, as they live and grow old. The young three-year-olds and the older cows look exactly alike, as far as color goes, when they haul up at first and dry out on the rookeries, every June and July.

The yearling males, however, make a radical change when they shed for the first time, for they come out from their "staginess" in a nearly uniform dark gray, and gray and black mixed, and lighter, with dark ocher to whitish on the upper and under parts, respectively. This coat, next year, when they appear as two-year-olds, shedding for the three-year-old coat, is a very much darker gray, and so on to the third, fourth, and fifth season; then after this, with age, they begin to grow more gray and brown, with rufous-ocher and whitish-tipped over-hair on the shoulders. Some of the very old bulls change in their declining years to a uniform shade all over of dull-grayish ocher. The full glory and beauty of the seal's moustache is denied to him until he has attained his seventh or eighth year.

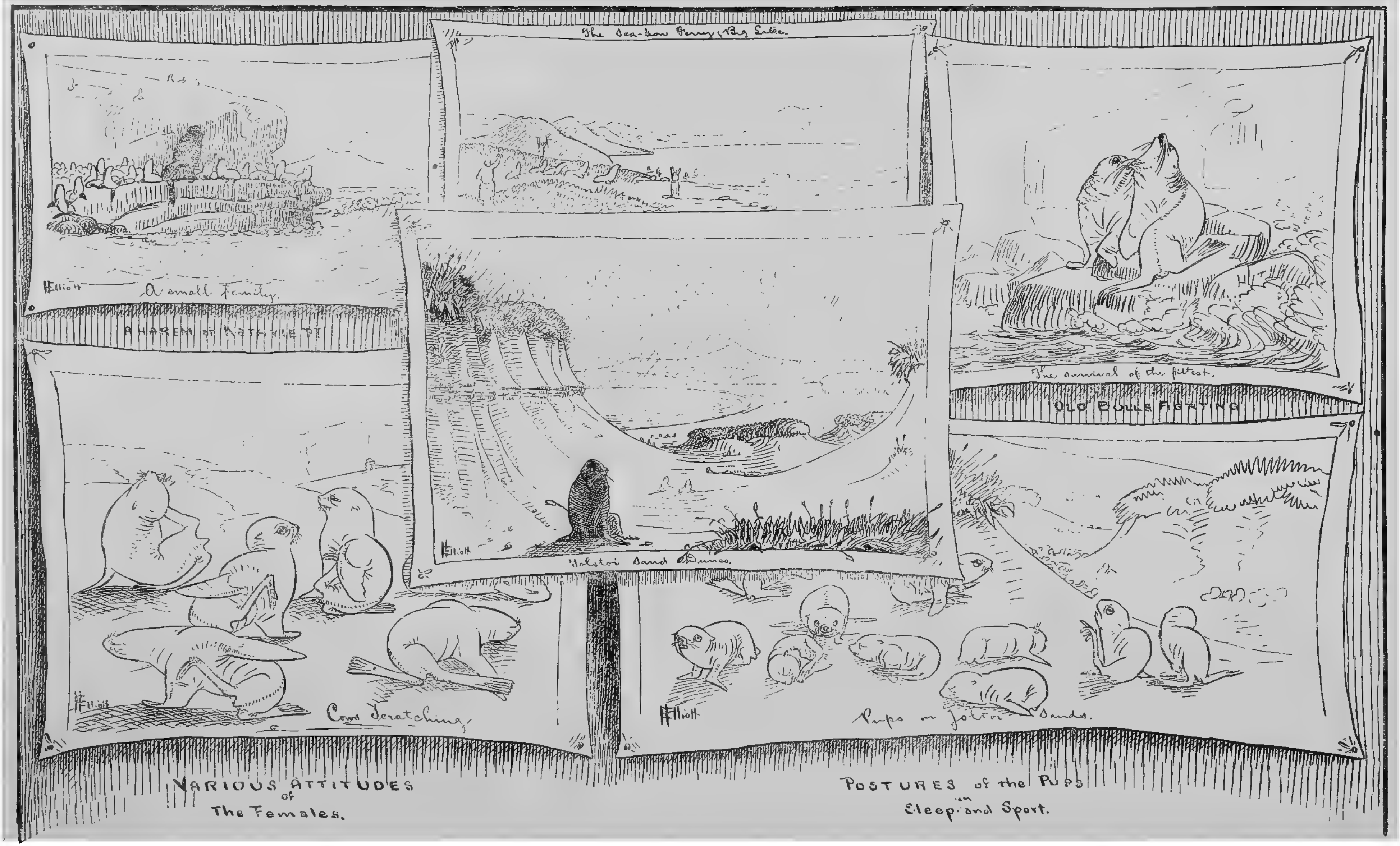
COMPARATIVE SIZE OF FEMALES AND MALES.—The female does not get her full growth and weight until the end of her fourth year, so far as I have observed, but she does most of her growing longitudinally in the first two; after she has passed her fourth and fifth years, she weighs from 30 to 50 pounds more than she did in the days of her youthful maternity.

The male does not get his full growth and weight until the close of his seventh year, but realizes most of it, osteologically speaking, by the end of the fifth; and from this it may be perhaps truly inferred, that the male seals live to an average age of eighteen or twenty years, if undisturbed in a normal condition, and that the females attain ten or twelve seasons under the same favorable circumstances. Their respective weights, when fully mature and fat in the spring, will, in regard to the male, strike an average of from four to five hundred pounds, while the females will show a mean of from 70 to 80 pounds.

I did not permit myself to fall into error in estimating this matter of weight, because I early found that the apparent huge bulk of a sea-lion bull or fur-seal male, when placed upon the scales, shrank far below my notions: I took a great deal of pains, on several occasions, during the killing-season, to have a platform scale carted out into the field, and as the seals were knocked down, and before they were bled, I had them carefully weighed, constructing the following table from my observations:

TABLE SHOWING THE WEIGHT, SIZE, AND GROWTH OF THE FUR-SEAL (CALLORHINUS URSINUS), FROM THE PUP TO THE ADULT, MALE AND FEMALE.

| Age. | Length. | Girth. | Gross weight of body. | Weight of skin. | Remarks. |
|---|---|---|---|---|---|
| | *Inches.* | *Inches.* | *Pounds.* | *Pounds.* | |
| One week | 12 to 14 | 10 to 10½ | 6 to 7½ | 1¼ | A male and female, being the only ones of the class handled, June 20, 1873. |
| Six months | 24 | 25 | 39 | 3 | A mean of ten examples, males and females, alike in size, November 28, 1872. |
| One year | 38 | 25 | 39 | 4½ | A mean of six examples, males and females, alike in size, July 14, 1873. |
| Two years | 45 | 30 | 58 | 5½ | A mean of thirty examples, all males, July 24, 1873. |
| Three years | 52 | 36 | 87 | 7 | A mean of thirty-two examples, all males, July 24, 1873. |
| Four years | 58 | 42 | 135 | 12 | A mean of ten examples, all males, July 24, 1873. |
| Five years | 65 | 52 | 200 | 16 | A mean of five examples, all males, July 24, 1873. |
| Six years | 72 | 64 | 280 | 25 | A mean of three examples, all males, July 24, 1873. |
| Eight to twenty years | 75 to 80 | 70 to 75 | 400 to 500 | 45 to 50 | An estimate only, calculating on their weight when fat, and early in the season. |


A small Family.
HElliott
A HAREM at NATH NIE PT
The Sea-lion Ferry, Big Lake.
The survival of the fittest.
OLD BULLS FIGHTING
Tolstoi Sand Dunes.
HElliott
Cows Scratching.
HElliott
Pups on Tolstoi Sands.
HElliott
VARIOUS ATTITUDES of The Females.
POSTURES of the PUPS in Sleep and Sport.

SUNDRY SEAL-SKETCHES FROM THE AUTHOR'S PORTFOLIO.

St. Paul Island, June and July, 1872.

WEIGHT OF FEMALE SEALS.—The adult females will correspond with the three years old males in the above table, the younger cows weighing frequently only 75 pounds, and many of the older ones going as high as 120, but an average of 80 to 85 pounds is the rule. Those specimens of the females which I weighed were examples taken by me for transmission to the Smithsonian Institution, otherwise I should not have been permitted to make this record of their weight, inasmuch as weighing them means to kill them; and the law and the habit, or rather the prejudice of the entire community up there, is unanimously in opposition to any such proceeding, for they never touch females here, and never set their foot on or near the breeding-grounds on such an errand. It will be noticed, also, that I have no statement of the weights of these exceedingly fat and heavy males which first appear on the breeding-grounds in the spring; those which I have referred to, in the table above given, were very much heavier at the time of their first appearance in May and June, than at the moment when they were in my hands, in July; but the cows, and the other classes, do not sustain protracted fasting, and therefore their weights may be considered substantially the same throughout the year.

CHANGE IN WEIGHT.—Thus, from the fact that all the young seals and females do not change much in weight from the time of their first coming out in the spring, till that of their leaving in the fall and early winter, I feel safe in saying that they feed at irregular but not long intervals, during the time that they are here under our observation, since they are constantly changing from land to water and from water to land, day in and day out. I do not think that the young males fast longer than a week or ten days at a time, as a rule.

DISPERSAL OF THE "HOLLUSCHICKIE".—By the end of October and the 10th of November, the great mass of the "holluschickie", the trooping myriads of English bay, Southwest point, Reef parade, Lukannon sands, the table-lands of Polavina, and the mighty hosts of Novastoshnah, at St. Paul, together with the quota of St. George, had taken their departure from its shores, and had gone out to sea, spreading with the receding schools of fish that were now returning to the deep waters of the North Pacific, where, in that vast expanse, over which rolls an unbroken billow, 5,000 miles from Japan to Oregon, they spend the winter and the early spring, until they reappear and break up, with their exuberant life, the dreary winter-isolation of the land which gave them birth.

TASTE OF THE SEALS IN THE MATTER OF WEATHER.—A few stragglers remain, however, as late as the snow and ice will permit them to, in and after December; they are all down by the water's edge then, and haul up entirely on the rocky beaches, deserting the sand altogether; but the first snow that falls makes them very uneasy, and I have seen a large hauling-ground so disturbed by a rainy day and night, that its hundreds of thousands of occupants fairly deserted it. The fur-seal cannot bear, and will not endure, the spattering of sand into its eyes, which always accompanies the driving of a rain-storm; they take to the water, to reappear when the nuisance shall be abated.

The weather in which the fur-seal delights is cool, moist, foggy, and thick enough to keep the sun always obscured, so as to cast no shadows. Such weather, which is the normal weather of St. Paul and St. George, continued for a few weeks in June and July, brings up from the sea millions of fur-seals. But, as I have before said, a little sunshine, which raises the temperature as high as 50° to 55° Fahr., will send them back from the hauling-grounds almost as quickly as they came. Fortunately, these warm, sunny days on the Pribylov islands are so rare that the seals certainly can have no ground of complaint, even if we may presume they have any at all. Some curious facts in regard to their selection of certain localities on these islands, and their abandonment of others, I will discuss in a succeeding chapter, descriptive of the rookeries; this chapter is illustrated by topographical surveys made by myself.

ALBINOS.—I looked everywhere and constantly, when treading my way over acres of ground which were fairly covered with seal-pups, and older ones, for specimens that presented some abnormity, that is, monstrosities, albinos, etc., such as I have seen in our great herds of stock; but I was, with one or two exceptions, unable to note anything of the kind. I have never seen any malformations or "monsters" among the pups and other classes of the fur-seals, nor have the natives recorded anything of the kind, so far as I could ascertain from them. I saw only three albino pups among the multitudes on St. Paul, and none on St. George. They did not differ, in any respect, from the normal pups in size and shape. Their hair, for the first coat, was a dull ocher all over; the fur whitish, changing to a rich brown, the normal hue; the flippers and muzzle were a pinkish flesh-tone in color, and the iris of the eye sky-blue. When they shed the following year, they are said to have a dirty, yellowish-white color, which makes them exceedingly conspicuous when mixed in among a vast majority of black pups, gray yearlings, and "holluschickie" of their kind. (See note, 39, O.)

WHERE DO THE SEALS DIE?—It is perfectly evident that a large percentage of this immense number of seals must die every year from natural limitation of life. They do not die on these islands; that much I am certain of. Not one dying a natural death could I find or hear of on the grounds; they evidently lose their lives at sea, preferring to sink with the *rigor mortis* into the cold, blue depths of the great Pacific, or beneath the green waves of Bering sea, rather than to encumber and disfigure their summer haunts on the Pribylov islands.

## 11. DESCRIPTION OF THE FUR-SEAL ROOKERIES OF ST. PAUL AND ST. GEORGE.

DEARTH OF INFORMATION CONCERNING THE FACTS ABOUT THE ROOKERIES.—Before I can intelligently and clearly present an accurate estimate of the aggregate number of fur-seals which appear upon those great breeding-grounds of the Pribylov group every season, I must take up, in regular sequence, my surveys of these remarkable rookeries which I have illustrated in this memoir by the accompanying sketch-maps, showing topographically the superficial area and distribution assumed by the seal-life at each locality.

It will be observed, that the sum total on St. Paul island preponderates, and completely overshadows that which is represented at St. George. Before passing to the detailed discussion of each rookery, it is well to call attention to a few salient features in regard to the present appearance of the seals on these breeding-grounds, which latter are of their own selection. Touching the location of the fur-seals to-day, as I have recorded and surveyed it, compared with their distribution in early times, I am sorry to say that there is not a single line on a chart, or a word printed in a book, or a note made in manuscript, which refers to this all-important subject, prior to my own work, which I present herewith for the first time to the public. The absence of definite information in regard to what I conceive to be of vital interest and importance to the whole business, astonished me; I could not at first believe it; and, for the last four or five years, I have been searching among the archives of the old Russian company, as I searched diligently when up there, and elsewhere in the territory of Alaska, for some evidence in contradiction of this statement which I have just made. I wanted to find—I hoped to discover—some old record, some clue, by which I could measure with authority and entire satisfaction to my own mind, the relative volume of seal-life in the past, as compared with that which I record in the present, but was disappointed.

I am unable, throughout the whole of the following discussion, to cite a single reliable statement which can give any idea as to the condition and numbers of the fur-seal on these islands, when they were discovered in 1786–'87, or during the whole time of their occupation since, up to the date of my arrival. I mark this so conspicuously, for it is certainly a very strange oversight, a kind of neglect, which, in my opinion, has been, to say the least, inexcusable.

RUSSIAN RECORDS.—In attempting to form an approximate conception of what the seals were or might have been in those early days, as they spread themselves over the hauling- and breeding-grounds of these remarkable islands, I have been thrown entirely upon the vague statements given to me by the natives and one or two of the first American pioneers in Alaska. The only Russian record which touches ever so lightly upon the subject* contains the remarkable statement, which is, in the light of my surveys, simply ridiculous now, that is, that the number of fur-seals on St. George during the first years of Russian occupation, was nearly as great as that on St. Paul. The most superficial examination of the geological character portrayed on the accompanying maps of these two islands, will satisfy any unprejudiced mind as to the total error of such a statement. Why, a mere tithe only of the multitudes which repair to St. Paul, in perfect comfort, over the sixteen to twenty miles of splendid landing-ground found thereon, could visit St. George, when all of the coast-line fit for their reception at this island, is a scant two and a half miles; but for that matter there was, at the time of my arrival and in the beginning of my investigation, a score of equally wild and incredible legends afloat in regard to the rookeries on St. Paul and St. George. Finding, therefore, that the whole work must be undertaken *de novo*, I set about it without further delay.

IMMENSE MORTALITY OF THE SEALS IN 1836.—Prior to the year 1835, no native on the islands seemed to have any direct knowledge or was acquainted with a legendary tradition even, in relation to the seals, concerning their area and distribution on the land here; but they all chimed in after that date with great unanimity, saying that the winter preceding this season (1835–'36) was one of frightful severity; that many of their ancestors who had lived on these islands in large barraboras just back of the Black bluffs, near the present village, and at Polavina, then perished miserably.

They say that the cold continued far into the summer; that immense masses of clearer and stronger ice-floes than had ever been known to the waters about the islands, or were ever seen since, were brought down and shoved high up on to all the rookery-margins, forming an icy wall completely around the island, looming up 20 to 30 feet above the surf; they further state that this wall did not melt or in any way disappear until the middle or end of August, 1836.

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* Veniaminov: Zapieskie ob Oonalashkenskaho Otdayla, 2 vols., St. Petersburg, 1842. This work of Bishop Innocent Veniaminov is the only one which the Russians can lay claim to as exhibiting anything like a history of western Alaska, or of giving a sketch of its inhabitants and resources, that has the least merit of truth, or the faintest stamp of reliability. Without it we should be simply in the dark as to much of what the Russians were about during the whole period of their occupation and possession of that country. He served, chiefly as a priest and missionary, for 25 years, from 1814 to 1839, at Oonalashka, having the seal-islands in his parish, and was made bishop of all Alaska. He was soon after recalled to Russia, where he has since become the primate of the national church, ranking second to no man in the empire, save the czar; he is advanced in years, being now more than 90 years of age. He must have been a man of fine personal appearance, judging from the following description of him, noted by Sir George Simpson, who met him at Sitka, in 1842, just as he was about to embark for Russia: "His appearance, to which I have already alluded, impresses a stranger with something of awe, while in further intercourse, the gentleness which characterizes his every word and deed, insensibly molds reverence into love; and, at the same time, his talents and attainments are such as to be worthy of his exalted station. With all this, the bishop is sufficiently a man of the world to disdain anything like cant. His conversation, on the contrary, teems with amusement and instruction, and his company is much prized by all who have the honor of his acquaintance." Such is the portrait drawn of him by a governor of the Hudson's Bay Company. [Veniaminov died since the above note was written, at Moscow, April 22, 1879.—H. W. E.]

They affirm that for this reason the fur-seals, when they attempted to land, according to their habit and their necessity, during June and July, were unable to do so in any considerable numbers. The females were compelled to bring forth their young in the water and at the wet, storm-beaten surf-margins, which caused multitudes of the mothers and all of the young to perish. In short, the result was a virtual annihilation of the breeding-seals. Hence, at the following season, only a spectral, a shadowy imitation of past times could be observed upon the seal-grounds of St. Paul and St. George.

On the Lagoon rookery, now opposite the village of St. Paul, there were then only two males, with a number of cows. At Nah Speel, close by and right under the village, there were then only some 2,000; this the natives know because they counted them. On Zapadnie there were about 1,000 cows, bulls, and pups; at Southwest point there were none. Two small rookeries were then on the north shore of St. Paul, near a place called "Maroonitch"; and there were seven small rookeries running round Northeast point, but on all of these there were only 1,500 males, females, and young; and this number includes the "holluschickie", which, in those days, lay in among the breeding-seals, there being so few old males that they were gladly permitted to do so. On Polavina there were then about 500 cows, bulls, pups, and "holluschickie"; on Lukannon and Keetavie about 300; but on Keetavie there were only ten bulls and so few young males lying in altogether, that these old natives, as they told me, took no note of them on the rookeries just cited. On the Reef, in Gorbotch, were about 1,000 only; in this number last mentioned some 800 "holluschickie" may be included, which lay in with the breeding-seals. There were only twenty old bulls on Gorbotch, and about ten old males on the Reef. The village was placed on its present site ten years prior to this period of 1835–'36.

Such, briefly, and succinctly, is the sum and the substance of all information which I could gather prior to 1835–'36; and while I do not entirely credit these statements, yet the earnest, straightforward agreement of the natives has impressed me so that I narrate it here. It certainly seems as though this enumeration of the old Aleuts was painfully short.

Then, again, with regard to the probable truth of the foregoing statement of the natives, perhaps I should call attention to the fact that the entire sum of seal-life in 1836, as given by them, is just 4,100, of all classes, distributed as I have indicated above. Now, on turning to Bishop Veniaminov, by whom was published the only statement of any kind in regard to the killing on these islands from 1817 to 1837, the year when he finished his work,* I find that he makes a record of slaughter of seals in the year 1836, of 4,052, which were killed and taken for their skins; but if the natives' statements are right, then only 50 seals were left on the island for 1837, in which year, however, 4,220 were again killed, according to the bishop's table, according to which there was also a steady increase in the size of this return from that date along up to 1850, when the Russians governed their catch by the market alone, always having more seals than they knew what to do with.

Again, in this connection, the natives say that until 1847, the practice on these islands was to kill indiscriminately both females and males for skins; but after this year, 1847, the strict respect now paid to the breeding-seals, and exemption of all females, was enforced for the first time, and has continued up to date.

Thus it will be seen that there is, frankly stated, nothing to guide to a fair or even an approximate estimate as to the numbers of the fur-seals on these two islands, prior to my labor.

MANNER OF COMPUTING THE NUMBER OF SEALS.—After a careful study of the subject, during three entire consecutive seasons, and a confirmatory review of it in 1876, I feel confident that the following figures and surveys will, upon their own face, speak authoritatively as to their truthful character.

At the close of my investigation, during the first season of my labor on the ground, in 1872, the fact became evident that the breeding-seals obeyed implicitly an imperative and instinctive natural law of distribution; a law recognized by each and every seal upon the rookeries, prompted by a fine consciousness of necessity to its own well-being. The breeding-grounds occupied by them were, therefore, invariably covered by the seals in exact ratio, greater or less, as the area upon which they rested was larger or smaller. They always covered the ground evenly, never crowding in at one place here, to scatter out there. The seals lie just as thickly together, where the rookery is boundless in its eligible area to their rear and unoccupied by them, as they do in the little strips which are abruptly cut off and narrowed by rocky walls behind. For instance, on a rod of ground, under the face of bluffs which hemmed it in to the land from the sea, there are just as many seals, no more and no less, as will be found on any other rod of rookery-ground throughout the whole list, great and small; always exactly so many seals, under any and all circumstances, to a given area of breeding-ground. There are just as many cows, bulls, and pups on a square rod at Nah Speel, near the village, where, in 1874, all told, there were only seven or eight thousand, as there are on any square rod at Northeast point, where a million of them congregate.

This fact being determined, it is evident that, just in proportion as the breeding-grounds of the fur-seal on these islands expand or contract in area from their present dimensions, the seals will increase or diminish in number.

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* Zapieskie ob Oonalashkenskaho Otdayla, St. Petersburg, 1842.

The discovery, at the close of the season of 1872, of this law of distribution, gave me at once the clue I was searching for, in order to take steps by which I could arrive at a sound conclusion as to the entire number of seals herding on the island.

I noticed, and time has confirmed my observation, that the period for taking these boundaries of the rookeries, so as to show this exact margin of expansion at the week of its greatest volume, or when they are as full as they are to be for the season, is between the 10th and 20th of July every year; not a day earlier, and not many days later. After the 20th of July the regular system of compact, even organization breaks up. The seals then scatter out in pods or clusters, the pups leading the way, straying far back—the same number instantly covering twice and thrice as much ground as they did the day or week before, when they lay in solid masses and were marshaled on the rookery-ground proper.

There is no more difficulty in surveying these seal-margins during this week or ten days in July, than there is in drawing sights along and around the curbs of a stone-fence surrounding a field. The breeding-seals remain perfectly quiet under your eyes all over the rookery, and almost within your touch, everywhere on the outside of their territory that you may stand or walk. The margins of massed life, as I have indicated on the topographical surveys of these breeding-grounds of St. Paul and St. George, are as clean cut and as well defined against the soil and vegetation, as is the shading on my maps. There is not the least difficulty in making the surveys, and in making them correctly.

Now, with a knowledge of the superficial area of these breeding-grounds, the way is clearly open to a very interesting calculation as to the number of fur-seals upon them. I am well aware of the fact, when I enter upon this discussion, that I cannot claim perfect accuracy, but, as shadowing my plan of thought and method of computation, I propose to present every step in the processes which have guided me to the result.

ROOKERY-SPACE OCCUPIED BY SINGLE SEALS.—When the adult males and females, fifteen or twenty of the latter to every one of the former, have arrived upon the rookery, I think an area a little less than two square feet for each female may be considered as the superficial space required by each animal with regard to its size and in obedience to its habits; and this limit may safely be said to be over the mark. Now, every female, or cow, on this two square feet space, doubles herself by bringing forth her young; and in a few days or a week, perhaps, after its birth, the cow takes to the water to wash and feed, and is not back on this allotted space one-fourth of the time again during the season. In this way, is it not clear that the females almost double their number on the rookery-grounds, without causing the expansion of the same beyond the limits that would be actually required, did they not bear any young at all? For every 100,000 breeding-seals, there will be found more than 85,000 females, and less than 15,000 males; and in a few weeks after the landing of these females, they will show for themselves; that is, for this 100,000, fully 180,000 males, females, and young instead, on the same area of ground occupied previously to the birth of the pups.

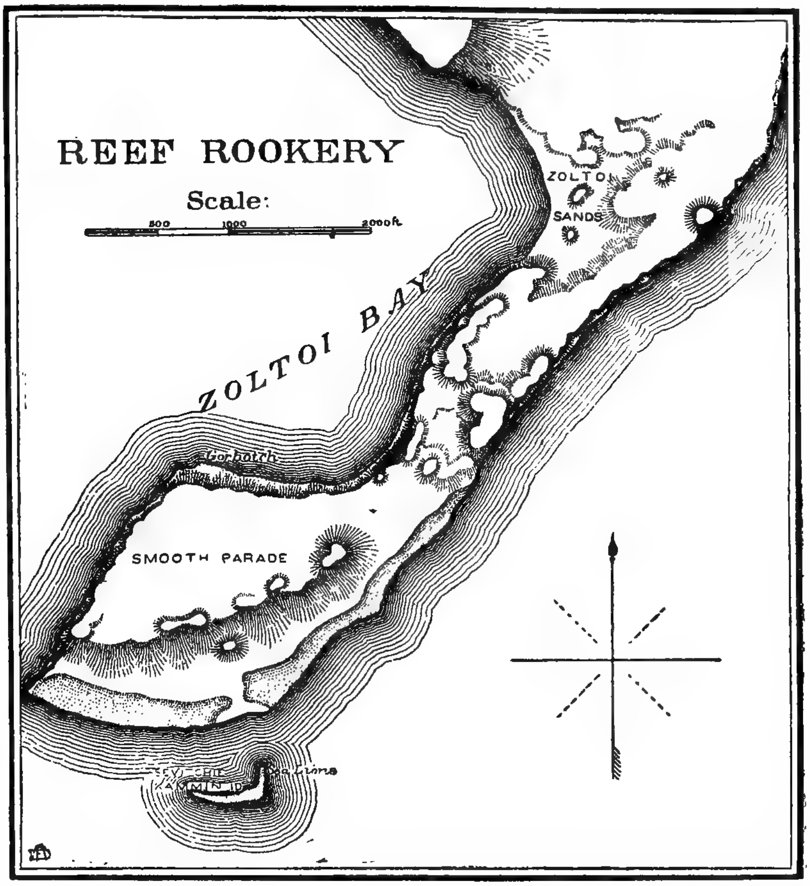
It must be borne in mind, that perhaps 10 or 12 per cent. of the entire number of females were yearlings last season, and come up on to these breeding-grounds as virgins for the first time during this season—as two-year old cows; they of course bear no young.

The males being treble and quadruple the physical bulk of the females, require about four feet square for their use of this same rookery-ground, but as they are less than one-fifteenth the number of the females, much less, in fact, they therefore occupy only one-eighth of the space over the breeding-ground, where we have located the supposed 100,000; this surplus area of the males is also more than balanced and equalized by the 15,000 or 20,000 virgin females which come on to this rookery for the first time to meet the males. They come, rest a few days or a week, and retire, leaving no young to show their presence on the ground.

Taking all these points into consideration, and they are features of fact, I quite safely calculate upon an average of two square feet to every animal, big and little, on the breeding-grounds, as the initial point upon which to base an intelligent computation of the entire number of seals before us. Without following this system of enumeration, a person may look over these swarming myriads between Southwest point and Novastoshnah, guessing vaguely and wildly, at any figure from one million up to ten or twelve millions, as has been done repeatedly. How few people know what a million really is; it is very easy to talk of a million, but it is a tedious task to count it off, and makes one's statements as to "millions" decidedly more conservative after the labor has been accomplished.

REVIEW OF THE ROOKERIES OF ST. PAUL.—Before summing up the grand total, I shall now, in sequence, review each one of the several rookeries of St. Paul, taking them in their order as they occur, going north from the Reef point. The accompanying maps show the exact area occupied by the breeding-seals and their young in the season of 1874, which is the date of my latest field-work on the Pribylov islands.

THE REEF ROOKERY.—By reference first to the general map, it will be observed that this large breeding-ground, on that grotesquely-shaped neck which ends in the Reef point, is directly contiguous to the village—indeed, it may be fairly said to be right under the lee of the houses on the hill. It is one of the most striking of all the rookeries, owing probably to the fact that on every side it is sharply and clearly exposed to the vision, as the circuit is made in boats. A reach of very beautiful drifting sand, a quarter of a mile from the village hill to the Reef bluffs, separates the breeding-grounds proper from the habitations of the people. These Zoltoi sands are, however, a famous rendezvous for the "holluschickie", and from them, during the season, the natives make regular drives, having only to step out from their houses in the morning and walk but a few rods to find their fur-bearing quarry.


REEF ROOKERY

Passing over the sands on our way down to the point, we quickly come to a basaltic ridge or back-bone, over which the sand has been rifted by the winds, and which supports a rank and luxuriant growth of the *Elymus* and other grasses, with beautiful flowers. A few hundred feet farther along our course brings us in full view, as we look to the south, of one of the most entrancing spectacles which seals afford to man. We look down upon and along a grand promenade-ground, which slopes gently to the eastward, and trends southward down to the water from the abrupt walls bordering on the sea on the west, over a parade-plateau as smooth as the floor of a ball-room, 2,000 feet in length, from 500 to 1,000 feet in width, over which multitudes of "holluschickie" are filing in long strings, or deploying in vast platoons, hundreds abreast, in an unceasing march and countermarch; the breath which rises into the cold air from a hundred thousand hot throats hangs like clouds of white steam in the gray fog itself; indeed, it may be said to be a seal-fog peculiar to the spot, while the din, the roar arising over all, defies our description.

We notice to our right and to our left, the immense solid masses of the breeding-seals at Gorbotch, and those stretching and trending around nearly a mile from our feet, far around to the Reef point below and opposite the parade-ground, with here and there a neutral passage left open for the "holluschickie" to go down and come up from the waves.

The adaptation of this ground of the Reef rookery to the requirements of the seal is perfect. It so lies that it falls gently from its high Zoltoi bay-margin on the west to the sea on the east; and upon its broad expanse not a solitary puddle of mud-spotting is to be seen, though everything is reeking with moisture, and the fog even dissolves into rain as we view the scene. Every trace of vegetation upon this parade has been obliterated; a few tufts of grass, capping the summits of those rocky hillocks, indicated on the eastern and middle slope, are the only signs of botanical life which the seals have suffered to remain.

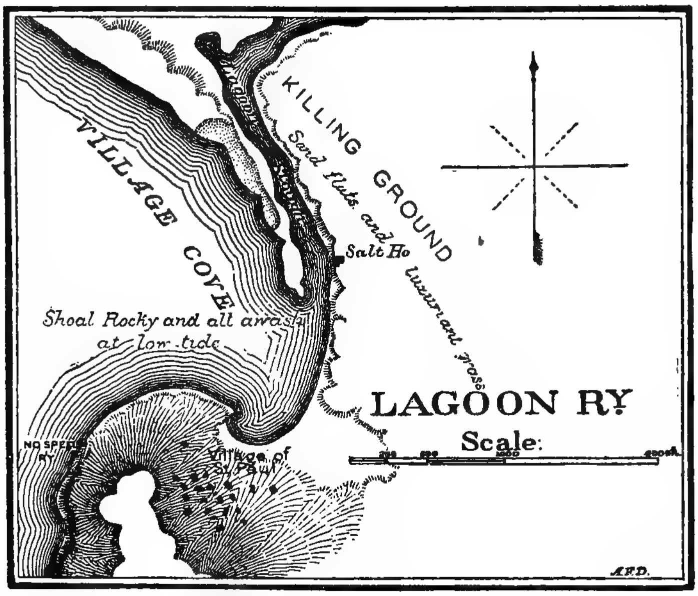
A small rock, "Seevitchie Kammin," five or six hundred feet right to the southward and out at sea, is also covered with the black and yellow forms of fur-seals and sea-lions. It is environed by shoal-reefs, rough, and kelp-grown, which navigators prudently avoid.

This rookery of the Reef proper has 4,016 feet of sea-margin, with an average depth of 150 feet, making ground for 301,000 breeding-seals and their young. Gorbotch rookery has 3,660 feet of sea-margin, with an average depth of 100 feet, making ground for 183,000 breeding-seals and their young; an aggregate for this great Reef rookery of 484,000 breeding-seals and their young. Heavy as this enumeration is, yet the aggregate only makes the Reef rookery third in importance, compared with the others which we are yet to describe.

LAGOON ROOKERY.—We now pass from the Reef up to the village, where one naturally would not expect to find breeding-seals within less than a pistol-shot from the natives' houses; but it is a fact, nevertheless, for on looking at the sketch map of the Lagoon rookery herewith presented, it will be noticed that I have located a little gathering of breeding-seals right under the village hill to the westward of that place called "Nah Speel". This is in itself an insignificant rookery and never has been a large one, though it is one of the oldest on the island. It is only interesting, however, superficially so, on account of its position, and the fact that through every day of the season half the population of the entire village go and come to the summit of the bluff, which overhangs it, where they peer down for hours at a time upon the methods and evolutions of the "kautickie" below, the seals themselves looking up with intelligent appreciation of the fact that, though they are in the hands of man, yet he is wise enough not to disturb them there as they rest.

If at Nah Speel, or that point rounding into the village cove, there were any suitable ground for a rookery to grow upon or spread over, the seals would doubtless have been there long ago. There are, however, no such natural advantages offered them; what there is they have availed themselves of.

Looking from the village across the cove and down upon the Lagoon, still another strange contradiction appears—at least it seems a natural contradiction to one's usual ideas. Here we see the Lagoon rookery, a reach of ground upon which some twenty-five or thirty thousand breeding-seals come out regularly every year during the appointed time, and go through their whole elaborate system of reproduction, without showing the slightest concern for or attention to the scene directly east of them and across that shallow slough not forty feet in width. There are the great slaughtering fields of St. Paul island; there are the sand-flats where every seal has been slaughtered for years upon years back, for its skin; and even as we take this note, forty men are standing there knocking down a drove of two or three thousand "holluschickie" for the day's work, and as they labor, the whacking of their clubs and the sound of their voices must be as plain to those breeding-seals, which are not one hundred feet from them, as it is to us, a quarter of a mile distant! In addition to this enumeration of disturbances, well calculated to amaze, and dismay, and drive off every seal within its influence, are the decaying bodies of the last year's catch—75,000 or 85,000 unburied carcasses—that are sloughing away into the sand, which two or three seasons from now, nature will, in its infinite charity, cover with the greenest of all green grasses. The whitened bones and grinning skulls of over 3,000,000 seals have bleached out on that slaughtering-spot, and are buried below its surface now.



Directly under the north face of the Village Hill, where it falls to the narrow flat between its feet and the Cove, the natives have sunk a well. It was excavated in 1857, they say, and subsequently deepened to its present condition, in 1868. It is twelve feet deep, and the diggers said that they found bones of the sea-lion and fur-seal thickly distributed every foot down, from top to bottom; how much lower these osteological remains of pre-historic pinnipeds can be found, no one knows as yet; the water here, on that account, has never been fit to drink, or even to cook with; but being soft, was and is used by the natives for washing clothes, etc. Most likely, it records the spot where the Russians, during the heydays of their early occupation, drove the unhappy visitors of Nah Speel to slaughter. There is no Golgotha known to man elsewhere in the world as extensive as this one of St. Paul.

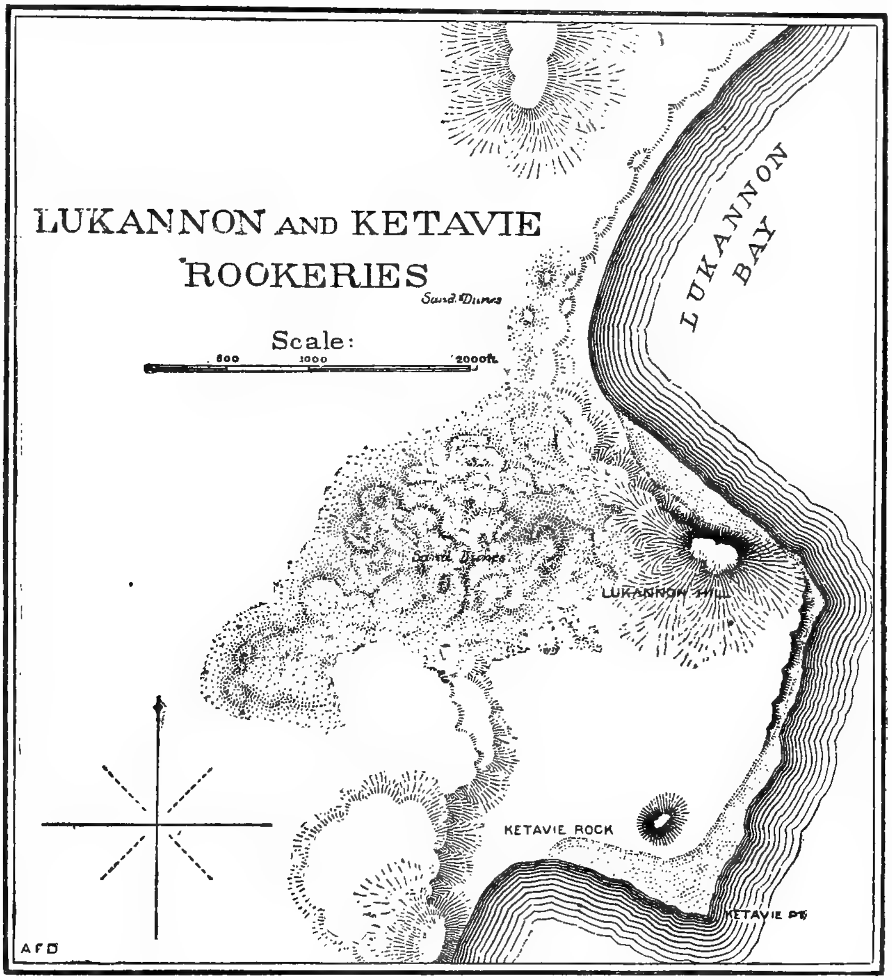
Yet, the natives say that this Lagoon rookery is a new feature in the distribution of the seals; that when the people first came there and located a part of the present village, in 1824 up to 1847, there never had been a breeding-seal on that Lagoon rookery of to-day; so they have hauled up here from a small beginning, not very long ago, until they have attained their present numerical expansion, in spite of all these exhibitions of butchery of their kind, executed right under their eyes, and in full knowledge of their nostrils, while the groans and low moanings of their stricken species stretched out beneath the clubs of the sealers, must have been far plainer in their ears than they are in our own.

Still they come—they multiply, and they increase—knowing so well that they belong to a class which intelligent men never did molest; to-day at least they must know it, or they would not submit to these manifestations which we have just cited, so close to their knowledge.

The Lagoon rookery, however, never can be a large one on account of the very nature of the ground selected by the seals; for it is a bar simply pushed up above the surf-wash of bowlders, water-worn and rounded, which has almost inclosed and cut out the Lagoon from its parent sea. In my opinion, the time is not far distant when that estuary will be another inland lake of St. Paul, walled out from salt water and freshened by rain and melting snow, as are the other pools, lakes, and lakelets on the island.

LUKANNON AND KEETAVIE ROOKERIES.—The next rookeries in order can be found at Lukannon and Keetavie. Here is a joint blending of two large breeding-grounds, their continuity broken by a short reach of sea-wall right under and at the eastern foot of Lukannon hill. The appearance of these rookeries is like all the others, peculiar to themselves. There is a rounded, swelling hill, at the foot of Lukannon bay, which rises perhaps 160 or 170 feet from the sea, abruptly at the point, but swelling out, gently up from the sand-dunes in Lukannon bay, to its summit at the northwest and south. The great rookery rests upon the northern slope. Here is a beautiful adaptation of the finest drainage, with a profusion of those rocky nodules scattered everywhere over it, upon which the females so delight in resting.

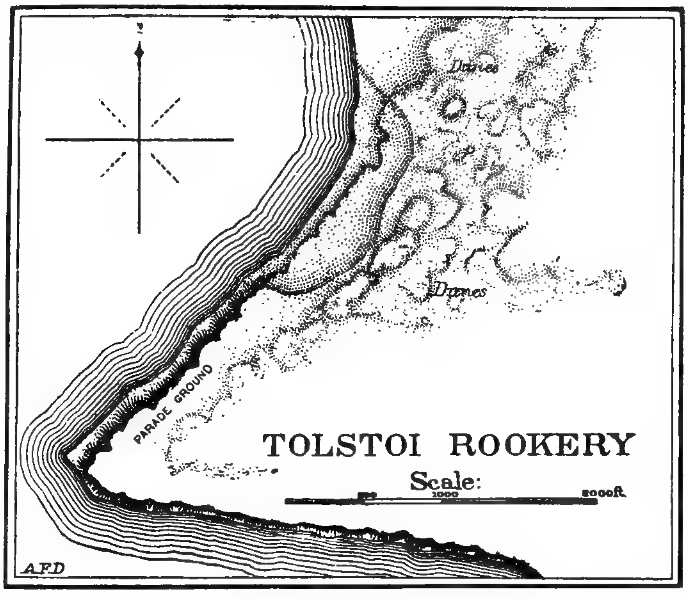
Standing on the bald summit of Lukannon hill, we turn to the south, and look over Keetavie point, where another large aggregate of breeding-seals rests under our eye. The hill falls away into a series of faintly terraced tables, which drop down to a flat that again abruptly descends to the sea at Keetavie point. Between us and the Keetavie rookery is the parade-ground of Lukannon, a sight almost as grand as is that on the Reef which we have feebly attempted to portray. The sand-dunes to the west and to the north are covered with the most luxuriant grass, abruptly emarginated by the sharp abrasion of the hauling-seals: this is shown very clearly on the general map. Keetavie point is a solid basaltic shelf. Lukannon hill, the summit of it, is composed of volcanic tufa and cement, with irregular cubes and fragments of pure basalt scattered all over its flipper-worn slopes. Lukannon proper has 2,270 feet of sea-margin, with an average depth of 150 feet, making ground for 170,000 breeding-seals and their young. Keetavie rookery has 2,200 feet of sea-margin, with an average depth of 150 feet, making ground for 165,000 breeding-seals and their young, a whole aggregate of 335,000 breeding-seals and their young. This is the point, down along the flat shoals of Lukannon bay, where the sand-dunes are most characteristic, as they rise in their wind-whirled forms just above the surf-wash. . This also is where the natives come from the village during the early mornings of the season, for driving, to get any number of "holluschickie".



It is a beautiful sight, glancing from the summit of this great rookery-hill, up to the north over that low reach of the coast to Tonkie Mees, where the waves seem to roll in with crests that rise in unbroken ridges for a mile in length each, ere they break so grandly and uniformly on the beach. In these rollers the "holluschickie" are playing like sea-birds, seeming to sport the most joyously at the very moment when the heavy billow breaks and falls upon them.

Tolstoi rookery.—Directly to the west from Lukannon, up along and around the head of the Lagoon, is the seal-path road over which the natives bring the "holluschickie" from Tolstoi. We follow this and take up our position on several lofty grass-grown dunes, close to and overlooking another rookery of great size; this is Tolstoi.

We have here the greatest hill-slope of breeding-seals, on either island, peculiarly massed on the abruptly sloping flanks of Tolstoi ridge, as it falls to the sands of English bay, and ends suddenly in the precipitous termination of its own name, Tolstoi point. Here the seals are in some places crowded up to the enormous depth of 500 measured feet, from the sea-margin of the rookery to its outer boundary and limitation; and, when viewed as I viewed it in July, taking the angles and lines shown on the accompanying sketch-map, I considered it, with the bluffs terminating it at the south, and its bold sweep, which ends on the sands of English bay, to be the most picturesque, though it is not the most impressive, rookery on the island—especially when that parade-ground, lying just back and over the point and upon its table-rock surface, is reached by the climbing seals.



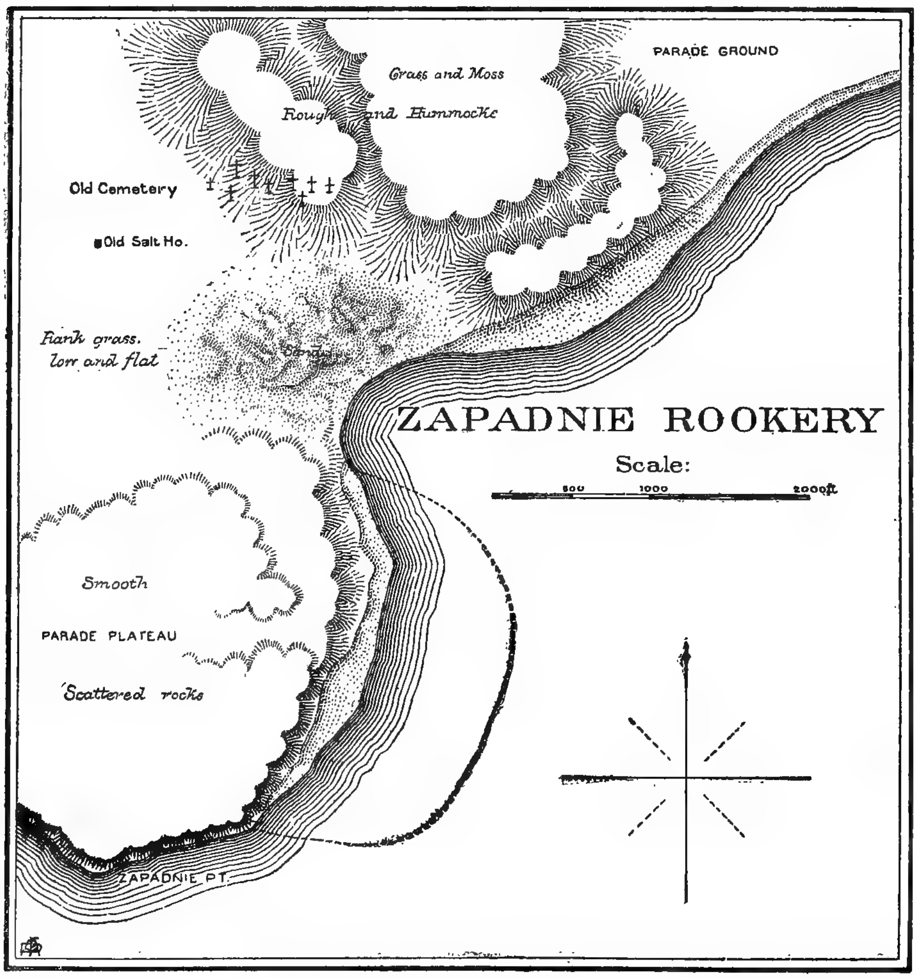
If the observer will glance at the map, he will see that the parade-ground in question lies directly over and about 150 feet above, the breeding-seals immediately under it. The sand-dune tracts which border the great body of the rookery seem to check the "holluschickie" from hauling to the rear, for sand drifts here, in a locality so high and exposed to the full force of the wind, with more rapidity and consequently more disagreeable energy to the seals than anywhere else on the island.

A comical feature of this rookery is the appearance of the foxes in the chinks under the parade-ground and interstices of the cliffs; their melancholy barking and short yelps of astonishment, as we walk about, contrast quite sensibly with the utter indifference of the seals to our presence.

From Tolstoi at this point, sweeping around three miles to Zapadnie, is the broad sand-reach of English bay, upon which and back over its gently rising flats are the great hauling-grounds of the "holluschickie", which I have indicated on the general map, and to which I made reference in a previous section of this chapter. Looking at the myriads of "bachelor-seals" spread out in their restless hundreds and hundreds of thousands upon this ground, one feels the utter impotency of verbal description, and reluctantly shuts his note- and sketch-books to gaze upon it with renewed fascination and perfect helplessness.

Tolstoi rookery has attained, I think, its utmost limit of expansion. The seals have already pushed themselves as far out upon the sand at the north as they can or are willing to go, while the abrupt cliffs, hanging over more than one-half of the sea-margin, shut out all access to the rear for the breeding-seals. The natives said that this rookery had increased very much during the last four or five years prior to the date of my making the accompanying survey. If it continues to increase, the fact can be instantly noted, by checking off the ground and comparing it with the sketch-map herewith presented. Tolstoi rookery has 3,000 feet of sea-margin, with an average depth of 150 feet, making ground for 225,000 breeding-seals and their young.

ZAPADNIE ROOKERY.—From Tolstoi, before going north, we turn our attention directly to Zapadnie on the west, a little over two miles as the crow flies, across English bay, which lies between them. Here again we find another magnificent rookery, with features peculiar to itself, consisting of great wings separating, one from the other, by a short stretch of five or six hundred feet of the shunned sand-reach which makes a landing and a beach just between them. The northern Zapadnie lies mostly on the gently sloping, but exceedingly rocky, flats of a rough volcanic ridge which drops there to the sea; it, too, has an approximation to the Tolstoi depth, but not to such a solid extent; it is the one rookery which I have reason to believe has sensibly increased since my first survey in 1872. It has overflowed from the boundary which I laid down at that time, and has filled up for nearly half a mile, a long ribbon-like strip of breeding-ground to the northeast from the hill-slope, ending at a point where a few detached rocks jut out, and the sand takes exclusive possession of the rest of the coast. These rocks aforesaid are called by the natives "Nearhpahskie kammin", because it is a favorite resort for the hair-seals. Although this extension of a very decided margin of breeding-ground, over half a mile in length, between 1872 and 1876, does not, in the aggregate, point to a very large increased number, still it is a gratifying evidence that the rookeries, instead of tending to diminish in the slighest, are more than holding their own.



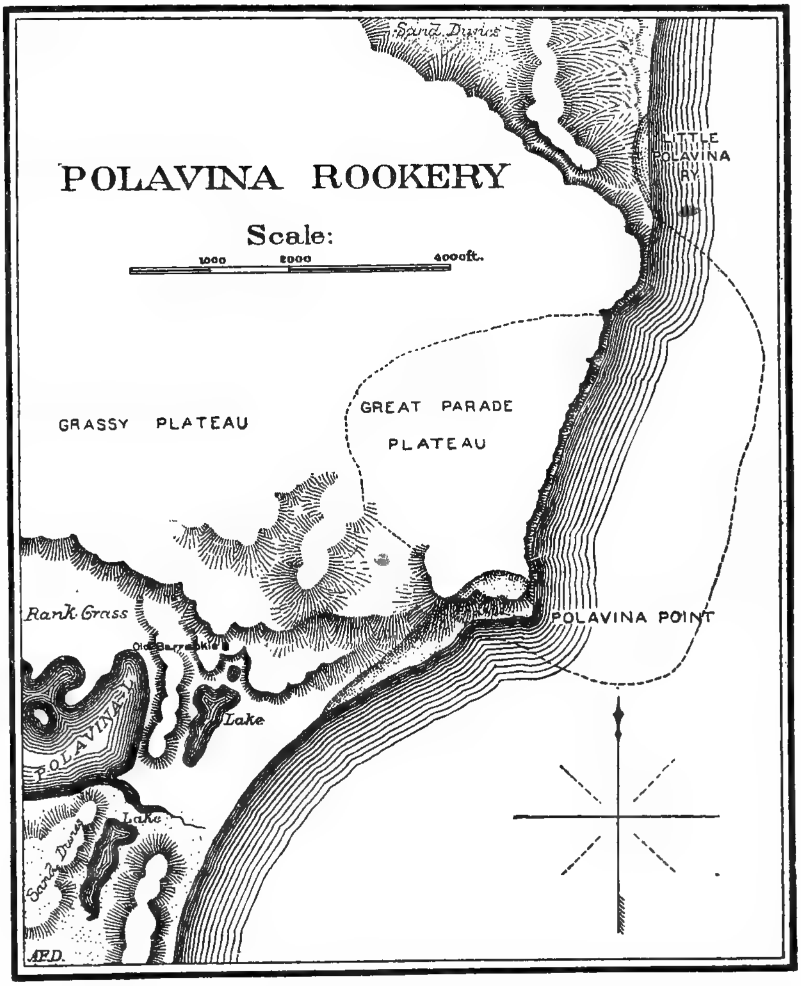
Zapadnie, in itself, is something like the Reef plateau on its eastern face, for it slopes up gradually and gently to the parade-plateau on top—a parade-ground not so smooth, however, being very rough and rocky, but which the seals enjoy. Just around the point, a low reach of rocky bar and beach connects it with the ridge-walls of Southwest point: a very small breeding-rookery, so small that it is not worthy of a survey, is located here; I think, probably, on account of the nature of the ground, that it will never hold its own, and is more than likely abandoned by this time.

One of the prehistoric villages, the village of Pribylov's time, was established here between the point and the cemetery ridge, on which the northern wing of Zapadnie rests. The old burying-ground, with its characteristic Russian crosses and faded pictures of the saints, is plainly marked on the ridge. It was at this little bight of sandy landing that Pribylov's men first came ashore and took possession of the island, while others in the same season proceeded to Northeast point and to the north shore, to establish settlements of their own order. When the indiscriminate sealing of 1868 was in progress, one of the parties lived here, and a salt-house which was then erected by them still stands; it is in a very fair state of preservation, although it has never been since occupied, except by the natives who come over here from the village in the summer to pick the berries of the *Empetrum* and *Rubus*, which abound in the greatest profusion around the rough and rocky flats that environ the little adjacent lake. The young people of St. Paul are very fond of this berry-festival, so-called among themselves, and they stay here every August, camping out, a week or ten days at a time, before returning to their homes in the village.

Zapadnie rookery has, the two wings included, 5,880 feet of sea-margin, with an average depth of 150 feet, making ground for 441,000 breeding-seals and their young, being the second rookery on the island as to size and importance.

The "holluschickie" that sport here on the parade-plateau, and indeed over all of the western extent of the English bay hauling-grounds, have never been visited by the natives for the purpose of selecting killing drives since 1872, inasmuch as more seals than were wanted have always been procured from Zoltoi, Lukannon, and Lower Tolstoi points, which are all very close to the village. I have been told, since making this survey, that during the past year the breeding-seals of Zapadnie have overflowed, so as to occupy all of the sand-strip which is vacant between them on the accompanying map.

POLAVINA ROOKERY.—Half-way between the village and Northeast point lies Polavina, another one of the seven large breeding-grounds on this island. The conspicuous cone-shaped head of Polavina Sopka rises clearly cut and smooth from the plateau at its base, which falls two miles to the eastward and southeastward, sharp off into the sea, presenting a bluff margin over a mile in length, at the base of which the sea thunders incessantly. It exhibits a very beautiful geological section of the simple structure of St. Paul. The ringing, iron-like basaltic foundations of the island are here setting boldly up from the sea to a height of 40 or 50 feet—black and purplish-red, polished like ebony by the friction of the surf, and worn by its agency into grotesque arches, tiny caverns, and deep fissures. Surmounting this lava-bed is a cap of ferruginous cement and tufa from three to ten feet in thickness, making a reddish floor, upon which the seals patter in their restless, never-ceasing, evolutions, sleeping or waking, on the land. It is as great a single parade-plateau of polished cement as that of the Reef, but we are unable from any point of observation to appreciate it, inasmuch as we cannot stand high enough to overlook it, unless we ascend Polavina Sopka, and then the distances, with the perspective fore-shortening, destroy the effect.



The rookery itself occupies only a small portion of the seal-visited area at this spot. It is placed at the southern termination, and gentle sloping of the long reach of bluff wall, which is the only cliff between Lukannon and Novastoshnah. It presents itself to the eye, however, in a very peculiar manner, and with great scenic effect, when the observer views it from the extreme point of its mural elevation; viewed from thence, nearly a mile to the northeast, it rises as a front of bicolored lava-wall, high above the sea that is breaking at its base, and is covered with the infinite detail of massed seals in reproduction: at first sight, one wonders how they got there. No passages whatever can be seen, down or up. A further survey, however, discloses the common occurrence of rain-water runs between surf-beaten crevices, which make many stairways for the adhesive feet of *Callorhinus* amply safe and comfortable.

For the reason cited in a similar example at Zapadnie, no "holluschickie" have been driven from this point since 1872, though it is one of the easiest worked. It was in the Russian times a pet sealing-ground with them. The remains of the old village have nearly all been buried in the sand near the lake, and there is really no mark of its early habitation, unless it be the singular effect of a human grave-yard being dug out and despoiled by the attrition of seal bodies and flippers. The old cemetery just above and to the right of the barrabkie, near the little lake, was originally established, so the natives told me, far away from the hauling of the "holluschickie"; it was, when I saw it in 1876, in a melancholy state of ruin—a thousand young seals at least moved off from its surface as I came up, and they had actually trampled out many sandy graves, rolling the bones and skulls of Aleutian ancestry in every direction. Beyond this old barrabkie, which the present natives established as a house of refuge during the winter when they were trapping foxes, looking to the west over the lake, is a large expanse of low, flat swale and tundra, which is terminated by the rocky ridge of Kaminista; every foot of it has been placed there subsequent to the original elevation of the island by the action of the sea, beyond all question. It is covered with a thick growth of the rankest sphagnum, which quakes and trembles like a bog under one's feet, but over which the most beautiful mosses ever and anon crop out, including the characteristic floral display before referred to in speaking of the island; most of the way from the village up to Northeast point, as will be seen by a cursory glance at the map, with the exception of this bluff of Polavina and the terraced table setting back from its face to Polavina Sopka, the whole island is slightly elevated above the level of the sea, and its coast-line is lying just above and beyond the reach of the surf, where great ledges of sand have been piled up by the wind, capped with sheafs and tufts of rank-growing *Elymus*.

There is a small rookery, which I call "Little Polavina", indicated here, which does not promise much for the future; the sand cuts it off on the north, and sand has blown around so at its rear, as to make all other ground not now occupied by the breeding-seals there quite ineligible. Polavina rookery has 4,000 feet of sea-margin, including Little Polavina, with 150 feet of average depth, making ground for 300,000 breeding-seals and their young.

NORTHEAST POINT OR NOVASTOSHNAH ROOKERY.—Though this is the last of the St. Paul rookeries which I notice, yet it is so much greater than any other one on the island, or two others for that matter, that it forms the central feature of St. Paul, and in truth presents a most astonishing and extraordinary sight. It was a view of such multitudes of amphibians, when I first stood upon the summit of Hutchinson hill, and looked at the immense spread around me, that suggested to my mind a doubt whether the accurate investigation which I was making would give me courage to maintain the truth in regard to the subject.

The result of my first survey here presented such a startling array of superficial area massed over by the breeding-seals, that I was fairly disconcerted at the magnitude of the result. It troubled me so when my initial plottings were made, and I had worked them out so as to place them tangibly before me, that I laid the whole preliminary survey aside, and seizing upon the next favorable day went over the entire field again. The two plats then, laid side by side, substantially agreed, and I now present the great rookery to the public. It is in itself, as the others are, endowed with its own particular physiognomy, having an extensive sweep, everywhere surrounded by the sea, except at that intersection of the narrow neck of sand which joins it to the main island. Hutchinson hill is the foundation of the point—a solid basaltic floor, upon which a mass of breccia has been poured at its northwest corner, which is so rough, and yet polished so highly by the countless pattering flippers of its visitors, as to leave it entirely bare and bald of every spear of grass or trace of cryptogamic life. The hill is about 120 feet high; it has a rounded summit flecked entirely over by the "holluschickie", while the great belt of breeding-rookery sweeps high up on its flanks, and around right and left, for nearly three and a half miles unbroken—an amazing sight in its aggregate, and infinite in its detail.

The picturesque feature, also, of the rookery here, is the appearance of the tawny, yellowish bodies of several thousand sea-lions, which lay in and among the fur-seals at the several points designated on the sketch-map, though never far from the water. Sea-Lion neck, a little tongue of low basaltic jutting, is the principal corner where the natives take these animals from when they capture them in the fall for their hides and sinews.*

Cross, or St. John's, hill, which rises near the lake, to a height of 60 or 70 feet, and is quite a land-mark itself, is a perfect cone of sand entirely covered with a luxuriant growth of *Elymus;* it is growing constantly higher by the fresh deposit brought by wind, and its retention by the annually rising grasses.

At this point, it will be noticed, there is a salt-house, and here is the killing-ground for Northeast point, where nineteen or twenty thousand "holluschickie" are disposed of for their skins every season; their carcasses being spread out on the sand-dunes between the foot of Cross hill and Webster's house; a squad of sealers live there during the

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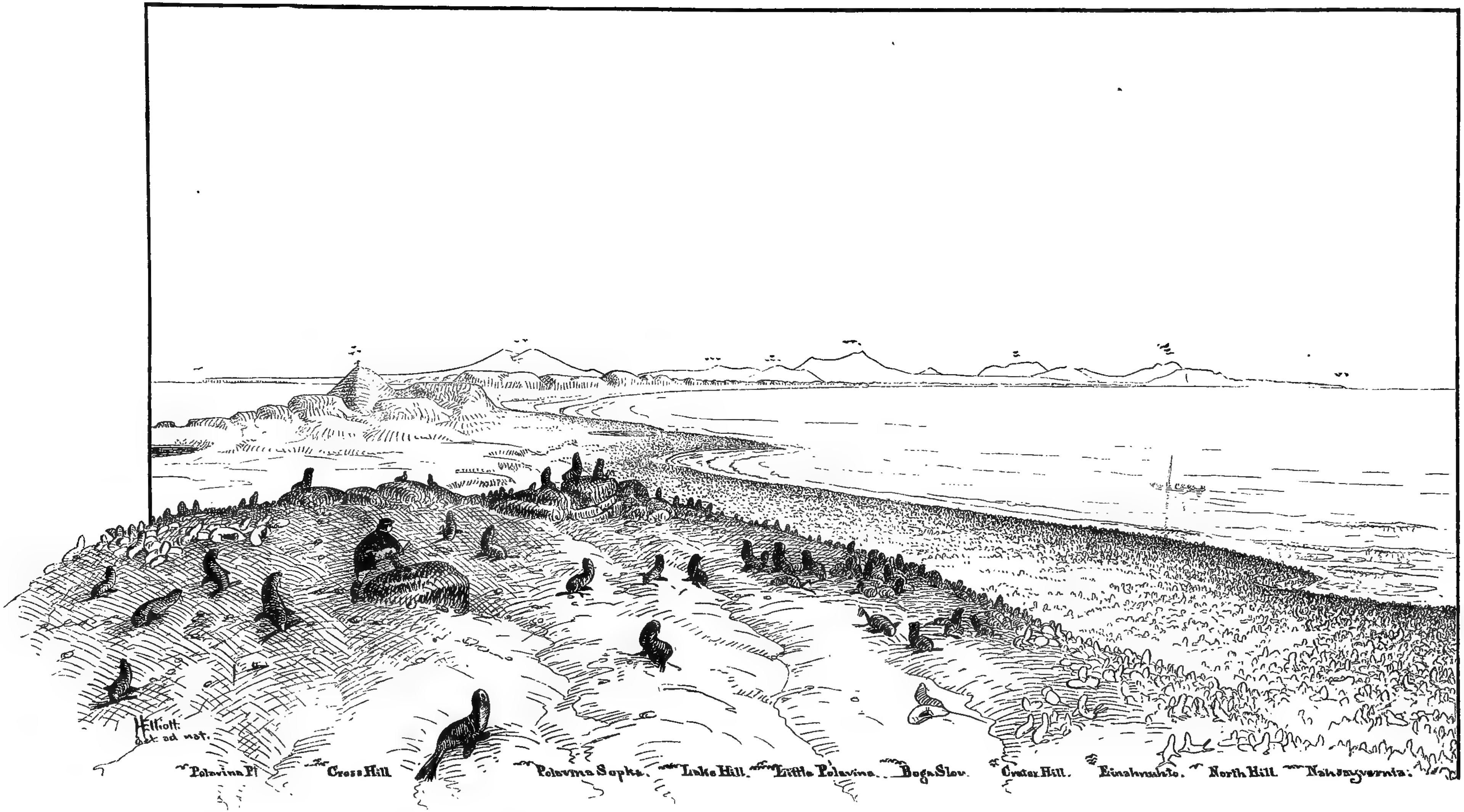
*The sea-lions breed on no one of the other rookeries at this island, the insignificant number that I noticed on Seevitchie Kammis excepted. At Southwest point, however, I found a small sea-lion rookery, but there are no breeding fur-seals there. A handful of *Eumetopias* used to breed on Otter island, but do not now, since it has been necessary to station government agents there, for the apprehension of fur-seal pirates, during the sealing season.


H. Elliott. del. ad nat.
Polavina Pt
Cross Hill
Polavina Sopka.
Lake Hill.
Little Polavina.
Boga Slov.
Crater Hill.
Einahnuhto.
North Hill.
Nahsayvernia.

THE NORTH SHORE OF ST. PAUL ISLAND.

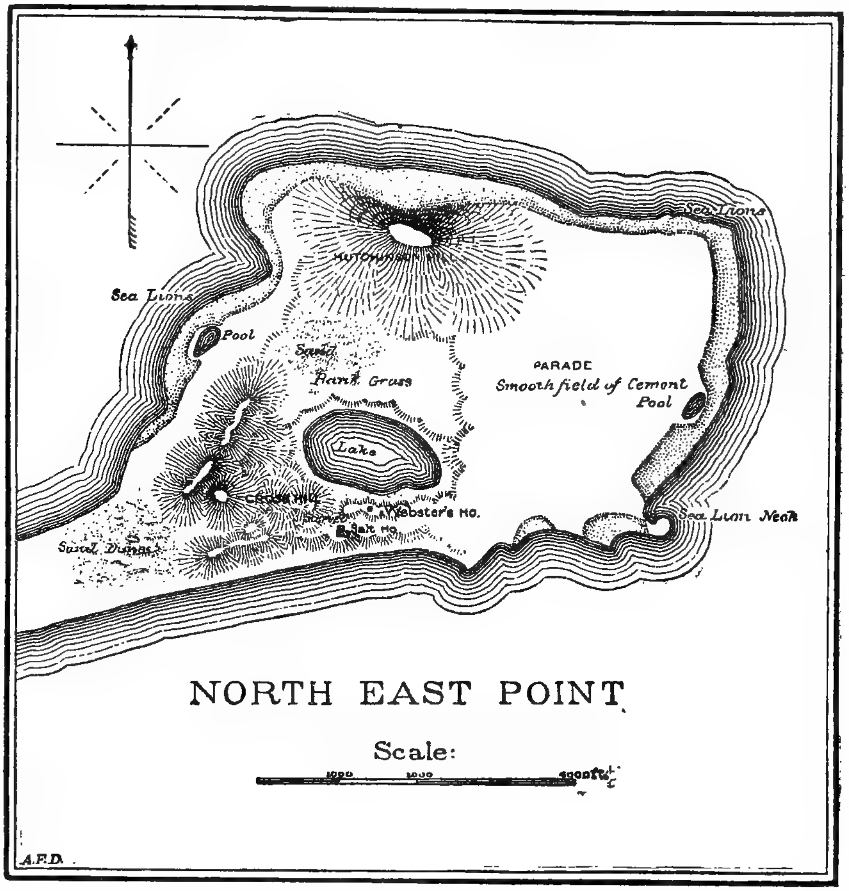
Viewed from the summit of Hutchinson's Hill, looking W. S. W. over a portion of the Great Novastoshnah Rookery.

three or four weeks that they are engaged in the work. The "holluschickie" are driven from the large hauling-grounds on the sand-flats immediately adjacent to the killing-grounds, being obtained without the slightest difficulty.

Here also was the site of a village, once the largest one on this island ere its transfer to the sole control and charge of the old Russian-American Company, ten years after its discovery in 1787. The ancient cemetery and the turf lines of the decayed barraboras are still plainly visible.

The company's steamer runs up here, watching her opportunity, and drops her anchor, as indicated on the general chart, right south of the salt-house, in about four fathoms of water; and the skins are invariably hustled aboard, no time being lost, because it is an exceedingly uncertain place to safely load the vessel.

There is no impression in my mind really more vivid, than is the one which was planted there during the afternoon of that July day, when I first made my survey of this ground; indeed, whenever I pause to think of the subject, the great rookery of Novastoshnah rises promptly to my view, and I am fairly rendered voiceless as I try to speak in definition of the spectacle. In the first place, this slope from Sea Lion neck to the summit of Hutchinson's hill is a long mile, smooth and gradual from the sea to the hill-top; the parade ground lying between is also nearly three-quarters of a mile in width, sheer and unbroken. Now, upon that area before my eyes, this day and date of which I have spoken, were the forms of not less than three-fourths of a million seals—pause a moment—think of the number—three-fourths of a million seals moving in one solid mass from sleep to frolicksome gambols, backward, forward, over, around, changing and interchanging their heavy squadrons, until the whole mind is so confused and charmed by the vastness of mighty hosts that it refuses to analyze any further. Then, too, I remember that the day was one of exceeding beauty for that region; it was a swift alternation over head of those characteristic rain fogs, between the succession of which the sun breaks out with transcendent brilliancy through the misty halos about it; this parade-field reflected the light like a mirror, and the seals, when they broke apart here and there for a moment, just enough to show its surface, seemed as though they walked upon the water. What a scene to put upon canvas—that amphibian host involved in those alternate rainbow lights and blue-gray shadows of the fog!



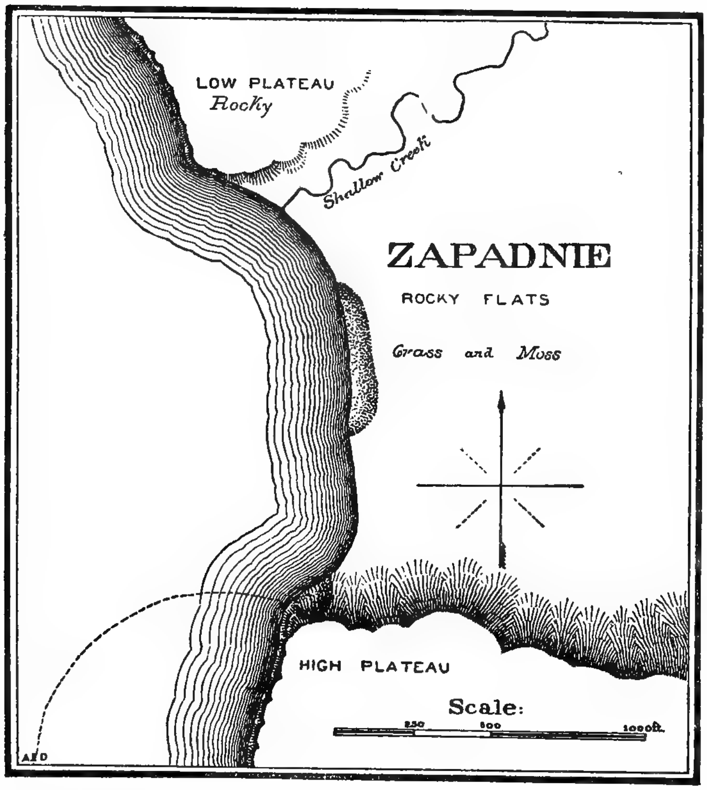
NORTH EAST POINT

**Recapitulation of the estimates of number of seals.**—Below is a recapitulation of these figures made from my surveys of the area and position of the breeding-grounds of St. Paul island, between the 10th and 18th of July, 1872, confirmed and revised to that date in 1874. It is the first survey ever made on the island of its rookeries:

| Breeding-grounds of the fur-seal, on St. Paul island. | Number of seals, male, female, and young. |
|---|---|
| "Reef rookery" has 4,016 feet of sea-margin, with 150 feet of average depth, making ground for | 301,000 |
| "Gorbotch rookery" has 3,660 feet of sea-margin, with 100 feet of average depth, making ground for | 183,000 |
| "Lagoon rookery" has 750 feet of sea-margin, with 100 feet of average depth, making ground for | 37,000 |
| "Nah Speel rookery" has 400 feet of sea-margin, with 40 feet of average depth, making ground for | 8,000 |
| "Lukannon rookery" has 2,270 feet of sea-margin, with 150 feet of average depth, making ground for | 170,000 |
| "Keetavie rookery" has 2,200 feet of sea-margin, with 150 feet of average depth, making ground for | 165,000 |
| "Tolstoi rookery" has 3,000 feet of sea margin, with 150 feet of average depth, making ground for | 225,000 |
| "Zapadnie rookery" has 5,880 feet of sea-margin, with 150 feet of average depth, making ground for | 441,000 |
| "Polavina rookery" has 4,000 feet of sea-margin, with 150 feet of average depth, making ground for | 300,000 |
| "Novastoshnah, or Northeast point" has 15,840 feet of sea-margin, with 150 feet of average depth, making ground for | 1,200,000 |
| A grand total of breeding-seals and young for St. Paul island in 1874 of | 3,030,000 |

St. George.—St. George is now in order, and this island has only a trifling contribution for the grand total of the seal-life; but small as it is, it is of much value and interest. Certainly Pribylov, not knowing of the existence of St. Paul, was as well satisfied as if he had possessed the boundless universe, when he first found it. As in the case of St. Paul island, I have been unable to learn much here in regard to the early status of the rookeries, none of the natives having any real information. The drift of their sentiment goes to show that there never was a great assemblage of fur-seals on St. George; in fact, never as many as there are to-day, insignificant as the exhibit is, compared with that of St. Paul. They say that, at first, the sea-lions owned this island, and that the Russians, becoming cognizant of the fact, made a regular business of driving off the "seevitchie", in order that the fur-seals might be encouraged to land. Touching this statement, with my experience on St. Paul, where there is no conflict at all between the fifteen or twenty thousand sea-lions which breed around on the outer edge of the seal-rookeries there, and at Southwest point, I cannot agree to the St. George legend. I am inclined to believe, however, indeed it is more than probable, that there were a great many more sea-lions on and about St. George before it was occupied by men—a hundred-fold greater, perhaps, than now; because, a sea-lion is an exceedingly timid, cowardly creature when it is in the proximity of man, and will always desert any resting place where it is constantly brought into contact with him.*

The scantiness of the St. George rookeries, is due to the configuration of the island itself.† There are five separate, well-defined rookeries on St. George, as follows:—



Zapadnie rookery.—Directly across the island, from its north shore to Zapadnie bay, a little over three miles from the village, is a point where the southern bluff-walls of the island turn north, and drop quickly down from their lofty elevation in a succession of heavy terraces, to an expanse of rocky flat, bordered by a sea sand-beach; just between the sand-beach, however, and these terraces, is a stretch of about 2,000 feet of low, rocky shingle, which borders the flat country back of it, and upon which the surf breaks free and boldly. Midway between the two points is the rookery; and a small detachment of it rests on the direct sloping of the bluff itself, to the southward; while in and around the rookery, falling back to some distance, the "holluschickie" are found.

A great many confusing statements have been made to me about this rookery—more than in regard to any other on the islands. It has been said, with much positiveness, that, in the times of the Russian rule, this was an immense rookery for St. George; or, in other words, it covered the entire ground between that low plateau to the north and the high plateau to the south, as indicated on the map; and it is also cited in proof of this that the main village of the island, for many years, thirty or forty, was placed on or near the limited drifting sand-dune tracts just above the plateau, to the westward. Be the case as it may, it is certain that for a great, great many years back, no such rookery has ever existed here. When seals have rested on a chosen piece of ground to breed, they wear off the sharp edges of fractured basaltic bowlders, and polish the breccia and cement between them so thoroughly and so finely that years and years of chiseling by frost, and covering by lichens, and creeping of mosses, will be required to efface that record. Hence I was able, acting on the suggestion of the natives at St. Paul, to trace out those deserted fur-seal rookeries on the shores of that island. At Maroonitch, which had, according to their account, been abandoned for over sixty years by the seals, still, at their prompting, when I searched the shore, I found the old boundaries tolerably well defined; I could find nothing like them at Zapadnie.

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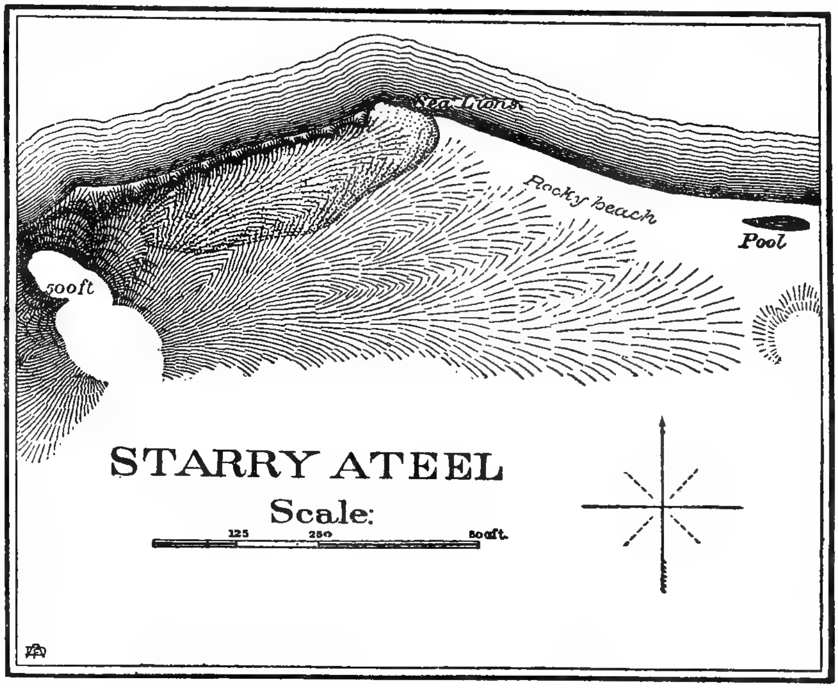
* This statement of the natives has a strong circumstantial backing by the published account of Choris, a French gentleman of leisure, and amateur naturalist and artist, who landed at St. George in 1820 (July); he passed several days off and on the land; he wrote at short length in regard to the sea-lion, saying "that the shores were covered with innumerable troops of sea-lions. The odor which arose from them was insupportable. These animals were all the time rutting", etc., yet nowhere does he speak in the chapter, or elsewhere in his volume, of the fur-seal on St. George, but incidentally remarks that over on St. Paul it is the chief animal and most abundant.—*Voyage Pittoresque au tour du Monde, Iles Aléoutiennes*, pp. 12, 13, pl. xiv. 1822.

Although this writing of Choris in regard to the subject is brief, superficial, and indefinite, yet I value the record he made, because it is *prima facie* evidence, to my mind, that had the fur-seal been nearly as numerous on St. George then as it was on St. Paul, he would have spoken of the fact surely, inasmuch as he was searching for just such items with which to illuminate his projected book of travels. The old Russian record as to the relative number of fur-seals on the two islands of St. George and St. Paul is clearly as palpably erroneous for 1820, as I found it to be in 1872, 1873. No intelligent steps toward ascertaining that ratio were ever taken until I made my survey.

Zapadnie rookery in July, 1873, had 600 feet of sea-margin, with 60 feet of average depth; making ground for 18,000 breeding-seals and their young. In 1874, I resurveyed the field and it seemed very clear to me that there had been a slight increase, perhaps to the number of 5,000, according to the expansion of the superficial area over that of 1873.

From Zapadnie we pass to the north shore, where all the other rookeries are located, with the village at a central point between them on the immediate border of the sea. And, in connection with this point, it is interesting to record the fact that every year, until recently, it has been the regular habit of the natives to drive the "holluschickie" over the two and a half or three miles of rough basaltic uplands which separate the hauling-ground of Zapadnie from the village; driving them to the killing-grounds there, in order to save the delay and trouble generally experienced in loading these skins in the open bay. The prevailing westerly and northwesterly winds during July and August, make it, for weeks at a time, a marine impossibility to effect a landing at Zapadnie, suitable for the safe transit of cargo to the steamer.



This three miles of the roughest of all rough walks that can be imagined, is made by the fur-seals in about seven or eight hours, when driven by the Aleuts; and, the weather is cool and foggy. I have known one treasury agent, who, after making the trip from the village to Zapadnie, seated himself down in the barrabkie there, and declared that no money would induce him to walk back the same way that same day—so severe is the exercise to one not accustomed to it; but it exhibits the power of land-locomotion possessed by the "holluschickie".*

STARRY ATEEL †.—This rookery is the next in order, and it is the most remarkable one on St. George, lying as it does in a bold sweep from the sea, up a steeply inclined slope to a point where the bluffs bordering it seaward are over 400 feet high; the seals being just as closely crowded at the summit of this lofty breeding plat as they are at the water's edge; the whole oblong oval on the side hill, as designated by the accompanying survey, is covered by their thickly clustered forms. It is a strange sight also, to sail under these bluffs with the boat, in fair weather, for a landing; and, as you walk the beach, over which the cliff wall frowns a sheer 500 feet, there, directly over your head the craning necks and twisting forms of the restless seals, ever and anon, as you glance upward, appear as if ready to launch out and fall below, so closely and boldly do they press the very edge of the precipice.‡ There is a low, rocky beach to the eastward of this rookery, over which the "holluschickie" haul in proportionate numbers, and from which the natives make their drives, coming from the village for this purpose, and directing the seals back, in their tracks.* Starry Ateel has 500 feet of sea and cliff margin, with 125 feet of average depth, making ground for 30,420 breeding-seals and their young.

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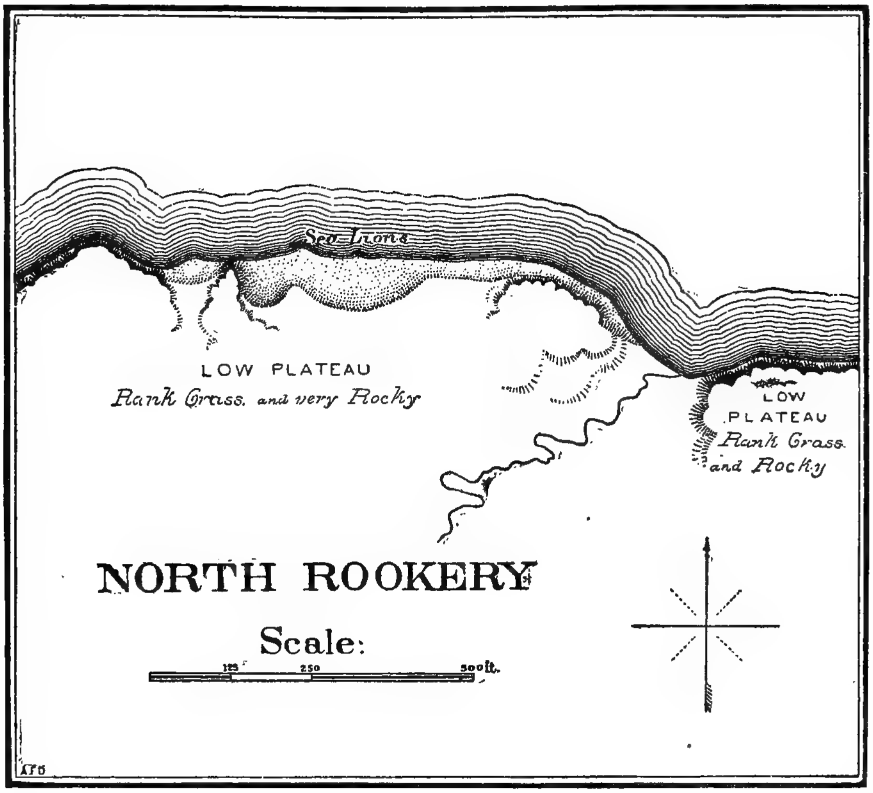
* The peculiarly rough character to this trail is given by the large, loose, sharp-edged basaltic bowlders, which are strewn thickly over all those lower plateau that bridge the island between the high bluffs at Starry Ateel and the slopes of Ahluckeyak hill. The summits of the two broader, higher plateaus, east and west respectively, are comparatively smooth and easy to travel over; and so is the sea-level flat at Zapadnie itself. On the map of St. George, a number of very small ponds will be noticed; they are the fresh-water reservoirs of the island. The two largest of these are near the summit of this rough divide; the seal-trail from Zapadnie to the village runs just west of them, and comes out on the north shore, a little to the eastward of the hauling-grounds of Starry Ateel, where it forks and unites with that path. The direct line between the village and Zapadnie, though nearly a mile shorter on the chart, is equal to 5 miles more of distance by reason of its superlative rocky inequalities.

† "Starry Ateel" or "Old Settlement"; a few hundred yards to the eastward of the rookery, is the earthen ruins of one of the pioneer settlements in Pribylov's time, and which, the natives say, marks the first spot selected by the Russians for their village after the discovery of St. George, in 1786.

‡ I have been repeatedly astonished at the amazing power possessed by the fur-seal, of resistance to shocks which would certainly kill any other animal. To explain clearly, the reader will observe, by reference to the maps, that there are a great many cliffy places between the rookeries on the shore-lines of the islands. Some of these cliffs are more than 100 feet in abrupt elevation above the surf and rocks awash below. Frequently "holluschickie", in ones, or twos, or threes will stray far away back from the great masses of their kind, and fall asleep in the thick grass and herbage which covers these mural reaches. Sometimes they will lie down and rest very close to the edge, and then as you come tramping along you discover and startle them and yourself alike. They, blinded by their first transports of alarm, leap promptly over the brink, snorting, coughing, and spitting as they go. Curiously peering after them and looking down upon the rocks, 50 to 100 feet below, instead of seeing their stunned and motionless bodies, you will invariably catch sight of them rapidly scrambling into the water; and, when in it, swimming off like arrows from the bow. Three "holluschickie" were thus



NORTH ROOKERY.—Next in order, and half a mile to the eastward, is this breeding-ground, which sweeps for 2,750 feet along and around the sea-front of a gently sloping plateau;† being in full sight of and close to the village. It has a superficial area occupied by 77,000 breeding-seals and their young. From this rookery to the village, a distance of less than a quarter of a mile, the "holluschickie" are driven which are killed for their skins, on the common track or seal-worn trail, that, not only the "bachelors" but ourselves travel over *en route* to and from Starry Ateel and Zapadnie; it is a broad, hard-packed erosion through the sphagnum, and across the rocky plateaux—in fact a regular seal-road, which has been used by the drivers and victims during the last eighty or ninety years. The fashion on St. George, in this matter of driving seals, is quite different from that on St. Paul. To get their maximum quota of 25,000 annually, it is necessary for the natives to visit every morning the hauling-grounds of each one of these four rookeries on the north shore, and bring what they may find back with them for the day.

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inadvertently surprised by me on the edge of the west face to Otter island. They plunged over from an elevation, there, not less than 200 feet in sheer elevation, and I distinctly saw them fall in scrambling, whirling evolutions, down, thumping upon the rocky shingle beneath, from which they bounded, as they struck, like so many rubber balls. Two of them never moved after the rebound ceased, but the third one reached the water and swam away like a bird on the wing.

While they seem to escape without bodily injury incident to such hard falls as ensue from dropping 50 or 60 feet upon pebbly beaches and rough bowlders below, and even greater elevations, yet I am inclined to think that some internal injuries are necessarily sustained in most every case, which soon develop and cause death; the excitement and the vitality of the seal, at the moment of the terrific shock, is able to sustain and conceal the real injury for the time being.

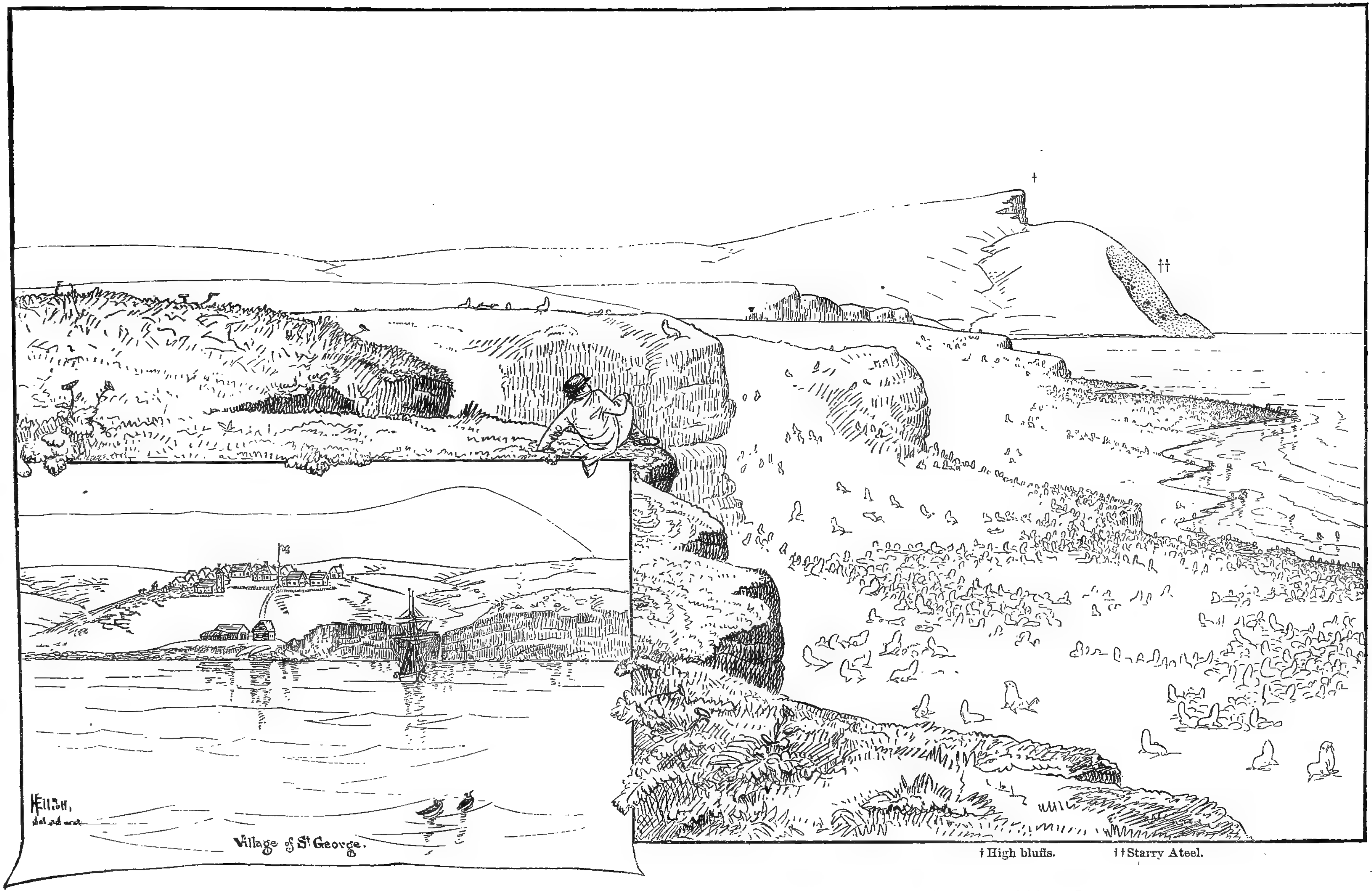
* Driving the "holluschickie" on St. George, owing to the relative scantiness of hauling area for those animals there, and consequent small numbers found upon these grounds at any one time, is a very arduous series of daily exercises on the part of the natives who attend to it. Glancing at the map, the marked considerable distance, over an exceedingly rough road, will be noticed between Zapadnie and the village; yet, in 1872, eleven different drives across the island, of 400 to 500 seals each, were made in the short four weeks of that season.

The following table shows plainly the striking inferiority of the seal-life, as to aggregate number, on this island, compared with that of St. Paul:

| Rookeries of St. George. | Number of drives made in 1872. | Number of seals driven. |
|---|---|---|
| "Zapadnie" (between June 14 and July 28) | 11 | 5,194 |
| "Starry Ateel" (between June 6 and July 29) | 14 | 5,274 |
| "North Rookery" (between June 1 and July 27) | 16 | 4,818 |
| "Little Eastern" | | |
| "Great Eastern" (between June 5 and July 28) | 16 | 9,714 |

The same activity in "sweeping" the hauling-grounds of St. Paul would bring in ten times as many seals, and the labor be vastly less; the driving at St. Paul is generally done with an eye to securing each day of the season only as many as can be well killed and skinned on that day, according as it be warmish or cooler.

† I should say "a gently sloping and alternating bluff plateau"; 2,000 feet are directly under the abrupt faces of low cliffs, while the other 750 feet slope down gradually to the water's edge; these narrow cliff belts of breeding fur-seals might be properly styled "rookery ribbons".

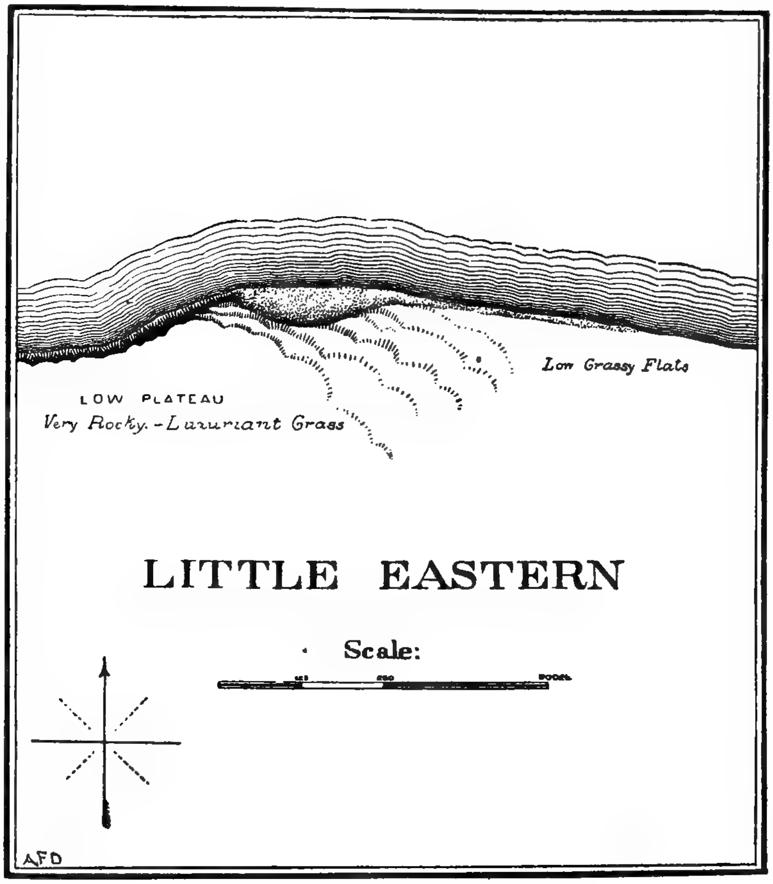


† High bluffs. †† Starry Ateel.

**VIEW OF THE NORTH ROOKERY, LOOKING WEST TO STARRY ATEEL.**

St. George Island, Pribylov Group.

LITTLE EASTERN ROOKERY.*—From the village to the eastward, about half a mile again, is a little eastern rookery, which lies on a low, bluffy slope, and is not a piece of ground admitting of much more expansion. It has superficial area for the reception of nearly 13,000 breeding-seals and their young.



THE GREAT EASTERN.—This is the last rookery that we find on St. George. It is an imitation, in miniature, of Tolstoi on St. Paul, with the exception of there being no parade-ground in the rear, of any character whatever. It is from the summit of the cliffs, overlooking the narrow ribbon of breeding-seals right under them, that I have been able to study the movements of the fur-seal in the water to my heart's content; for out, and under the water, the rocks, to a considerable distance, are covered with a whitish algoid growth, that renders the dark bodies of the swimming seals and sea-lions as conspicuous as is the image thrown by a magic lantern of a silhouette on a screen prepared for its reception.† The low rocky flats around the pool to the westward and northwest of the rookery seem to be filled up with a muddy alluvial wash that the seals do not favor; hence nothing but "holluschickie" range round about them.

RECAPITULATION.—In recapitulation, therefore, the breeding-grounds on St. George island, according to the surveys which I made between the 12th and 15th of July, 1873, gave the following figures. They are also, as in the case of St. Paul, the first surveys ever made here:

| Name of breeding-grounds, July 12–15, 1873. | Seals: ♂ ♀ ⊙. |
|---|---|
| "Zapadnie rookery" has 600 feet of sea-margin, with 60 feet of average depth, making ground for | 18,000 |
| "Starry Ateel" rookery has 500 feet of sea-margin, with 125 feet of average depth, making ground for | 30,420 |
| "North rookery" has 750 feet of sea-margin, with 150 feet of average depth, and 2,000 feet of sea-margin, with 25 feet of average depth; making ground in all for | 77,000 |
| "Little Eastern" rookery has 750 feet of sea-margin, with 40 feet of average depth, making ground for | 13,000 |
| "Great Eastern" rookery has 900 feet of sea-margin, with 60 feet of average depth, making ground for | 25,000 |
| A grand total of the seal-life for St. George island, breeding-seals and young, of | 163,420 |
| Grand total for St. Paul island, brought forward, breeding-seals and young, of | 3,030,000 |
| Grand sum total for the Pribylov islands (season of 1873), breeding-seals and young | 3,193,420 |

The figures above thus show a grand total of 3,193,420 breeding-seals and their young. This enormous aggregate is entirely exclusive of the great numbers of the non-breeding seals, that, as we have pointed out, are never permitted to come up on those grounds which have been surveyed and epitomized by the table just exhibited. That class of seals, the "holluschickie", in general terms, all males, and those to which the killing is confined, come up on the land and sea-beaches between the rookeries, in immense straggling droves, going to and from the sea at

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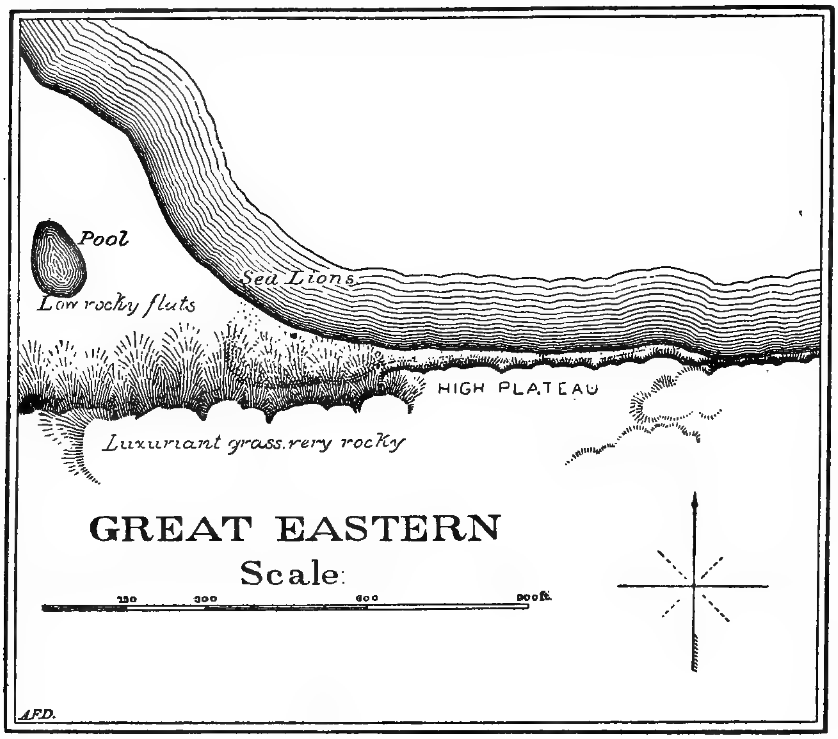
* The site of this breeding-ground and that of the marine slope of the killing-grounds to the east of the village, on this island, is where sea-lions held exclusive possession prior to their driving off by the Russians—so the natives affirm—the only place on St. George now where the *Eumetopias* breeds, is that one indicated on the general chart, between Garden cove and Tolstoi Mees.

† The algoid vegetation of the marine shores of these islands is one that adds a peculiar charm and beauty to their treeless, sunless coasts. Every kelp bed that floats raft-like in Bering sea, or is anchored to its rocky reefs, is fairly alive with minute sea-shrimps, tiny crabs, and little shells which cling to its masses of interwoven fronds or dart in ceaseless motion through, yet within its interstices. It is my firm belief that no better base of operations can be found for studying marine invertebrata than is the post of St. Paul or St. George; the pelagic and the littoral forms are simply abundant beyond all estimation within bounds of reason. The phosphorescence of the waters of Bering sea surpasses, in continued strength of brilliant illumination, anything that I have seen in southern and equatorial oceans. The crests of the long unbroken line of breakers on Lukannon beach looked to me, one night in August, like an instantaneous flashing of lightning,



irregular intervals, from the beginning to the closing of the entire season. The method of the "holluschickie" on these hauling-grounds is not systematic—it is not distinct, like the manner and law prescribed and obeyed by the breeding-seals, which fill up those rookery-grounds to the certain points as surveyed, and keep these points intact for a week or ten days, at a time, during the height of every season in July and August; but, to the contrary, upon the hauling-grounds to-day, an immense drove of 100,000 will be seen before you at English bay, sweeping hither and surging thither over the polished surface which they have worn with their restless flippers, tracing and retracing their tireless marches; consequently the amount of ground occupied by the "holluschickie" is vastly in excess of what they would require did they conform to the same law of distribution observed by the breeding seals; and this ground is therefore wholly untenable for any such definite basis and satisfactory conclusion as is that which I have surveyed on the rookeries. Hence, in giving an estimate of the aggregate number of "holluschickie" or non-breeding seals, on the Pribylov islands, embracing as it does all the males under six and seven years of age and all the yearling females, it must, necessarily, be a simple opinion of mine founded upon nothing better than my individual judgment. This is my conclusion:

The non-breeding seals seem nearly equal in number to that of the adult breeding-seals; but without putting them down at a figure quite so high, I may safely say that the sum total of 1,500,000, in round numbers, is a fair enumeration, and quite within bounds of fact. This makes the grand sum total, of the fur-seal life on the Pribylov islands, over 4,700,000.

THE INCREASE OR DIMINUTION OF THE SEAL-LIFE, PAST, PRESENT, AND PROSPECTIVE.—One stereotyped question has been addressed to me universally by my friends since my return, first in 1873, from the seal-islands. The query is: "At the present rate of killing the seals, it will not be long ere they are exterminated; how much longer will they last?" My answer is now as it was then, "Provided matters are conducted on the seal-islands in the future as they are to-day, 100,000 male seals under the age of five years and over one, may be safely taken every year from the Pribylov islands, without the slightest injury to the regular birth-rates, or natural increase thereon; provided, also, that the fur-seals are not visited by any plague, or pests, or any abnormal cause for their destruction, which might be beyond the control of men; and to which, like any other great body of animal life, they must ever be subjected to the danger of."*

LOSS OF LIFE SUSTAINED BY THE YOUNG SEALS.—From my calculations, given above, it will be seen that 1,000,000 pups, or young seals, in round numbers, are born upon these islands of the Pribylov group every year; of this million, one-half are males. These 500,000 young males, before they leave the islands for sea, during October and November, and when they are between five and six months old, fat and hardy, have suffered but a trifling loss in numbers, say one per cent., while on and about the islands of their birth, surrounding which, and upon which, they have no enemies whatever to speak of; but, after they get well down to the Pacific, spread out over an immense area of watery highways in quest of piscatorial food, they form the most helpless of their kind to resist

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between Tolsti Mees and Lukannon head, as the billows successively rolled in, and broke; the seals swimming under the water, here on St. George and beneath the Black Bluffs, streaked their rapid course like comets in the sky; and every time their dark heads popped above the surface of the sea, they were marked by a blaze of scintillant light.

*The thought of what a deadly epidemic would effect among these vast congregations of *Pinnepedia* was one that was constant in my mind when on the ground and among them. I have found in the *British Annals* (Fleming's), on page 17, an extract from the notes of Dr. Trail: "In 1833 I inquired for my old acquaintances, the seals of the Hole of Papa Westray, and was informed that about four years before they had totally deserted the island, and had only within the last few months begun to reappear. * * * About fifty years ago multitudes of their carcasses were cast ashore in every bay in the north of Scotland, Orkney, and Shetland, and numbers were found at sea in a sickly state." This note of Trail is the only record which I can find of a fatal epidemic among the seals; it is not reasonable to suppose that the Pribylov rookeries have never suffered from distempers in the past, or are not to, in the future, simply because no occasion seems to have arisen during the comparatively brief period of their human domination.

or elude the murderous teeth and carnivorous attacks of basking sharks* and killer-whales†. By these agencies, during their absence from the islands until their reappearance in the following year, and in July, they are so perceptibly diminished in number that I do not think, fairly considered, more than one-half of the legion which left the ground of their birth, last October, came up the next July to these favorite landing-places; that is, only 250,000 of them return out of the 500,000 born last year. The same statement, in every respect, applies to the going and the coming of the 500,000 female pups, which are identical in size, shape, and behavior.

As yearlings, however, these 250,000 survivors, of last year's birth, have become strong, lithe, and active swimmers; and, when they again leave the hauling-grounds as before, in the fall, they are fully as able as are the older class to take care of themselves; and when they reappear next year, at least 225,000 of them safely return in the second season after birth; from this on I believe that they live out their natural lives of fifteen to twenty years each; the death-rate now caused by the visitation of marine enemies affecting them, in the aggregate, but slightly. And again, the same will hold good touching the females, the average natural life of which, however, I take to be only nine or ten years each.

Out of these 225,000 young males, we are required to save only one-fifteenth of their number to pass over to the breeding-grounds, and meet there the 225,000 young females; in other words, the polygamous habit of this animal is such that, by its own volition, I do not think that more than one male annually out of fifteen born is needed on the breeding-grounds in the future; but in my calculations, to be within the margin and to make sure that I save two-year-old males enough every season, I will more than double this proportion, and set aside every fifth one of the young males in question; that will leave 180,000 seals, in good condition, that can be safely killed every year, without the slightest injury to the perpetuation of the stock itself forever in all its original integrity.‡

In the above showing I have put the very extreme estimate upon the loss sustained at sea by the pup-seals too large, I am morally certain; but, in attempting to draw this line safely, I wish to place the matter in the very worst light in which it can be put, and to give the seals the full benefit of every doubt. Surely I have clearly presented the case, and certainly no one will question the premises after they have studied the habit and disposition of the rookeries; hence, it is a positive and tenable statement, that no danger of the slightest appreciable degree of injury to the interests of the government on the seal-islands of Alaska, exists as long as the present law protecting it, and the management executing it, continues.

COURSE PURSUED BY THE SEALS AFTER LEAVING THE ISLANDS.—These fur-seals of the Pribylov group, after leaving the islands in the autumn and early winter, do not visit land again until the time of their return in the following spring and early summer, to these same rookery- and hauling-grounds, unless they touch, as they are navigating their lengthened journey back, at the Russian Copper, and Bering islands, 700 miles to the westward of the Pribylov group. They leave the islands by independent squads, each one looking out for itself; apparently all turn by common consent to the south, disappearing toward the horizon, and are soon lost in the vast expanse below, where they spread themselves over the entire North Pacific as far south as the 48th and even the 47th parallels of north latitude. Over the immense area between Japan and Oregon, doubtless, many extensive submarine fishing-shoals and banks are known to them; at least, it is definitely understood that Bering sea does not contain them long when they depart from the breeding-rookeries and the hauling-grounds therein. While it is carried in mind that they sleep and rest in the water with soundness and with the greatest comfort on its surface, and that even when around the land, during the summer, they frequently put off from the beaches to take a bath and a quiet snooze just beyond the surf, we can readily agree that it is no inconvenience whatever, when the reproductive functions have been discharged, and their coats renewed, for them to stay the balance of the time in their most congenial element—the briny deep.

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* *Somniosus microcephalus.* Some of these sharks are of very large size, and when caught by the Indians of the northwest coast, basking or asleep on the surface of the sea, they will, if transfixed by the native's harpoons, take a whole fleet of canoes in tow and run swiftly with them several hours before exhaustion enables the savages to finally dispatch them. A Hudson Bay trader, William Manson (at Ft. Alexander, in 1865), told me that his father had killed one in the smooth waters of Millbank sound, which measured 24 feet in length, and its liver alone yielded 36 gallons of oil. The *Somniosus* lays motionless for long intervals in calm waters of the North Pacific, just under and at the surface, with its dorsal fin clearly exposed above; what havoc such a carnivorous fish would be likely to effect in a "pod" of young fur-seals, can be better imagined than described

† *Orca gladiator.* While revolving this particular line of inquiry in my mind when, on the ground and among the seals, I involuntarily looked constantly for some sign of disturbance in the sea which would indicate the presence of an enemy; and, save seeing a few examples of the *Orca*, I never detected anything; if the killer-whale was common here, it would be patent to the most casual eye, because it is the habit of this ferocious cetacean to swim so closely at the surface as to show its peculiar sharp, dorsal fin high above the water; possibly a very superficial observer could and would confound the long, trenchant fluke of the *Orca* with the stubby node upon the spine of the humpback whale, which that animal exhibits only when it is about to dive. Humpbacks feed around the islands, but not commonly—they are the exception; they do not, however, molest the seals in any manner whatever; and little squads of these pinnipeds seem to delight themselves by swimming in endless circles around and under the huge bodies of those whales, frequently leaping out and entirely over the cetacean's back, as witnessed on one occasion by myself and the crew of the "Reliance", off the coast of Kadiak, June, 1874.

‡ When regarding the subject in 1872–'73, of how many surplus young males could be wisely taken from the Pribylov stock, I satisfied myself that more than 100,000 could be drawn upon annually for their skins, and hence was impressed with the idea that the business might be safely developed to a greater maximum; since then, however, I have been giving attention to the other side of the question, which involves the market for the skins and the practical working of any sliding scale of increased killing, such as I then recommended. A careful review of the whole matter modifies my original idea and causes me to think that, all things considered, it is better to "let well enough alone". Although it would be a most interesting commercial experiment to develop the yield of the Pribylov islands to their full capacity, yet, in view of the anomalous and curious features of the case, it is wiser to be satisfied with the assured guarantee of perpetuation in all original integrity, which the experience of the last ten years gives us on the present basis of 100,000, than to risk it by possibly doubling the revenue therefrom. Therefore, I am not now in favor of my earlier proposition of gradually increasing the killing, until the maximum number of surplus "holluschickie" should be ascertained.

NATURAL ENEMIES OF THE FUR-SEALS.—That these animals are preyed upon extensively by killer-whales (*Orca gladiator*), in especial, and by sharks, and probably other submarine foes now unknown, is at once evident; for, were they not held in check by some such cause, they would, as they exist to-day on St. Paul, quickly multiply, by arithmetical progression, to so great an extent that the island, nay, Bering sea itself, could not contain them. The present annual killing of 100,000 out of a yearly total of over a million males does not, in an appreciable degree, diminish the seal-life, or interfere in the slightest with its regular, sure perpetuation on the breeding-grounds every year. We may, therefore, properly look upon this aggregate of four and five millions of fur-seals, as we see them every season on these Pribylov islands, as the maximum limit of increase assigned to them by natural law. The great equilibrium, which nature holds in life upon this earth, must be sustained at St. Paul as well as elsewhere.

FOOD CONSUMED BY THE FUR-SEALS.—Think of the enormous food-consumption of these rookeries and hauling-grounds; what an immense quantity of finny prey must pass down their voracious throats as every year rolls by. A creature so full of life, strung with nerves, muscles like bands of steel, cannot live on air, or absorb it from the sea. Their food is fish, to the practical exclusion of all other diet. I have never seen them touch, or disturb with the intention of touching it, one solitary example in the flocks of water-fowl which rest upon the surface of the water all about the islands. I was especially careful in noting this, because it seemed to me that the canine armature of their mouths must suggest flesh for food at times as well as fish; but fish we know they eat. Whole windrows of the heads of cod and wolf fishes,* bitten off by these animals at the nape, were washed up on the south shore of St. George during a gale in the summer of 1873; this pelagic decapitation evidently marked the progress and the appetite of a band of fur-seals to the windward of the island, as they passed into and through a stray school of these fishes.

How many pounds per diem is required by an adult seal, and taken by it when feeding, is not certain in my mind. Judging from the appetite, however, of kindred animals, such as sea-lions fed in confinement at Woodward's gardens, San Francisco, I can safely say that forty pounds for a full-grown fur-seal is a fair allowance, with at least ten or twelve pounds per diem to every adult female, and not much less, if any, to the rapidly growing pups and young "holluschickie". Therefore, this great body of four and five millions of hearty, active animals which we know on the seal-islands, must consume an enormous amount of such food every year. They cannot average less than ten pounds of fish each per diem, which gives the consumption, as exhibited by their appetite, of over six million tons of fish every year. What wonder, then, that nature should do something to hold these active fishermen in check.†

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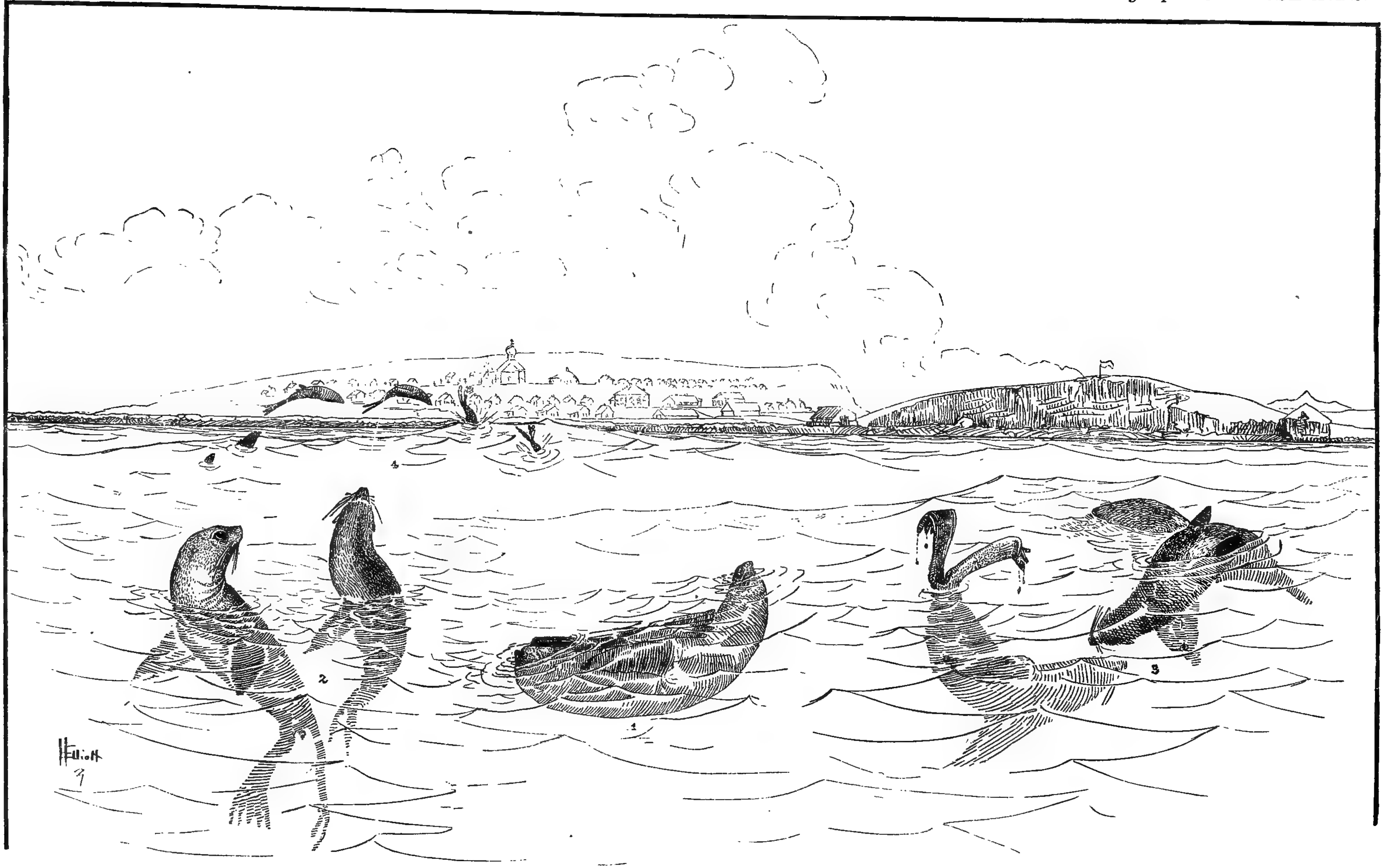
* *Anarrhichas sp.*

† I feel confident that I have placed this average of fish eaten per diem by each seal at a starvation allowance, or, in other words, it is a certain minimum of the whole consumption. If the seals can get double the quantity which I credit them with above, startling as it seems, still I firmly believe that they eat it every year. An adequate realization by icthyologists and fishermen as to what havoc the fur-seal hosts are annually making among the cod, herring, and salmon of the northwest coast and Alaska, would disconcert and astonish them. Happily for the peace of political economists who may turn their attention to the settlement and growth of the Pacific coast of America, it bids fair to never be known with anything like precision. The fishing of man, both aboriginal and civilized, in the past, present, and prospective, has never been, is not, nor will it be, more than a drop in the bucket contrasted with the piscatorial labors of these icthyophagi in those waters adjacent to their birth. What catholic knowledge of fish and fishing banks any one of those old "seecatchie" must possess, which we observe hauled out on the Pribylov rookeries each summer. It has, undoubtedly, during the eighteen or twenty years of its life, explored every fish eddy, bank, or shoal throughout the whole of that vast immensity of the North Pacific and Bering sea. It has had more piscine sport in a single twelve month than Izaak Walton had in his whole life.

An old sea-captain, Dampier, cruising around the world just about 200 years ago, wrote diligently thereof (or, rather, one Funnel is said to have written for him), and wrote well. He had frequent reference to meeting hair-seals and sea-lions, fur-seals, etc., and fell into repeating this maxim, evidently of his own making: "For wherever there be plenty of fysh, there be seals." I am sure that, unless a vast abundance of good fishing-ground was near by, no such congregation of seal-life as is that under discussion on the seal-islands, could exist. The whole eastern half of Bering sea, in its entirety, is a single fish-spawning bank, nowhere deeper than 50 to 75 fathoms, averaging, perhaps, 40; also, there are great reaches of fishing-shoals up and down the northwest coast, from and above the straits of Fuca, bordering the entire southern, or Pacific, coast of the Aleutian islands. The aggregate of cod, herring, and salmon which the seals find upon these vast icthyological areas of reproduction, must be simply enormous, and fully equal to the most extravagant demand of the voracious appetites of *Callorhini*.

When, however, the fish retire from spawning here, there, and everywhere over these shallows of Alaska and the northwest coast, along by the end of September to 1st of November, every year, I believe that the young fur-seal, in following them into the depths of the great Pacific, must have a really arduous struggle for existence—unless it knows of fishing banks unknown to us. The yearlings, however, and all above that age, are endowed with sufficient muscular energy to dive rapidly in deep soundings, and to fish with undoubted success. The pup, however, when it goes to sea, five or six months old, is not lithe and sinewy like the yearling; it is podgy and fat, a comparative clumsy swimmer, and does not develop, I believe, into a good fisherman until it has become pretty well starved after leaving the Pribylovs.



PELAGIC ATTITUDES OF THE FUR-SEAL.

1. Position when sleeping. 2. Position in rising to breathe, survey, etc. 3. Positions in scratching, etc. 4. "Dolphin jumps."

The village of St. Paul in the distance, and the Black Bluffs to the right on the middle ground.

PELAGIC RANGE OF FUR-SEALS FOR FOOD.—During the winter solstice—between the lapse of the autumnal, and the verging of the vernal equinoxes—in order to get this enormous food supply, the fur-seals are necessarily obliged to disperse over a very large area of fishing ground, ranging throughout the North Pacific, 5,000 miles across between Japan and the straits of Fuca. In feeding, they are brought to the southward all this time; and, as they go, they come more and more in contact with those natural enemies peculiar to the sea of these southern latitudes, which are almost strangers and are really unknown to the waters of Bering sea; for I did not observe, with the exception of ten or twelve perhaps, certainly no more, killer-whales,[*] a single marine disturbance, or molestation, during the three seasons which I passed upon the islands, that could be regarded in the slightest degree inimical to the peace and life of the *Pinnipedia;* and thus, from my observation, I am led to believe that it is not until they descend well to the south of the Aleutian islands, and in the North Pacific, that they meet with sharks to any extent, and are diminished by the butchery of killer-whales.[†]

The young fur-seals going out to sea for the first time, and following in the wake of their elders, are the clumsy members of the family. When they go to sleep on the surface of the water, they rest much sounder than the others; and their alert and wary nature, which is handsomely developed ere they are two seasons old, is in its infancy. Hence, I believe that vast numbers of them are easily captured by marine foes, as they are stupidly sleeping, or awkwardly fishing.

BEHAVIOR OF FUR-SEALS IN THE WATERS AROUND THE ISLANDS.—In this connection I wish to record an impression very strongly made upon my mind, in regard to their diverse behavior when out at sea, away from the islands, and when congregated thereon. As I have plainly exhibited in the foregoing chapter, they are practically without fear of man when he visits them on the land of their birth and recreation; but the same seal that noticed you with quiet indifference at St. Paul, in June and July, and the rest of the season while he was there, or gamboled around your boat when you rowed from the ship to shore, as a dog will play about your horses when you drive from the gate to the house, that same seal, when you meet him in one of the passes of the Aleutian chain, 100 or 200 miles away from here, as the case may be, or to the southward of that archipelago, is the shiest and wariest creature your ingenuity can define. Happy are you in getting but a single glimpse of him, first; you will never see him after, until he hauls out, and winks and blinks across Lukannon sands.[‡]

But the companionship and the exceeding number of the seals, when assembled together annually, makes them bold; largely due, perhaps, to their fine instinctive understanding, dating, probably, back many years, seeming to know that man, after all, is not wantonly destroying them; and what he takes, he only takes from the ravenous maw of the killer-whale or the saw-tipped teeth of the Japan shark. As they sleep in the water, off the straits of Fuca, and the northwest coast as far as Dixon's sound, the Indians, belonging to that region, surprise them with spears and rifle, capturing quite a number every year, chiefly pups and yearlings.

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I must not be understood as saying that fish alone constitute the diet of the Pribylov pinnipeds; I know that they feed, to a limited extent, upon crustaceans and upon the squid (*Loligo*), also, eating tender algoid sprouts; I believe that the pup-seals live for the first five or six months at sea largely, if not wholly, upon crustaceans and squids; they are not agile enough, in my opinion, to fish successfully in any great degree, when they first depart from the rookeries.

[*] But I did observe a very striking exhibition, however, of this character one afternoon while looking over Lukannon bay. I saw a "killer" chasing the alert "holluschickie" out beyond the breakers, when suddenly, in an instant, the cruel cetacean was turned toward the beach in hot pursuit, and in less time than this is read the ugly brute was high and dry upon the sands. The natives were called, and a great feast was in prospect when I left the carcass.

But this was the only instance of the orca in pursuit of seals that came directly under my observation; hence, though it does undoubtedly capture a few here every year, yet it is an insignificant cause of destruction, on account of its rarity.

[†] In the stomach of one of these animals, year before last, 14 small harp-seals were found.—*Michael Carroll's Report of Seal and Herring Fisheries of Newfoundland.*

[‡] When fur-seals were noticed, by myself, far away from these islands, at sea, I observed that then they were as shy and as wary as the most timorous animal which, in dreading man's proximity, could be—sinking instantly on apprehending the approach or presence of the ship, seldom to reappear to my gaze. But, when gathered in such immense numbers at the Pribylov islands, they are suddenly metamorphosed into creatures wholly indifferent to my person. It must cause a very curious sentiment in the mind of him who comes for the first time, during the summer season, to the island of St. Paul; where, when the landing boat or lighter carries him ashore from the vessel, the whole short marine journey is enlivened by the gambols and aquatic evolutions of fur-seal convoys to the "bidarrah," which sport joyously and fearlessly round and round his craft, as she is rowed lustily ahead by the natives; the fur-seals, then, of all classes, "holluschickie" principally, pop their dark heads up out of the sea, rising neck and shoulders erect above the surface, to peer and ogle at him and at his boat, diving quickly to reappear just ahead or right behind, hardly beyond striking distance from the oars; these gymnastics of *Callorhinus* are not wholly performed thus in silence, for it usually snorts and chuckles with hearty reiteration.

The sea-lions up here also manifest much the same marine interest, and gives the voyager an exhibition quite similar to the one which I have just spoken of, when a small boat is rowed in the neighborhood of its shore rookery; it is not, however, so bold, confident, and social as the fur-seal under the circumstances, and utters only a short, stifled growl of surprise, perhaps; its mobility, however, of vocalization is sadly deficient when compared with the scope and compass of its valuable relative's polyglottis.

The hair-seals (*Phoca vitulina*) around these islands never approached our boats in this manner, and I seldom caught more than a furtive glimpse of their short, bull-dog heads when traversing the coast by water.

The walrus (*Rosmarus obesus*) also, like *Phoca vitulina*, gave undoubted evidence of sore alarm over the presence of my boat and crew anywhere near its proximity in similar situations, only showing itself once or twice, perhaps, at a safe distance by elevating nothing but the extreme tip of its muzzle and its bleared, popping eyes above the water; it uttered no sound except a dull, muffled grunt, or else a choking, gurgling bellow.

ENCYSTED BULLETS, ARROWS, ETC., IN FUR-SEALS.—On the killing-grounds at St. George, in June, 1873, the natives would frequently call my attention to seals that they were skinning, in the hides of which buckshot were embedded and encysted just under the skin, in the blubber. From one animal I picked out fifteen shot, and the holes which they must have made in the skin were so entirely healed over as not to leave the faintest trace of a scar. These buckshot were undoubtedly received from the natives of the northwest coast, anywhere between the straits of Fuca and the Aleutian islands. The number taken by these hunters on the high seas is, however, inconsiderable; the annual average, perhaps, of 5,000 skins is a fair figure—some seasons more, some seasons less. The natives also have found on the killing-grounds, in the manner just indicated, specimens of the implements employed by the Aleuts to the southward, such as tips of birds' spears and bone lances, comfortably encysted in the blubber under the skin; but only very small fragments are found, because I believe any larger pieces would create suppuration and slough out of the wounds.*

INCREASE OF THE SEAL-LIFE.—I am free to say that it is not within the power of human management to promote this end to the slightest appreciable degree over its present extent and condition as it stands in the state of nature, heretofore described. It cannot fail to be evident, from my detailed narration of the habits and life of the fur-seal on these islands during so large a part of every year, that could man have the same supervision and control over this animal during the whole season which he has at his command while they visit the land, he might cause them to multiply and increase, as he would so many cattle, to an indefinite number—only limited by time and the means of feeding them. But the case in question, unfortunately, is one where the fur-seal is taken, by demands for food, at least six months out of every year, far beyond the reach or even cognizance of any man, where it is all this time exposed to many known powerful and destructive natural enemies, and probably many others, equally so, unknown, which prey upon it, and, in accordance with that well-recognized law of nature, keeps this seal-life at a certain number—at a figure which has been reached, for ages past, and will continue to be in the future, as far as they now are—their present maximum limit of increase, namely, between four and five million seals, in round numbers. This law holds good everywhere throughout the animal kingdom, regulating and preserving the equilibrium of life in the state of nature; did it not hold good, these seal-islands and all Bering sea would have been literally covered, and have swarmed like the *Medusæ* of the waters, long before the Russians discovered them. But, according to the silent testimony of the rookeries, which have been abandoned by the seals, and the noisy, emphatic assurance of those now occupied, there were no more seals when first seen here by human eyes in 1786 and 1787, than there are now in 1881, as far as all evidence goes.

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* Touching this matter of the approximate numbers of fur-seals which are annually slain in the open sea, straits, and estuaries of Bering and the North Pacific oceans, I have, necessarily, no definite data upon which to base a calculation; but such as I have, points to the capture every year of 1,000 to 1,400 young fur-seals in the waters of Oomnak pass, and as many in the straits adjoining Borka village, by the resident Aleuts; these are the only two points throughout the entire Aleutian chain and the peninsula where any *Callorhinus* is taken by the natives, except an odd example now and then elsewhere. On the northwest coast, between San Francisco and Prince William sound, the fur-seal is only apprehended, to any extent, at two points, viz, off the straits of Fuca, ten to twenty miles at sea, sweeping over a series of large fishing shoals which are located there, and in that reach of water between Queen Charlotte island and the mouth of Dixon sound. Several small schooners, with native crews, and the Indians, themselves, in their own canoes, cruise for them here during May and June of each year. How many they secure every season is merely a matter of estimation, and therefore not a subject of definite announcement. In my judgment, after carefully investigating the question at Victoria and Port Townsend in 1874, I believe, as an average, that these pelagic fur-sealers do not, altogether, secure 5,000 animals annually.

Those seals killed by the Aleuts of Makushin and Borka settlements, above referred to, are all pups, and are used at home—none exported for trade.

The last record which I can find of fur-seals being taken on land other than that of the Pribylov group of the American side, is the following brief table of Techmainov, who, in 1863, published (in 2 volumes) a long recapitulation of the Russian-American Company's labors in Alaska as illustrated by a voluminous series of personal letters by the several agents of that company. Techmainov says that these fur-seals were taken on the Farralones, which are small islets just abreast of the entrance to the Golden Gate, California.

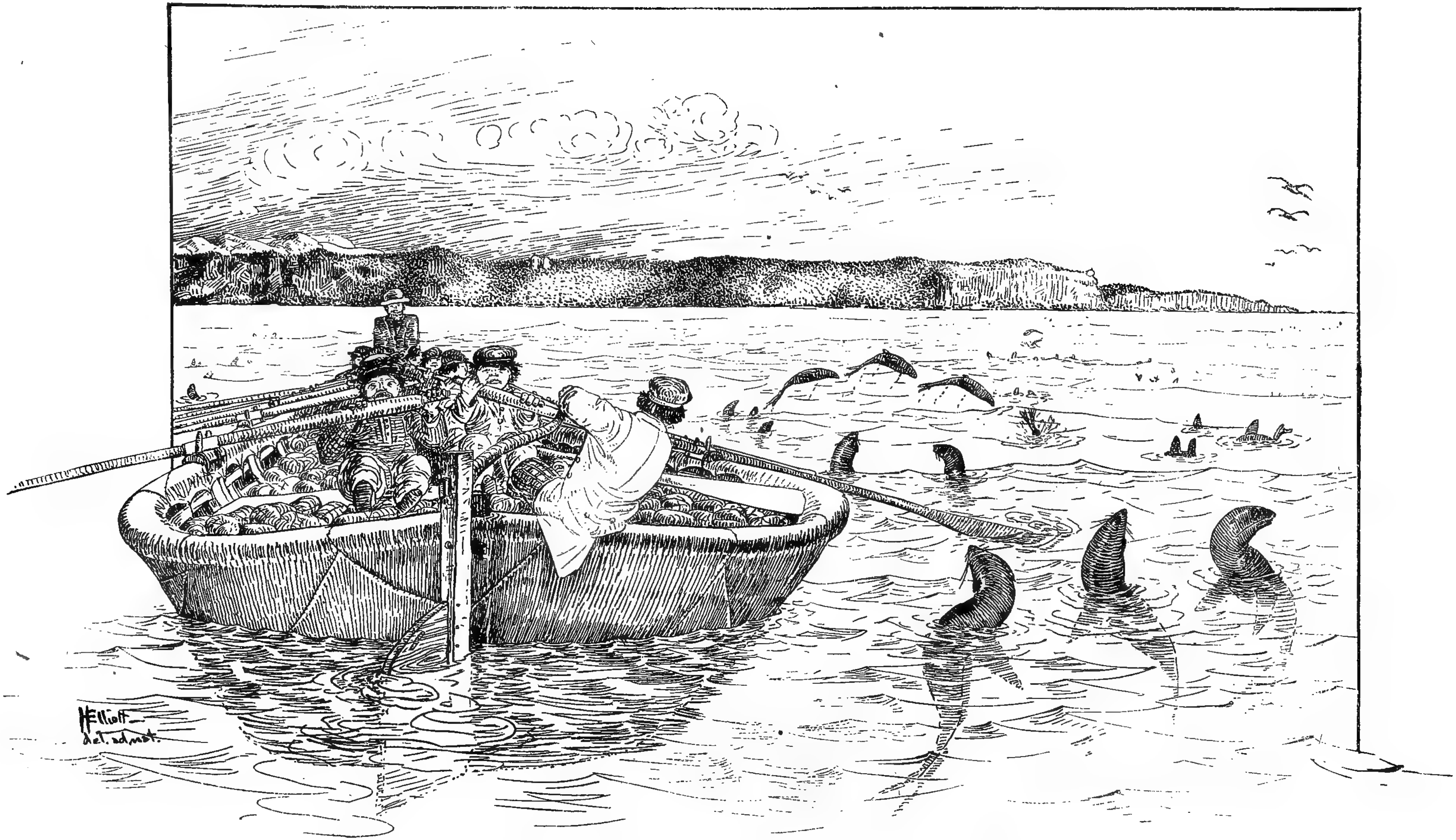
| Taken on the Farralones, California coast | 1824. | 1825. | 1826. | 1827. | 1828. | 1829. | 1830. | 1831. | 1832. | 1833. | 1834. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fur-seals | 1,050 | 455 | 290 | .......... | 210 | 287 | .......... | 205 | 118 | 54 | .......... |

This period of 1824–1834 was the one passed by the Russians in their occupation of Ross or Bodega, California, where a colony was engaged in raising cereals and beef, for the stations in Alaska. I am inclined to think, however, that very likely many of the specimens of *Callorhinus* counted in this table were shot or speared, as they now are, out at sea off the straits of Fuca. The number is insignificant, but the pelts were not very valuable in those days, and probably very slight exertions were made to get them; or, otherwise, 3,000 or 5,000 annually could have been secured at sea then, as they are to-day, by our people and the Indians of Cape Flattery.

The record, however, of killing fur-seals on the Farralones, between 1806 and 1837, by the Russians, who were established then at Bodega, California, is an honest one. I do not find any mention made of the fact that they bred there, and I am inclined to think they did not. I believe that when small squads of *Callorhinus ursinus* hauled out on the Californian islets, they did so lured by the large numbers of breeding *Zalophus*, and the *Eumetopias* which repaired there then, as they do now, for that purpose. Had the sea-lions not been there, in the manner aforesaid, the presence of fur-seals on North American land, elsewhere than on that of the Pribylov group, would not have been thus determined and established.

Again, in this connection, and corroborative, is the fact that in 1878 a few hundred fur-seals were taken by sea-lion hunters among the *Zalophus* at Santa Barbara and Guadaloupe islands, southern Californian coast. I am assured of this fact by the evidence of the gentleman who himself purchased the skins from the lucky hunters. None had ever been seen there before, by our people, and none have been taken since. The Russian archives give no testimony on this score.

Plate XII.



FUR-SEALS SPORTING AROUND THE BAIDAR.

Natives of St. Paul lightering off the bundled seal-skins to the ship from the Village Cove.

**View looking east over Zoltoi Bay on to "Gorbatch" of the great Reef Rookery.**

SITES OF ABANDONED ROOKERIES.—With reference to the amount of ground covered by the seals, when first discovered by the Russians, I have examined every foot of the shore line of both islands where the bones, and polished rocks, etc., might be lying on any deserted areas. Since then, after carefully surveying the new ground now occupied by the seals, and comparing this area with that which they have deserted, I feel justified in stating that for the last twelve or fifteen years, at least, the fur-seals on these islands have not diminished, nor have they increased as a body to any noteworthy degree; and throughout this time the breeding-grounds have not been disturbed except at that brief but tumultuous interregnum during 1868; and they have been living since in a perfectly quiet and natural condition.

CAN THE NUMBER BE INCREASED?—What can be done to promote their increase? We cannot cause a greater number of females to be born every year than are born now; we do not touch or disturb these females as they grow up and live; and we never will, if the law and present management is continued. We save double—we save more than enough males to serve; nothing more can be done by human agency; it is beyond our power to protect them from their deadly marine enemies as they wander into the boundless ocean searching for food.

In view, therefore, of all these facts, I have no hesitation in saying, quite confidently, that under the present rules and regulations governing the sealing interests on these islands, the increase or diminution of the seal-life thereon will amount to nothing in the future; that the seals will exist, as they do exist, in all time to come at about the same number and condition recorded in this monograph. To test this theory of mine, I here, in the record of my surveys of the rookeries, have put stakes down which will answer, upon those breeding-grounds, as a correct guide as to their present, as well as to their future, condition, from year to year.

SURVEYING THE CONDITION OF THE ROOKERIES.—During the first week of inspection of some of those earliest arrivals, the "seecatchie", which I have described, will frequently take to the water when approached; but these runaways quickly return. By the end of May, however, the same seals will hardly move to the right or left when you attempt to pass through them. Then, two weeks before the females begin to come in, and quickly after their arrival, the organization of the fur-seal rookery is rendered entirely indifferent to man's presence on visits of quiet inspection, or to anything else, save their own kind, and so continues during the rest of the season.

INDIFFERENCE OF FUR-SEALS TO CARRION SMELLS, BLOOD, ETC.—I have called attention to the singular fact, that the breeding-seals upon the rookeries and hauling-grounds are not affected by the smell of blood or carrion arising from the killing-fields, or the stench of blubber fires which burn in the native villages. This trait is conclusively illustrated by the attitude of those two rookeries near the village of St. Paul; for the breeding-ground on this spit, at the head of the lagoon, is not more than forty yards from the great killing-grounds to the eastward; being separated from those spots of slaughter, and the seventy or eighty thousand rotting carcasses thereon, by a slough not more than ten yards wide. These seals can smell the blood and carcasses, upon this field, from the time they land in the spring until they leave in the autumn; while the general southerly winds waft to them the odor and sounds of the village of St. Paul, not over 200 rods south of them, and above them, in plain sight. All this has no effect upon the seals—they know that they are not disturbed—and the rookery, the natives declare, has been slightly but steadily increasing. Therefore, with regard to surveying and taking those boundaries assumed by the breeding-seals every year, at that point of high tide, and greatest expansion, which they assume between the 8th and 15th of July, it is an entirely practicable and simple task. You can go everywhere on the skirts of the rookeries almost within reaching distance, and they will greet you with quiet, inoffensive notice, and permit close, unbroken observation, when it is subdued and undemonstrative, paying very little attention to your approach.

YEARLY CHANGES IN THE ROOKERIES.—I believe the agents of the government there, are going to notice, every year, little changes here and there in the area and distribution of the rookeries; for instance, one of these breeding-grounds will not be quite as large this year as it was last, while another one, opposite, will be found somewhat larger and expanded over the record which it made last season. In 1874, it was my pleasure and my profit to re-traverse all these rookeries of St. George and St. Paul, with my field notes of 1872 in my hand, making careful comparisons of their relative size as recorded then, and now. To show this peculiarity of enlarging a little here, and diminishing a little there, so characteristic of the breeding-grounds, I reproduce the following memoranda of 1874:

NORTHEAST POINT, *July* 18, 1874.

CONTRAST ON ST. PAUL BETWEEN 1872 AND 1874.—Quite a strip of ground near Webster's house has been deserted this season; but a small expansion is observed on Hutchinson's hill. The rest of the ground is as mapped in 1872, with no noteworthy increase in any direction. The condition of the animals and their young, excellent; small irregularities in the massing of the families, due to the heavy rain this morning; sea-lions about the same; none, however, on the west shore of the point.

The aggregate of life on this great rookery is, therefore, about the same as in 1872; the "holluschickie", or killable seals, hauling as well and as numerously as before. The proportions of the different ages among them of two, three, and four-year-olds, pretty well represented.

POLAVINA, *July* 18, 1874.

Stands as it did in 1872; breeding- and hauling-grounds in excellent condition; the latter, on Polavina, are changing from the uplands down upon Polavina sand beach, trending for three miles toward northeast point. The numbers of the "holluschickie" on this ground of Polavina, where they have not been disturbed for some five years, to mention, in the way of taking, do not seem to be any greater than they are on the hauling-grounds adjacent to Northeast point and the village, from which they are driven almost every day during this season of killing. I notice also this remarkable characteristic of the "holluschickie"; no matter how cleanly the natives may drive the seals off of a given piece of hauling-ground this morning, if the weather is favorable, to-morrow will see it covered again just as thickly; and, thus they drive in this manner from Zoltoi sands almost every day during the killing-season, generally finding on the succeeding morning more, or as many, seals as they drove off the previous dawn. This seems to indicate that the "holluschickie" recognize no particular point as favored over another at the island when they land, which is evidently in obedience to a general desire of coming ashore at such a suitable place as promises no crowding and no fighting.

LUKANNON AND KETAVIE, *July* 19, 1874.

Not materially changed in any respect from its condition at this time in 1872.

GORBOTCH, *July* 19, 1874.

Just the same. Condition excellent.

REEF, *July* 19, 1874.

A slight contraction on the south sea-margin of this ground; compensated for by fresh expansion under the bluffs on the northwest side; not noteworthy in either instance. Condition excellent.

NAH SPEEL, *July* 20, 1874.

A diminution of one-half at least. Very few here this year. It is no place for a rookery; not a pistol-shot from the natives' houses, and all the natives' children fooling over the bluffs.

LAGOON, *July* 20, 1874.

No noteworthy change; if any, a trifling increase. Condition good. Animals clean and lively.

TOLSTOI, *July* 21, 1874.

No perceptible change in this rookery from its good shape of 1872. The condition excellent.

ZAPADNIE, *July* 22, 1874.

A remarkable extension or increase I note here, of 2,000 feet of shore line, with an average depth of 50 feet of breeding-ground, which has been built on to Upper Zapadnie, stretching out toward Tolstoi; the upper rookery proper has not altered its bearings or proportions; the sand beach belt between it and Lower Zapadnie is not occupied by breeding-seals; and a fair track for the "holluschickie", 500 feet wide, left clear, over which they have traveled quite extensively this season, some 20,000 to 25,000 of them, at least, lying out around the old salt-house to-day. Lower Zapadnie has lost in a noteworthy degree about an average of 20 feet of its general depth, which, however, is more than compensated for by the swarming on the upper rookery. A small beginning had been made for a rookery on the shore just southwest from Zapadnie lake, in 1872, but this year it has been substantially abandoned.

CONTRAST ON ST. GEORGE BETWEEN 1873 AND 1874.—An epitomé of my notes for St. George, gives, as to this season of 1874, the following data for comparison with that of 1873:

ZAPADNIE, *July* 8, 1874.

This rookery shows a slight increase upon the figures of last year, about 5,000. Fine condition.

STARRY ATEEL, *July* 6, 1874.

No noteworthy change from last year.

NORTH ROOKERY, *July* 6, 1874.

No essential change from last year. Condition very good.

LITTLE EASTERN, *July* 6, 1874.

A slight diminution of some 2,000 or so. Condition excellent.

EASTERN ROOKERY, *July* 7, 1874.

A small increase over last year of about 3,000, only trifling, however; the aggregate seal-life here similar to that of last season, with the certainty of at least a small increase. The unusually early season, this year, brought the rookery "seecatchie" on the ground very much in advance of the general time; they landed as early as the 10th of April, while the arrival of the cows was as late as usual, corresponding to my observations during the past seasons.

The general condition of the animals of all classes on St. George is most excellent—they are sleek, fat, and free from any disease.

In this way it is plain that, practically, the exact condition of these animals can be noted every season; and, should a diminution be observed, due to any cause, known or unknown, the killing can be promptly regulated, or stopped, to any required quota.

Ten years have passed, with the end of last season, in which nearly 100,000 young males have been annually taken on St. Paul and St. George; 75,000 from the former, and 25,000 from the latter, as a rule; and we now have the experience with which to enlighten our understanding, and to make our statement correct. That affirmation is, that if the effect of annually killing 100,000 young male seals is either to increase or to diminish the seal-life on the Pribylov islands, it cannot be noticed; it has not to a certainty wrought injury, and it has not promoted an increase. I advanced this hypothesis in 1873; and I now find it completely verified and confirmed by the united, intelligent testimony of those who have followed on the ground in my footsteps.

PECUNIARY VALUE OF THE SEAL-LIFE ON THE PRIBYLOV ISLANDS.—The theoretical value of these interests of the government on the Pribylov islands, represented by 2,500,000 to 3,000,000 fur-seals, male and female, in good condition, is not less than $10,000,000 or $12,000,000; taking, however, the females out of the question, and from this calculation, and looking at the "holluschickie" alone, as they really represent the only killable seals, then the commercial value of the same would be expressed by the sum of $1,800,000 to $2,000,000; this is a permanent principal invested here, which now nets the public treasury more than 15 per cent. annually; a very handsome rate of interest, surely.

STRANGE IGNORANCE OF THEIR VALUE IN 1867.—Considering that this return is the only one made to the government by Alaska, since its transfer, and that it was never taken into account, at first, by the most ardent advocates of the purchase of Russian-America, it is in itself highly creditable and interesting; to Senator Sumner the friends of the acquisition of this territory in 1867, delegated the task of making the principal argument in its favor. Everything that was written in strange tongues was carefully translated for the choice bits of mention which could be found of Alaska's value. Hence his speech* on the subject possesses this interest: it is the embodiment of everything that could be scraped together, having the faintest shadow of authenticity, by all of the eager friends of the purchase, which gave the least idea of any valuable natural resources in Alaska; therefore, when, in summing all this up, he makes no reference whatever to the seal-islands, or the fur-seal itself, the extraordinary ignorance at home and abroad relative to the Pribylov islands can be well appreciated.

Thoughts upon the possible movements of the fur-seals in the future.—As these animals live and breed upon the Pribylov islands, the foregoing studies of their habit declare certain natural conditions of landing-ground and climate to be necessary for their existence and perpetuation. From my surveys made upon the islands to the north, St. Matthew and St. Lawrence, together with the scientific and corroborating testimony of those who have visited all of the mainland coast of Alaska, and the islands contiguous, including the peninsula and the great Aleutian archipelago, I have no hesitation in stating that the fur-seal cannot breed, or rest for that matter, on any other land than that now resorted to, which lies within our boundary lines; the natural obstacles are insuperable. Therefore, so far as our possessions extend, we have, in the Pribylov group, the only eligible land to which the fur-seal can repair for breeding; and on which, at St. Paul island alone, there is still room enough of unoccupied rookery-ground for the accommodation of twice as many seals as we find there to-day. But we must not forget a very important prospect; for, we know that to the westward, only 700 miles, and within the jurisdiction of Russia, are two other seal-islands—one very large, on which the fur-seal regularly breeds also; and though from the meager testimony in my possession, compared with St. Paul, the fur-seal life upon them is small, still, if that land within the pale of the czar's dominion be as suitable for the reception of the rookeries as is that of St. Paul, then what guarantee have we that the seal-life on Copper and Bering islands, at some future time, may not be greatly augmented by a corresponding diminution of our own, with no other than natural causes operating? Certainly, if the ground on either Bering or Copper island, in the Commander group, is as well suited for the wants of the breeding fur-seal as is that exhibited by the Pribylov islands, then I say confidently that we may at any time note a diminution here and find a corresponding augmentation there; for I have clearly shown, in my chapter on the habits of these animals, that they are not so particularly attached to the respective places of their birth, but that they rather land with an instinctive appreciation of the fitness of that ground as a whole.

Need of more definite knowledge concerning the Russian seal-islands.—If we, however, possess all the best suited ground, then we can count upon retaining the seal-life as we now have it, by a vast majority, and, in no other way; for it is not unlikely that some season may occur when an immense number of the fur-seals, which have lived during the last four or five years on the Pribylov islands, should be deflected from their usual feeding-range at sea by the shifting of schools of fish, and other abnormal causes, which would bring them around quite close to the Asiatic seal-grounds, in the spring; and the scent from those rookeries would act as a powerful stimulant and attraction for them to land there, where the conditions for their breeding may be just as favorable as they desire. Such being the case, this diminution, therefore, which we would notice on the Pribylov group, might be the great increase observed at the Commander islands, and not due to any mismanagement on the part of the men in charge of these interests. Thus, it appears to me necessary that definite knowledge concerning the Commander islands and the Kuriles should be gathered.

If we find, however, that the character of this Russian seal land is restricted to narrow beach-margins, under bluffs, as at St. George, then we shall know that a great body of seals will never attempt to land there when they could not do so without suffering, and in violation of their laws, during the breeding-season. Therefore, with this correct understanding to start on, we can then feel alarmed with good reason, should we ever observe any diminution, to a noteworthy degree, on our seal-islands of Bering sea.

Possible deflection of seals in feeding.—I do not call attention to this subject with the slightest idea in my mind, as I write, of any such contingency arising, even for an indefinite time to come; but still I am sensible of the fact that it is possible for it to occur any season. But the seals undoubtedly feed on their pelagic fields in systematic routine of travel, from the time they leave the Pribylov islands until that of their return; therefore, in all probability, unless the fish upon which they are nourished suddenly become scarce in our waters and soundings, the seals will not change their base, as matters now progress; but it is possible for the finny shoals and schools to be so deflected from their migration to and from their spawning-beds, as to carry this seal-life with it, as I have hinted above. Thus it cannot be superfluous to call up this question, so that it shall be prominent in discussion, and suggestion for future thought.

Need of careful yearly examination.—In the meantime the movements of the seals upon the great breeding-rookeries of St. Paul and those of St. George should be faithfully noted and recorded every year; and as time goes on this record will place the topic of their increase or diminution beyond all theory or cavil.

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* Speech on cession of Russian-America, U. S. Senate, 1867; "*Summary*," p. 48.

## 12. MANNER OF TAKING THE SEALS.

EXHIBIT OF ALL SKINS SHIPPED FROM THE PRIBYLOV ISLANDS.—As an exhibit of the entire number of fur-seal skins taken for taxes and sale from the Pribylov islands, between 1797 and 1880, inclusive, I present the following table, which, although it may vary from the true aggregate, during the long period of nearly one hundred years covered by it, I am nevertheless satisfied it is the best evidence of the kind which can be obtained. Prior to the year 1868 it will be noticed that I have given only a series of estimates for the period antedating that year, as far back as 1862. The reason for this is that I can find nowhere, in writing, an authenticated record of the catch. It was the policy of the old Russian company invariably to take more skins, every year, from these islands down to Sitka than they could profitably dispose of annually in the markets of the world; a large surplus being yearly left over, which were suffered to decay or be destroyed by moths, and subsequently thrown into the sea. I can only judge, therefore, of what they took in that period, from what I know they had on hand in their salt-house at St. George and St. Paul during 1867, which was 40,000 to 48,000 skins; and this the natives told me was a larger average than they had taken for a great many years prior to that date. Hence, I have proportioned it back to the last record, which I find in Techmainov, whose figures, embraced in the three periods, from 1796 to 1861, have been given as copied by him from the authentic archives of the old Russian company; he is careful to say, in this connection, that the exhibit does not show all skins that were taken from the seal-islands, but only those which the Russians took for sale from Sitka.

And, again, other Russian authors, rather than this historian of the Russian American Company, have said that immense numbers of fur-seal skins—hundreds of thousands—were frequently accumulated in the warehouses at Sitka only to decay and be destroyed. Their aggregate cannot be estimated within any bound of accuracy, and it is not in the sum total of the following table. What we have taken on the island, since 1868, is presented below, almost correct. In the appendix, where I give a short digest of Professor Nordenskiöld's visit to Bering island, will be found another table showing the number of skins taken from those Russian Commander islands. In the following table, relative to the Pribylov group, it will be noticed that there is a gap of ten years, between 1786, the date of their discovery, and 1805, the time of the earliest Russian record. How many were taken then, there is not the faintest evidence in black and white; but we do know that from the time of the discovery of the Pribylov islands up to 1799, the taking of fur-seals on both of these islands progressed without count or lists, and without any responsible head or director; because there were then, upon those islands, seven or eight different companies, represented by as many agents or leaders, and all of them vied one with the other in taking as many fur-seals as they could:*

*Fur-seal skins taken from the Prybilov islands for shipment and sale.*

| Period. | Number of skins. | Period. | Number of skins. | Period. | Number of skins. | Period. | Number of skins. |
|---|---|---|---|---|---|---|---|
| *1797–1821 (24 years) | 1,232,374 | 1864 | ?26,000 | 1870 | 9,965 | 1876 | 99,000 |
| *1821–1842 (21 years) | 458,502 | 1865 | ?40,000 | 1871 | 63,000 | 1877 | 83,500 |
| *1842–1861 (19 years) | 372,000 | 1866 | ?42,000 | 1872 | 99,000 | 1878 | 95,000 |
| 1862 | ?20,000 | 1867 | ?48,000 | 1873 | 99,630 | 1879 | 99,968 |
| 1863 | ?25,000 | 1868 | 242,000 | 1874 | 99,820 | 1880 | 99,950 |
| | | 1869 | 87,000 | 1875 | 99,500 | Total, 1797 to 1880 | 3,561,051 |

*Including about 5,000 annually from the Commander islands.

THE MANNER IN WHICH THE SEALS ARE TAKEN.—By reference to the habit of the fur-seal, which I have discussed at length, it is now plain and beyond doubt, that two-thirds of all the males which are born, and they are equal in numbers to the females born, are never permitted by the remaining third, strongest by natural selection, to land upon the same breeding-ground with the females, which always herd thereupon *en masse*. Hence, this great band of "bachelor" seals, or "holluschickie", so fitly termed, when it visits the island is obliged to live apart entirely—sometimes, and some places, miles away from the rookeries; and, in this admirably perfect method of nature are those seals which can be properly killed without injury to the rookeries, selected and held aside by their own volition, so that the natives can visit and take them without disturbing, in the least degree, the entire quiet of the breeding-grounds, where the stock is perpetuated.

The manner in which the natives capture and drive the "holluschickie" up from the hauling-grounds to the slaughter-fields near the two villages of St. Paul and St. George, and elsewhere on the islands, cannot be improved

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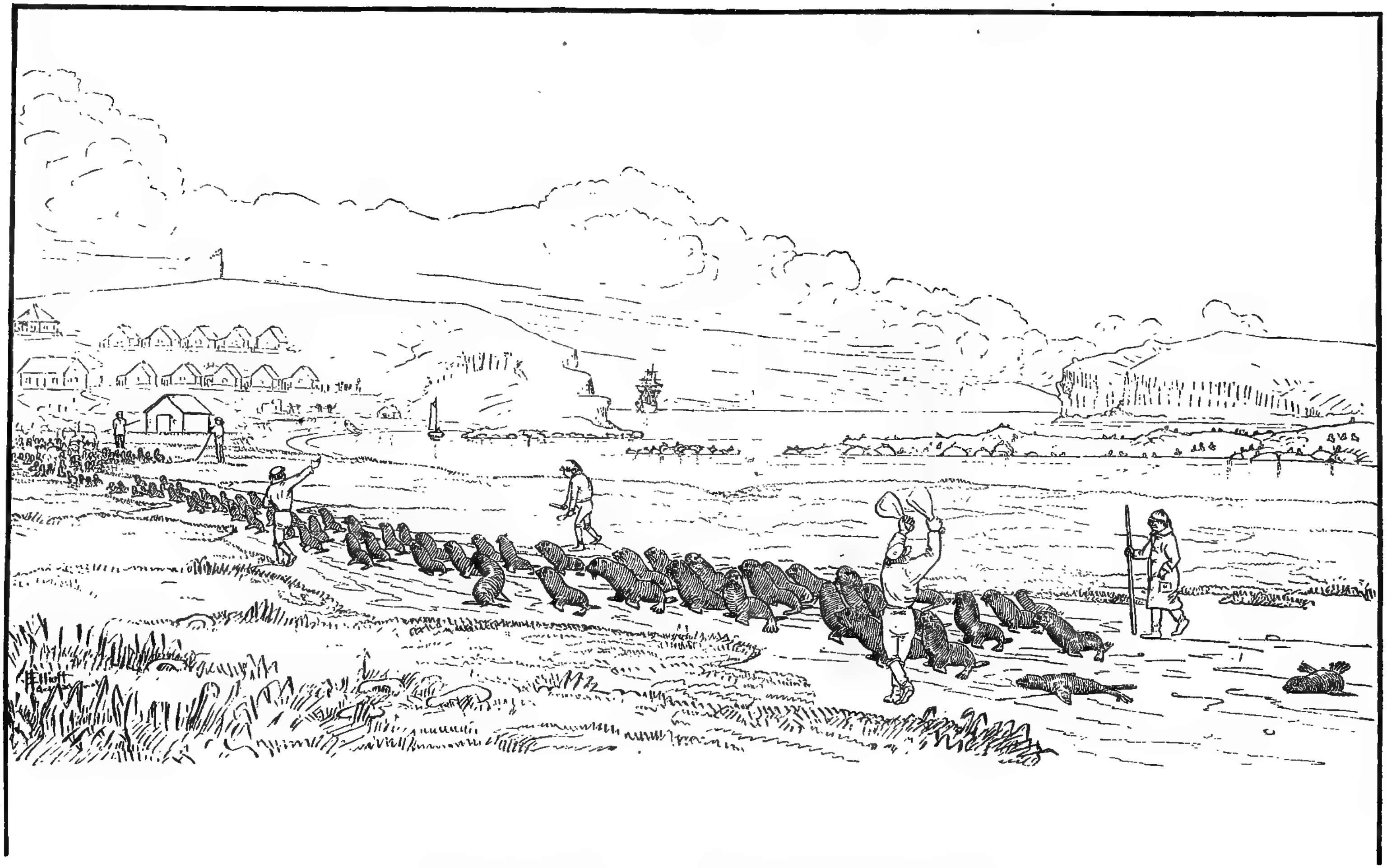
*The attempt, on my part, to get an authentic list of the numbers of fur-seals slain upon the Pribylov islands, prior to 1868, has simply been, to my mind, a partial failure. My investigation and search for such record, has satisfied me that it does not exist; memoranda of shipments only, each season, were made by the agents of the Russian company when the vessels took those skins from the seal-islands to Sitka; and of these skins again, count was only made of such as were exported to China or Russia, no mention being made anywhere of the number which was consumed in Alaska by the company's large force of attachés, or else destroyed at New Archangel. This method of accounting for the yield from the Pribylovs from 1806 or 1817 up to 1867, naturally confuses a correct determination as to the sum total—renders it, perhaps, very inaccurate. This explanation is, at least, due to the reader.

Plate XIII.



NATIVES DRIVING THE "HOLLUSCHICKIE."

The drove passing over the lagoon flats to the killing-grounds, under the village hill, St. Paul Island.

**Looking S. S. W. over the village cove and Lagoon Breeding Rookery, July 14, 1872.**

upon. It is in this way: at the beginning of every sealing-season, that is, during May and June, large bodies of the young "bachelor" seals do not haul up on land very far from the water—a few rods at the most—and, when these first arrivals are sought after, the natives, in capturing them, are obliged to approach slyly and run quickly between the dozing seals and the surf, before they can take alarm and bolt into the sea; in this manner a dozen Aleuts, running down the sand beach of English bay, in the early morning of some June day, will turn back from the water thousands of seals, just as the mold-board of a plow lays over and back a furrow of earth. When the sleeping seals are first startled, they arise, and, seeing men between them and the water, immediately turn, lope, and scramble rapidly back up and over the land; the natives then leisurely walk on the flanks and in the rear of the drove thus secured, directing and driving it over to the killing-grounds, close by the village.*

PROGRESSION OF A SEAL-DRIVE.—A drove of seals on hard or firm grassy ground, in cool and moist weather, may be driven with safety at the rate of half a mile an hour; they can be urged along, with the expenditure of a great many lives, however, at the speed of a mile or a mile and a quarter per hour; but this is seldom done. An old bull seal, fat and unwieldy, cannot travel with the younger ones, though it can lope or gallop as it starts across the ground as fast as an ordinary man can run, over 100 yards; but then it fails utterly, falls to the earth supine, entirely exhausted, hot, and gasping for breath.

The "holluschickie" are urged along over the path leading to the killing-grounds with very little trouble, and require only three or four men to guide and secure as many thousand at a time. They are permitted frequently to halt and cool off, as heating them injures their fur. These seal-halts on the road always impressed me with a species of sentimentalism and regard for the creatures themselves. The men dropping back for a few moments, the awkward shambling and scuffling of the march at once ceases, and the seals stop in their tracks to fan themselves with their hind-flippers, while their heaving flanks give rise to subdued panting sounds. As soon as they apparently cease to gasp for want of breath, and are cooled off comparatively, the natives step up once more, clatter a few bones with a shout along the line, and the seal-shamble begins again—their march to death and the markets of the world is taken up anew.

DOCILITY OF FUR-SEALS WHEN DRIVEN.—I was also impressed by the singular docility and amiability of these animals when driven along the road; they never show fight any more than a flock of sheep would do; if, however, a few old seals get mixed in, they usually get so weary that they prefer to come to a stand-still and fight rather than move; otherwise no sign whatever of resistance is made by the drove from the moment it is intercepted, and turned up from the hauling-grounds, to the time of its destruction at the hands of the sealing-gang.

This disposition of the old seals to fight rather than endure the panting torture of travel, is of great advantage to all parties concerned; for they are worthless commercially, and the natives are only too glad to let them drop behind, where they remain unmolested, eventually returning to the sea. The fur on them is of little or no value; their under wool being very much shorter, coarser, and more scant than in the younger; especially so on the posterior parts along the median line of the back.

CHANGE IN PELAGE.—This change for the worse or deterioration of the pelage of the fur-seal takes place, as a rule, in the fifth year of their age; it is thickest and finest in texture during the third and fourth year of life; hence, in driving the seals on St. Paul and St. George up from the hauling-grounds the natives make, as far as practicable, a selection from males of that age.

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* The task of getting up early in the morning, and going out to the several hauling-grounds, closely adjacent, is really all there is of the labor involved in securing the number of seals required for the day's work on the killing-grounds. The two, three, or four natives upon whom, in rotation, this duty is devolved by the order of their chief, rise at first glimpse of dawn, between 1 and 2 o'clock, and hasten over to Lukannon, Tolstoi, or Zoltoi, as the case may be, "walk out" their "holluschickie", and have them duly on the slaughtering-field before 6 or 7 o'clock, as a rule, in the morning. In favorable weather the "drive" from Tolstoi consumes two and a half to three hours' time; from Lukannon, about two hours, and is often done in an hour and a half; while Zoltoi is so near by that the time is merely nominal.

I heard a great deal of talk among the white residents of St. Paul, when I first landed and the sealing-season opened, about the necessity of "resting" the hauling-grounds; in other words, they said that if the seals were driven in repeated daily rotation from any one of the hauling-grounds, that this would so disturb these animals as to prevent their coming to any extent again thereon, during the rest of the season. This theory seemed rational enough to me at the beginning of my investigations, and I was not disposed to question its accuracy; but, subsequent observation directed to this point particularly, satisfied me, and the sealers themselves with whom I was associated, that the driving of the seals had no effect whatever upon the hauling which took place soon or immediately after the field, for the hour, had been swept clean of seals by the drivers. If the weather was favorable for landing, *i. e.*, cool, moist, and foggy, the fresh hauling of the "holluschickie" would cover the bare grounds again in a very short space of time—sometimes in a few hours after the driving of every seal from Zoltoi sands over to the killing-fields adjacent, those dunes and the beach in question would be swarming anew with fresh arrivals. If, however, the weather is abnormally warm and sunny, during its prevalence, even if for several consecutive days, no seals to speak of will haul out on the emptied space; indeed, if these "holluschickie" had not been taken away by man from Zoltoi or any other hauling-ground on the islands when "tayopli" weather prevailed, most of those seals would have vacated their terrestrial loafing places for the cooler embraces of the sea.

The importance of clearly understanding this fact as to the readiness of the "holluschickie" to haul promptly out on steadily "swept" ground, provided the weather is inviting, is very great; because, when not understood, it was deemed necessary, even as late as the season of 1872, to "rest" the hauling-grounds near the village (from which all the driving has been made since), and make trips to far away Polavina and distant Zapadnie—an unnecessary expenditure of human time, and a causeless infliction of physical misery upon phocine backs and flippers.

It is quite impossible, however, to get them all of one age without an extraordinary amount of stir and bustle, which the Aleuts do not like to precipitate; hence the drive will be found to consist usually of a bare majority of three and four-year-olds, the rest being two-year-olds principally, and a very few, at wide intervals, five-year-olds, the yearlings seldom ever getting mixed up.

METHOD OF LAND TRAVEL.—As the drove progresses along the path to the slaughtering grounds, the seals all move in about the same way; they go ahead with a kind of walking step and a sliding, shambling gallop. The progression of the whole caravan is a succession of starts, spasmodic and irregular, made every few minutes, the seals pausing to catch their breath, and make, as it were, a plaintive survey and mute protest. Every now and then a seal will get weak in the lumbar region, then drag its posteriors along for a short distance, finally drop breathless and exhausted, quivering and panting, not to revive for hours—days, perhaps—and often never. During the driest driving-days, or those days when the temperature does not combine with wet fog to keep the path moist and cool, quite a large number of the weakest animals in the drove will be thus laid out and left on the track. If one of these prostrate seals is not too much heated at the time, the native driver usually taps the beast over the head and removes its skin.*

PROSTRATION OF FUR-SEALS BY HEAT.—This prostration from exertion will always happen, no matter how carefully they are driven; and in the longer drives, such as two and a half, and five miles from Zapadnie on the west, or Polavina on the north, to the village at St. Paul, as much as three or four per cent. of the whole drive will be thus dropped on the road; hence I feel satisfied, from my observation and close attention to this feature, that a considerable number of those that are thus rejected from the drove, and are able to rally and return to the water, die subsequently from internal injuries sustained on the trip, superinduced by this over-exertion. I, therefore, think it highly improper and impolitic to extend drives of the "holluschickie" over any distance on St. Paul island exceeding a mile, or a mile and a half; it is better for all parties concerned, and the business too, that salt-houses be erected, and killing-grounds established contiguous and to all of the great hauling-grounds, two miles distant from the village on St. Paul island, should the business ever be developed above the present limit; or should the exigencies of the future require a quota from all these places, in order to make up the 100,000 which may be lawfully taken.

ABUNDANT SUPPLY OF "HOLLUSCHICKIE".—As matters are to-day, 100,000 seals alone on St. Paul can be taken and skinned in less than forty working days, within a radius of one mile and a half from the village, and from the salt-house at Northeast point; hence the driving, with the exception of two experimental droves which I witnessed in 1872, has never been made from longer distances than Tolstoi to the eastward, Lukannon to the northward, and Zoltoi to the southward of the killing-grounds at St. Paul village. Should, however, an abnormal season recur, in which the larger proportion of days during the right period for taking the skins be warmish and dry, it might be necessary, in order to get even 75,000 seals within the twenty-eight or thirty days of their prime condition, for drives to be made from the other great hauling-grounds to the westward and northward, which are now, and have been for the last ten years, entirely unnoticed by the sealers.

KILLING THE SEALS.—The seals, when finally driven up on those flats between the east landing and the village, and almost under the windows of the dwellings, are herded there until cool and rested. The drives are usually made very early in the morning, at the first breaking of day, which is half-past one to two o'clock of June and July in these latitudes. They arrive, and cool off on the slaughtering-grounds, so that by six or seven o'clock, after breakfast, the able-bodied male population turn out from the village and go down to engage in the work of slaughter. The men are dressed in their ordinary working-garb of thick flannel shirts, stout cassimere or canvas pants, over which the "tarbossa" boots are drawn; if it rains they wear their "kamlaikas", made of the intestines and throats of the sea-lion and fur-seal. Thus dressed, they are each armed with a club, a stout oaken or hickory bludgeon, which have been made particularly for the purpose at New London, Connecticut, and imported here for this especial service. These sealing clubs are about five or six feet in length, three inches in diameter at their heads, and the thickness of a man's forearm where they are grasped by the hands. Each native also has his stabbing-knife, his skinning-knife, and his whetstone; these are laid upon the grass convenient, when the work of braining or knocking the seals down is in progress. This is all the apparatus which they have for killing and skinning.

THE KILLING GANG AT WORK.—When the men gather for work they are under the control of their chosen foremen or chiefs; usually on St. Paul, divided into two working parties at the village, and a sub-party at Northeast point, where another salt-house and slaughtering-field is established. At the signal of the chief the work of the day begins by the men stepping into the drove, corraled on the flats; and, driving out from it 100 or

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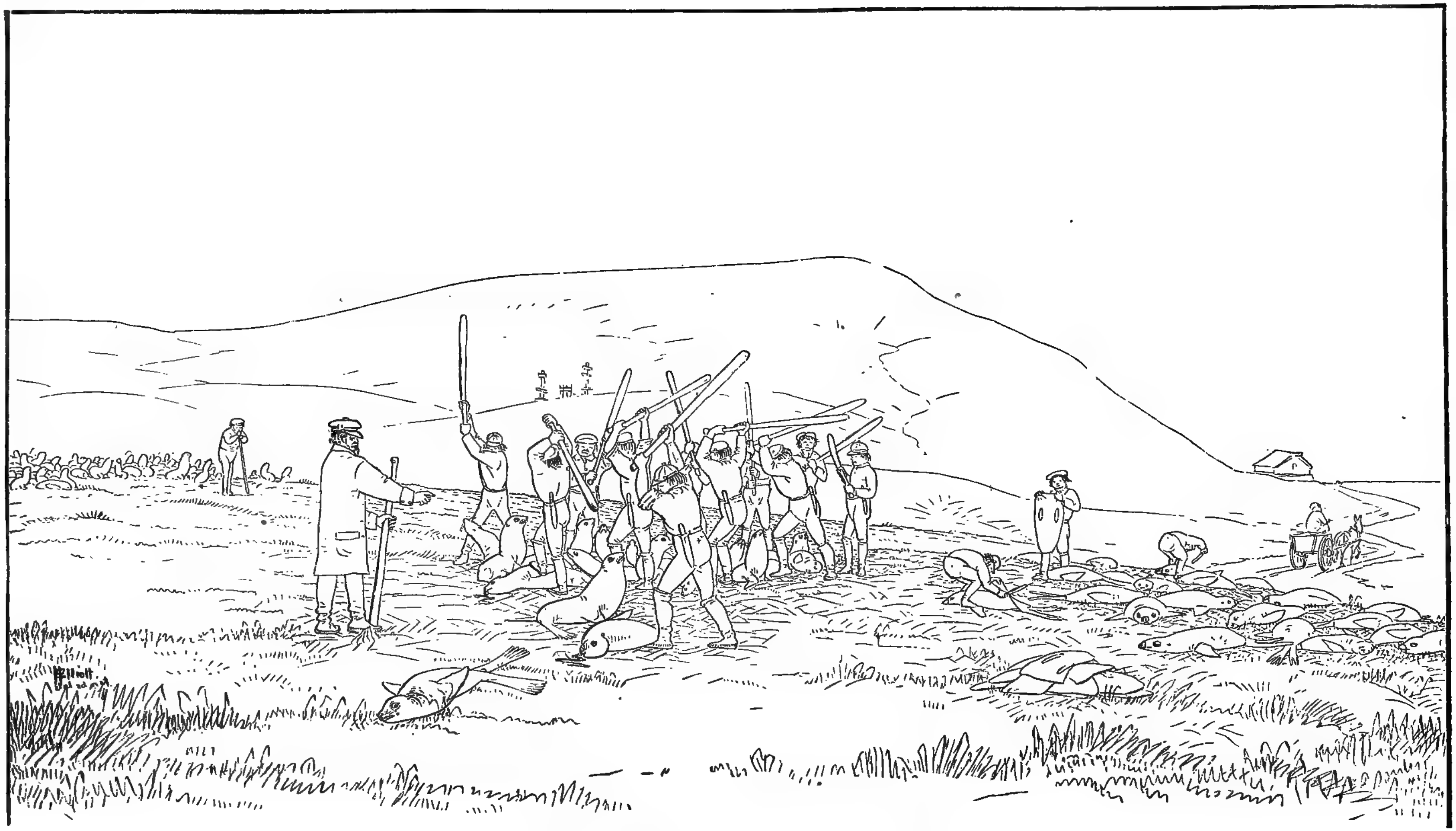
*The fur-seal, like all of the pinnipeds, has no sweat-glands; hence, when it is heated, it cools off by the same process of panting which is so characteristic of the dog, accompanied by the fanning that I have hitherto fully described; the heavy breathing and low grunting of a tired drove of seals, on a warmer day than usual, can be heard several hundred yards away. It is surprising how quickly the hair and fur will come out of the skin of a blood-heated seal—literally rubs bodily off at a touch of the finger. A fine specimen of a three-year-old "holluschak" fell in its tracks at the head of the lagoon while being driven to the village killing-grounds. I asked that it be skinned with special reference to mounting; accordingly a native was sent for, who was on the spot, knife in hand, within less than 30 minutes from the moment that this seal fell in the road; yet, soon after he had got fairly to work, patches of the fur and hair came off here and there wherever he chanced to clutch the skin.



THE KILLING-GANG AT WORK.

Method of slaughtering Fur-seals on the grounds, near the village, St. Paul Island.

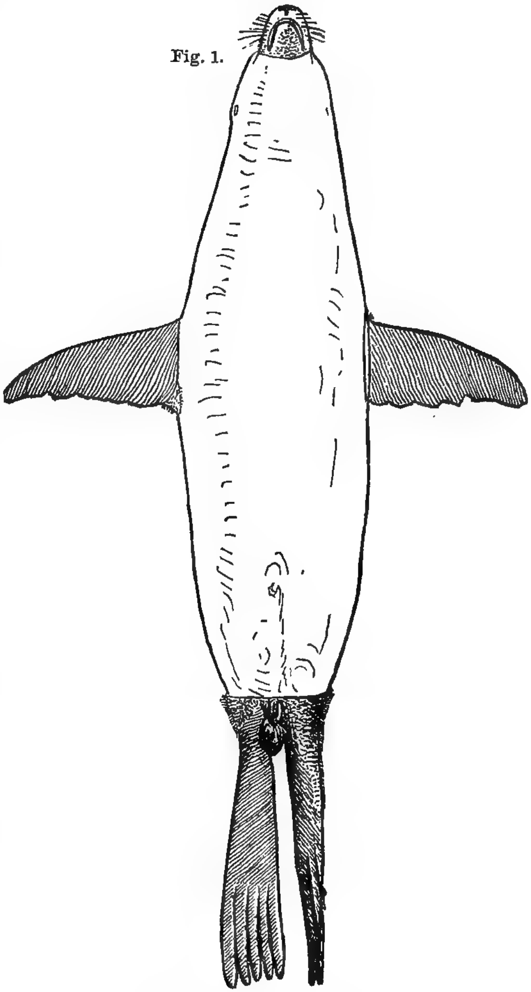
**The drove in waiting.** **Sealers knocking down a "pod."** **Natives skinning.**

150 seals at a time, make what they call a "pod", which they surround in a circle, huddling the seals one on another as they narrow it down, until they are directly within reach and under their clubs. Then the chief, after he has cast his experienced eye over the struggling, writhing "kautickie" in the center, passes the word that such and such a seal is bitten, that such and such a seal is too young, that such and such a seal is too old; the attention of his men being called to these points, he gives the word "strike", and instantly the heavy clubs come down all around, and every one that is eligible is stretched out stunned and motionless, in less time, really, than I take to tell it. Those seals spared by order of the chief, now struggle from under and over the bodies of their insensible companions and pass, hustled off by the natives, back to the sea.*

METHOD OF ALEUTS IN SKINNING FUR-SEALS.—The clubs are dropped, the men seize the prostrate seals by the hind-flippers, and drag them out, so they are spread on the ground without touching each other; then every sealer takes his knife and drives it into the heart at a point between the fore-flippers of each stunned form; the blood gushes forth, and the quivering of the animal presently ceases. A single stroke of a heavy oak bludgeon, well and fairly delivered, will crush in at once the slight, thin bones of a fur-seal's skull, and lay the creature out almost lifeless. These blows are, however, usually repeated two or three times with each animal, but they are very quickly done. The bleeding, which is immediately effected, is so speedily undertaken in order that the strange reaction, which the sealers call "heating", shall be delayed for half an hour or so, or until the seals can all be drawn out, and laid in some disposition for skinning.

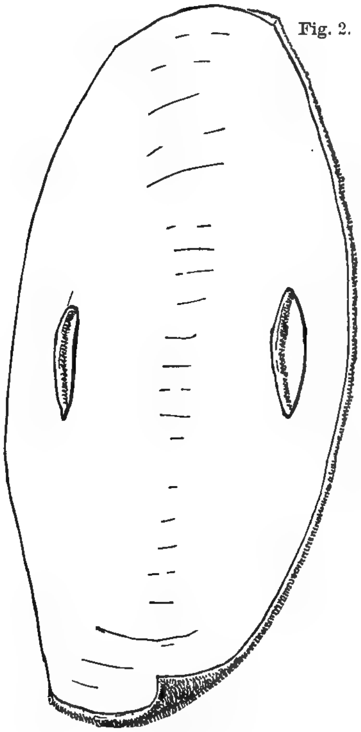
I have noticed that within less than thirty minutes from the time a perfectly sound seal was knocked down, it had so "heated", owing to the day being warmer and drier than usual, that, when touching it with my foot, great patches of hair and fur scaled off. This is a rather exceptionally rapid metamorphosis—it will, however, take place in every instance, within an hour, or an hour and a half on these warm days, after the first blow is struck, and the seal is quiet in death; hence no time is lost by the prudent chief in directing the removal of the skins as rapidly as the seals are knocked down and dragged out. If it is a cool day, after bleeding the first "pod" which has been prostrated in the manner described, and after carefully drawing the slain from the heap in which they have fallen, so that the bodies will spread over the ground just free from touching one another, they turn to and strike down another "pod"; and so on, until a whole thousand or two are laid out, or the drove, as corraled, is finished. The day, however, must be raw and cold for this wholesale method. Then, after killing, they turn to work, and skin; but, if it is a warm day, every pod is skinned as soon as it is knocked down.

Fig. 1.



The flensed carcass of a fur-seal.

Fig. 2.



The skin as taken therefrom.

The labor of skinning is exceedingly severe; and is trying even to an expert, demanding long practice ere the muscles of the back and thighs are so developed as to permit a man to bend down to, and finish well, a fair day's work. The knives used by the natives for skinning are ordinary kitchen or case-handle butcher-knives. They are sharpened to cutting edges as keen as razors; but, something about the skins of the seal, perhaps fine comminuted sand along the abdomen, so dulls these knives, as the natives work, that they are constantly obliged to whet them.

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*The aim and force with which the native directs his blow, determines the death of the seal; if struck direct and violently, a single stroke is enough; the seals' heads are stricken so hard sometimes that those crystaline lenses to their eyes fly out from the orbital sockets like hail-stones, or little pebbles, and frequently struck me sharply in the face, or elsewhere, while I stood near by watching the killing-gang at work.

A singular lurid green light suddenly suffuses the eye of the fur-seal at intervals when it is very much excited, as the "podding" for the clubbers is in progress; and, at the moment when last raising its head it sees the uplifted bludgeons on every hand above, fear seems then for the first time to possess it and to instantly gild its eye in this strange manner. When the seal is brained in this state of optical coloration, I have noticed that the opalescent tinting remained well defined for many hours or a whole day after death; these remarkable flushes are very characteristic to the eyes of the old males during their hurly-burly on the rookeries, but never appear in the younger classes unless as just described, as far as I could observe.

The body of the seal, preparatory to skinning, is rolled over and balanced squarely on its back; then the native makes a single swift cut through the skin down along the neck, chest, and belly, from the lower jaw to the root of the tail, using, for this purpose, his long stabbing knife.* The fore- and hind-flippers are then successively lifted, as the man straddles the seal and stoops down to his work over it, and a sweeping circular incision is made through the skin on them just at the point where the body-fur ends; then, seizing a flap of the hide on either one side or the other of the abdomen, the man proceeds with his smaller, shorter butcher-knife, rapidly to cut the skin, clean and free from the body and blubber, which he rolls over and out from the hide by hauling up on it as he advances with his work, standing all this time stooped over the carcass so that his hands are but slightly above it, or the ground. This operation of skinning a fair-sized "holluschak" takes the best men only one minute and a half; but the average time made by the gang on the ground is about four minutes to the seal. Nothing is left of the skin upon the carcass, save a small patch of each upper lip on which the coarse mustache grows, the skin on the tip of the lower jaw, the insignificant tail,† together with the bare hide of the flippers.

BLUBBER OF FUR-SEAL: UNPLEASANT ODOR.—On the removal of the skin from the body of the fur-seal, the entire surface of the carcass is covered with a more or less dense layer, or envelope, of a soft, oily, fat blubber, which in turn completely conceals the muscles or flesh of the trunk and neck; this fatty substance, which we now see, resembles that met with in the seals generally everywhere, only possessing that strange peculiarity not shared by any other of its kind, of being positively overbearing and offensive in odor to the unaccustomed human nostril. The rotting, sloughing carcasses around about did not, when stirred up, affect me more unpleasantly than did this strong, sickening smell of the fur-seal blubber. It has a character and appearance intermediate between those belonging to the adipose tissue found on the bodies of cetacea and some carnivora.

This continuous envelope, of blubber, to the bodies of the "holluschickie" is thickest in deposit at those points upon the breast between the fore-flippers, reaching entirely around and over the shoulders, where it is from one inch to a little over in depth. Upon the outer side of the chest it is not half an inch in thickness, frequently not more than a quarter; and it thins out considerably as it reaches the median line of the back. The neck and head are clad by an unbroken continuation of the same material, which varies from one-half to one-quarter of an inch in depth. Toward the middle line of the abdominal region there is a layer of relative greater thickness. This is coextensive with the sterno-pectoral mass; but it does not begin to retain its volume as it extends backward, where this fatty investment of the carcass upon the loins, buttocks, and hinder limbs fades out finer than on the pectoro-abdominal parts, and assumes a thickening corresponding to the depth on the cervical and dorsal regions. As it descends on the limbs this blubber thins out very perceptibly; and, when reaching the flippers it almost entirely disappears, giving way to a glistening aureolar tissue, while the flipper skin finally descends in turn to adhere closely and firmly to the tendinous ligamentary structures beneath, which constitute the tips of the *Pinnipedia.*

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*When turning the stunned and senseless carcasses, the only physical danger of which the sealers run the slightest risk, during the whole circuit of their work, occurs thus: at this moment the prone and quivering body of the "holluschak" is not wholly inert, perhaps, though it is nine times out of ten; and, as the native takes hold of a fore-flipper to jerk the carcass over on to its back, the half-brained seal rouses, snaps suddenly and viciously, often biting the hands or legs of the unwary skinners, who then come leisurely and unconcernedly up into the surgeon's office at the village, for bandages, etc.; a few men are bitten every day or two during the season on the islands, in this manner, but I have never learned of any serious result following any case.

The sealers, as might be expected, become exceedingly expert in keeping their knives sharp, putting edges on them as keen as razors, and in an instant detect any dullness, by passing the balls of their thumbs over the suspected edges to the blades.

The white sealers of the Antarctic always used the orthodox butchers' "steel" in sharpening their knives, but these natives never have; and, probably never will abandon those little whet-stones above referred to.

During the Russian management, and throughout the strife in killing by our own people in 1868, a very large number of the skins were cut through, here and there, by the slipping of the natives' knives, when they were taking them from the carcasses, and "flensing" them from the superabundance, in spots, of blubber. These knife-cuts through the skin, no matter how slight, give great annoyance to the dresser; hence they are always marked down in price. The prompt scrutiny of each skin on the islands, by the agent of the Alaska Commercial company, who rejects every one of them thus injured, has caused the natives to exercise greater care, and the number now so damaged, every season, is absolutely trifling.

Another source of small loss is due to a habit which the "holluschickie" have of occasionally biting one another when they are being urged along in the drives, and thus crowded once in a while one upon the other; usually these examples of "zoobäden" are detected by the natives prior to the "knocking down", and spared; yet those which have been nipped on the chest or abdomen cannot be thus noticed; and, until the skin is lifted, the damage is not apprehended.

† This tail of the fur-seal is just a suggestion of the article, and that is all. Unlike the abbreviated caudal extremities of the bear or the rabbit, it does not seem to be under the slightest control of its owner—at least I never could see it move to any appreciable degree, when the seal is in action on land. Certainly there is no service required of it, but it does appear to me rather singular that none of the changeful moods of *Callorhinus* are capable of giving rise to even a tremor in its short stump of a tail. It is never raised or depressed, and, in fact, amounts to a mere excresence, which many casual observers would not notice. The shrinking, twitching movements of the seal's skin, here and there at irregular intervals, are especially noticed when that animal is asleep, so that even when awake I believe that the dermatological motion is an involuntary one. The tail of the sea-lion is equally inconsequential; that of the walrus, even more so, while *Phoca vitulina* has one a trifle longer, relatively, and much stouter—fleshier than that of the fur-seal.

I found that the natives here were pronounced evolutionists, as are all the many Indian tribes with which I have been thrown in contact during my travels from Mexico to the head of the Stickeen river. They declare that their remote ancestry undoubtedly were fur-seals; indeed, there is a better showing for the brain cases of the fur-seal over that of the monkey's skull as to weight with reference to physical bulk; while their tails are as short or even shorter than most of the anthropoid apes.

The flesh and the muscles are not lined between, or within, by fat of any kind. This blubber envelope contains it all with one exception—that which is found in the folds of the small intestine and about the kidneys, where there is an abundant secretion of a harder, whiter, though still offensive, fat.

FLESH OF FUR-SEAL AS AN ARTICLE OF DIET.—It is quite natural for our people, when they first eat a meal on the Pribylov islands, to ask questions in regard to what seal meat looks and tastes like; some of the white residents will answer, saying that they are very fond of it, cooked so and so; others will reply that in no shape or manner can they stomach the dish. The inquirers must needs try the effect on their own palates. I frankly confess that I had a slight prejudice against seal meat at first, having preconceived ideas that it would be fishy in flavor, but I soon satisfied myself to the contrary, and found that the flesh of young seals, not over three years old, was full as appetizing and toothsome as most of the beef, mutton, and pork, I was accustomed to at home; the following precautions must be rigidly observed, however, by the cook who prepares fur-seal steaks and sausage balls for our delectation and subsistence—he will fail, if he does not:

1st. The meat must be perfectly cleaned of every vestige of blubber or fat, no matter how slight.

2d. Cut the flesh, then, into very thin steaks or slices, and soak them from six to twelve hours in salt and water (a tablespoon of fine salt to a quart of fresh water); this whitens the meat, and removes the residuum of dark venous blood that will otherwise give a slightly disagreeable taste, hardly definable, though existing.

3d. Fry these steaks, or stew them *a la mode*, with a few thin slices of sweet "breakfast" bacon, seasoning with pepper and salt; a rich brown gravy follows the cooking of the meat; serve hot, and it is, strictly judged, a very excellent meal for the daintiest feeder—and I hereby recommend it confidently as a safe venture for any newcomer to make.

MEAT OF THE SEA-LION.—The flesh of young sea-lions is still better than that of the fur-seal, while the natives say that the meat of the hair-seal (*Phoca vitulina*) is superior to both, being more juicy; fur-seal meat is exceedingly dry, hence the necessity of putting bacon into the frying-pan or stew-pot with it; sea-lion flesh is an improvement in this respect, and also that its fat, strange to say, is wholly clear, white, and inodorous, while the blubber of the "holluschickie" is sickening to the smell, and will, nine times out of ten, cause any civilized stomach to throw it up as quickly as it was swallowed. The natives, however, eat a great deal of it simply because they are too lazy to clean their fur-seal cuts, and not because they really relish it.

In this connection it may be well to add, that the liver of both *Callorhinus* and *Eumetopias* is sweet and wholesome; or, in other words, it is as good as liver usually is in Fulton market; the tongues are small, white, and fat; they are regularly cut out to some extent, and salted in ordinary water-buckets for exportation to curious friends; they have but slight claim to gastronomic favor. The natives are, however, very partial to the liver; but, though they like the tongues, yet they are too lazy to prepare them. A few of them, in obedience to pressing and prayerful appeals from relatives at Oonalashka, do exert themselves enough every season to undergo the extra labor of putting up a few barrels of fresh salted seal meat, which, being carried down to Illoolook by the company's vessels, affords a delightful variation to the steady and monotonous codfish diet of the Aleutian islanders.

OTHER AUTHORITIES ON HAIR-SEAL MEAT.—An old writer, in describing men and things in the western islands of Scotland (Martin, 1716), does not give the same evidence of appreciation. He says that the Scotch there "salt the seals with the ashes of burnt sea-ware [algoid melanospermæ], and say they are good food. The vulgar eat them commonly in the spring time, with a long pointed stick instead of a fork, to prevent the strong smell which their hands otherwise would have for several hours afterward. The flesh and broth of fresh young seals is, by experience, known to be pectoral. The meat is astringent, and used as an effectual remedy against diarrhea and dysentery. The liver of a seal being dried and pulverized, and afterward a little of it drank with milk, *aquavitae*, or red wine, is also good against fluxes".

Again, "the seal, though esteemed only fit for the vulgar, is also eaten by persons of distinction, though under a different name, to wit, ham"; also, a pleasant smile involuntarily arises to the face of the naturalist, when he learns from the same old writer that "the popish vulgar of the islands to the southward from this [island] eat these seals in Lent instead of fish". Martin refers to *Phoca fœtida*, I think.

NATIVES' USE OF FUR-SEAL FLESH MEDICINALLY.—I could not learn from the natives on the Pribylov islands that they held any notions of medicinal virtue whatever in regard to the flesh of the fur-seal or other pinnipeds indigenous. They do make certain special uses of the liver, gall, testes, etc., but the exact application I could not satisfactorily determine. They considered the establishment of our surgeon and pharmacy as a direct vote of censure upon their therapeutics, and were too willing to forget what they knew whenever I asked leading questions on the subject.

FIRST ESTABLISHMENT OF A PHARMACY: NATIVES THEIR OWN SURGEONS.—The natives, prior to the transfer of the territory, as well as the agents and employés of the old Russian company, were compelled to do their own doctoring and surgery as best they knew how, and with the scanty supply of natural and artificial resource at their command. They may be, therefore, truly described as having been helpless in the presence of serious physical ailment.

When our government took possession of Alaska, they brought with them, however, the first physicians and supplies that had ever had lodgment on the Pribylov islands, and when these officers took their departure with the troops, their services and stores were naturally suggested as desirable of continuance. Accordingly, the Alaska Commercial Company, when it took the business control of the islands, 1870–'71, promptly established a doctor and a pharmacy on each island, and latterly a small hospital has been erected and sustained by it at St. Paul. These physicians are agents of the company, under salary, and are directed to give their time and attention to all illness on either island, free of charge; also, dispensing needful medicines, etc., gratis. Dr. Otto Cramer, a native of Berlin, was the surgeon on St. Paul during my sojourn there, and I recall his sad death at sea in 1875 with unfeigned regret, for he was a singularly well-read gentleman and an accomplished physician, musician, and scholarly in his mind. He was a victim to acute melancholia; some heavy shadow was hanging from his early life over him which none of us cared to lift.

STOLID BEHAVIOR OF NATIVES WHEN INJURED.—Dr. Cramer often said, speaking of the peculiarities of the natives when sick at St. Paul, that they never notified him of their illness until the diseases had usually got so firm hold of the patients as to baffle all medical relief. He complained that they would let the old shamanistic doctress of the village charm, drug, and weary the sick until death seemed imminent, and then stolidly send for him. "Ochta, mein Gott! too late, too late, such people!" he would usually conclude his account of this case or that, as it might be.

NATIVE METHODS OF COOKING.—The native cooking is now all done in their houses, on small cast-iron stoves of American pattern and make. In olden times the unavoidable use of fur-seal blubber in culinary operations caused the erection, outside of most "barrabaras", of a small sod-walled and low dirt-roofed kitchen, in which the strong-smelling blubber-fires were kindled. Indifferent as the native became to smells and smoke in the filthy life of early days upon these islands, yet the acrid, stifling, asthmatic effect of the blubber clouds never failed to punish him whenever he attempted to make use of such a fire in his living-room. Most of these "cookhnets", or "povarniks", were in full blast when I first landed at St. Paul, and coming frequently into range of their smoky effluvium, I was infinitely annoyed; now, however, the complete substitution of new frame-houses for the "barrabkies" has, I believe, caused a perfect abatement of the nuisance.

The people of the seal-islands indulge in very liberal quantities of boiled seal meat and tea; these staples, together with hard bread or soda crackers, form the routine of their bill of fare, as far as cooking goes, varied at wide intervals by boiled halibut, stewed or roasted birds, and the queerly-scrambled eggs of the same. The more ancient these oölogical viands, the better for Aleutian gusto. Some of the women, however, have learned to bake bread and biscuits, but this consumes too much of the scant fuel at their disposal to be a popular or general practice among them. They sit at tables in their houses now, on benches, and eat from plates with knives and forks, instead of squatting around an iron pot on the "barrabkie" floor to dip in *sans ceremonie* with spoons, ladles, and grimy fingers as in "ye olden tyme". They have, however, one sad failing developed by this march to a higher civilization, and that is the determination of the Aleutian dish-washer to use cold water on her greasy plates.

GREAT SIZE OF THE FUR-SEAL'S HEART: ITS EXPANDED LUNGS.—In opening many hundreds of these freshly-killed seals, after skinning, while searching in vain for supposed food-contents of their stomachs, I was impressed by the exceeding size of the heart, and the perfect organization of the lungs; while the volume of blood in proportion to the size and weight is, I am sure, greater in the fur-seal than in any other animal. The enormous lungs, and the veins laid bare, showed their beautiful adaptation to frequent aquatic submergence, by their great capacity toward the root of the heart, and by the enormous cava or hepatic reservoir. The widened aortic arch and the diminution of the abdominal aorta modify the blood-current, of which the vast muscular apparatus of the forequarters and the large brain must receive the major share of supply as it comes from the enlarged heart.*

## 13. MANNER OF CARING FOR AND SHIPPING THE FUR-SEAL SKINS.

CURING THE RAW SKINS.—The skins are taken from the field to the salt-house, where they are laid out, after being again carefully examined, one upon another, "hair to fat", like so many sheets of paper, with salt profusely spread upon the fleshy sides as they are piled up in the "kenches", or bins.† The salt-house is a large barn-like frame structure, so built as to afford one-third of its width in the center, from end to end, clear and open as a passage-way; while on each side are rows of stanchions, with sliding planks, which are taken down and put up in the form of deep bins, or boxes—"kenches," the sealers call them. As the pile of skins is laid at the bottom of an empty "kench", and salt thrown in on the outer edges, these planks are also put in place, so that the salt may be kept intact until the bin is filled as high up as a man can toss the skins. After lying two or three weeks in this style

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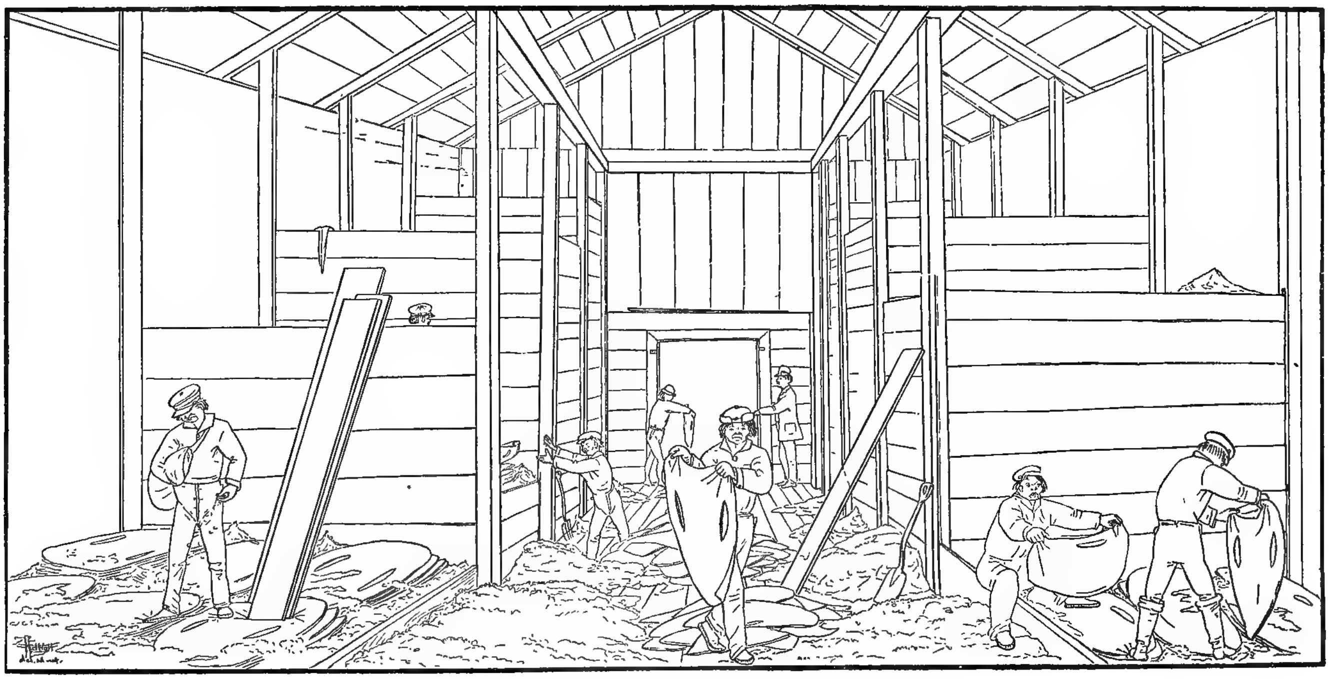
*I had prepared many notes upon the muscular anatomy of the fur-seal and the sea-lion; but I find that it has been anticipated so well by what Dr. Murie published in the transactions of the Zoölogical Society of London, 1869–'72, as to render their reproduction here quite superfluous. These observations of Dr. Murie constitute one of the most valuable contributions to the knowledge of the anatomy of this animal that has ever been made. He carefully dissected a young male sea-lion after its death, which had been brought to the Zoölogical Society's gardens from the Falkland islands.

†The practice of curing in early times was quite different from this rapid and effective process of salting. The skins were then all air-dried; pegged out, when "green", upon the ground, or else stretched upon a wooden trellis or frame, which stood like a rude fence

Plate XV.



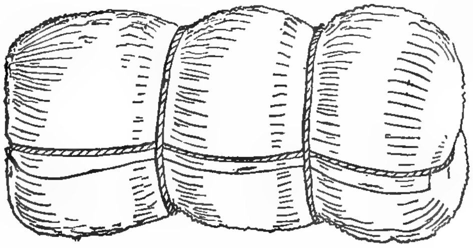
KENCHING FUR-SEAL SKINS.

Interior of the Salt-house at the village, St. Paul Island. Natives planting the pelts in the curing bins or "kenches;" salting, assorting, etc.

they become "pickled", and they are suited then at any time to be taken up and rolled into bundles, of two skins to the package, with the hairy side out, tightly corded, ready for shipment from the islands.

AVERAGE WEIGHT OF RAW SKINS.—The average weight of a two-year-old skin is 5½ pounds; of a three-year-old skin, 7 pounds; and, of a four-year-old skin, 12 pounds; so that as the major portion of the catch is two or three year-olds, these bundles of two skins each have an average weight of from 12 to 15 pounds. In this shape they go into the hold of the company's steamer at St. Paul,* and are counted out from it in San Francisco. Then they are either at once shipped to London by the Isthmus of Panama in the same shape, only packed up in large hogsheads of from 20 to 40 bundles to the package, or expressed by railroad, via New York, to the same destination.

PACKING SKINS FOR SHIPMENT.—The work of bundling the skins is not usually commenced by the natives until the close of the last week's sealing; or, in other words, those skins which they first took, three weeks ago, are now so pickled by the salt in which they have been lying ever since, as to render them eligible for this operation and immediate shipment. The moisture of the air dissolves and destroys a very large quantity of the saline preservative which the company brings up annually in the form of rock-salt, principally obtained at Carmen island, Lower California.



A bundle of two skins.

LAW PROTECTING THE SEALS.—The Alaska Commercial Company, by the provisions of law under which they enjoy their franchise, are permitted to take 100,000 male seals annually, and no more, from the Pribylov islands. This they do in June and July of every year. After that season, the skins rapidly grow worthless, as the animals enter into shedding, and, if taken, would not pay for transportation and the tax. These natives are paid 40 cents a skin for the labor, and they keep a close account of the progress of the work every day; they do so, as it is all done by them, and they know within 50 skins, one way or the other, when the whole number have been secured each season. This is the only occupation of the 398 people here, and they naturally look well after it. The interest and close attention paid by these natives, on both islands, to the "holluschickie" and this business, was both gratifying and instructive to me during my residence there.

ERRONEOUS POPULAR IDEAS.—The common or popular notion in regard to seal-skins is, that they are worn by those animals just as they appear when offered for sale; that the fur-seal swims about, exposing the same soft

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adjacent to the killing-grounds; it was the accumulation of such air-dried skins from the Pribylov islands, at Sitka, which rotted so in 1803, that "750,000 of them were cut up, or thrown out into the sea", completely destroyed. Had they been treated as they now are, such a calamity and hideous waste could not have occurred.

The method of air-drying which the old settlers employed, is well portrayed by the practice of the natives now, who treat a few hundred sea-lion skins to the process every fall; preparing them thus for shipment to Oonalashka, where they are used by brother Aleuts in covering their bidarkies or kyacks.

The natives, in speaking to me of this matter, said that whenever the weather was rough and the wind blowing hard, these air-dried seal-skins, as they were tossed from the bidarrah to the ship's deck, numbers of them would frequently turn in the wind and fly clean over the vessel into the water beyond, where they were lost.

Under the old order of affairs, prior to the present management, the skins were packed up and carried on the backs of the boys and girls, women and old men, to the salt-houses, or drying-frames. When I first arrived, season of 1872, a slight variation was made in this respect, by breaking a small Siberian bull into harness and hitching it to a cart, in which the pelts were hauled. Before the cart was adjusted, however, and the "buik" taught to pull, it was led out to the killing-grounds, by a ring in its nose, and literally covered with the green seal-hides, which were thus packed to the kenches. The natives were delighted with even this partial assistance; but now they have no further concern about it at all, for several mules and carts render prompt and ample service. They were introduced here, first, in 1874. The Russian-American Company and also the Alaska Commercial Company have brought up three or four horses to St. Paul, but they have been unfortunate in losing them all soon after landing, the voyage and the climate combined being inimical to equine health; but the mules of the present order of affairs have been successful in their transportation to and residence on the Pribylov islands. One, the first of these horses just referred to, perhaps did not have a fair chance for its life. It was saddled one morning, and several camp-kettles, coffee-pots, etc., slung on the crupper for the use of the Russian agent, who was going up to Northeast point for a week or ten days' visit. He got into the saddle, and while *en route*, near Polavina, a kettle or pot broke loose behind, the alarmed horse kicked its rider promptly off, and disappeared on a full run, in the fog, going toward the bogs of Kamminista, where its lifeless and fox-gnawed body was found several days afterward.

* The shallow depths of Bering sea give rise to a very bad surf, and though none of the natives can swim, as far as I could learn, yet they are quite creditable surfmen, and work the heavy "baidar" in and out from the landing adroitly and circumspectly. They put a sentinel upon the bluffs over Nah Speel, and go and come between the rollers as he signals. They are not graceful oarsmen under any circumstances, but can pull heartily and coolly together when in a pinch. The apparent ease and unconcern with which they handled their bidarrah here in the "baroon" during the fall of 1869, so emboldened three or four sailors of the United States Revenue Marine cutter "Lincoln" that they lost their lives in that surf through sheer carelessness. The "gig" in which they were coming ashore "broached to" in the breakers just outside of the cove, and their lifeless forms were soon after thrown up by the merciless waves on the Lagoon rookery. Three graves of these men are plainly marked on the slope of the Black Bluffs.

There is a false air of listlessness and gentleness about an open sea, or roadstead roller, that is very apt to deceive even watermen of good understanding. The crushing, overwhelming power with which an ordinary breaker will hurl a large ship's boat on rocks awash, must be personally experienced ere it is half appreciated.

The bundled skins are carried from the salt-houses to the baidar, when the order for shipment is given, and pitched into that lighter one by one, to be rapidly stowed; 700 to 1,200 bundles make the average single load; then, when alongside the steamer, they are again tossed up, and on her deck, from whence they are stowed in the hold.

coat with which our ladies of fashion so delight to cover their tender forms during inclement winter. This is a very great mistake; few skins are less attractive than is the seal-skin when it is taken from the creature. The fur is not visible; it is concealed entirely by a coat of stiff overhair, dull, gray-brown, and grizzled. It takes three of them to make a lady's sacque and boa; and in order that the reason for their costliness may be apparent, I take great pleasure in submitting a description of the tedious and skillful labor necessary to their dressing ere they are fit for sale, which will be found in the appendix.

SKETCH OF THE RUSSIO-CHINA TRADE IN FUR-SEAL PELTRIES.—During the whole of the extended period, from 1799 to 1867, inclusive, the Russians shipped and sold nearly all of the fur-seal skins that were taken from the Pribylov islands, in that great international mart of Kiachta, on the Chinese frontier. Since the Americans have taken control, the sales have all been practically made in London. The Alaska Commercial Company sells every one of its skins from the Pribylov and Commander groups there, in the same wareroom where the Hudson Bay Company, when it had a thrifty existence and was a power, used to auction its furs annually. As millions of the air-dried pelts taken from the seal-islands of Alaska have been bartered in the China-Russian station, a brief description of Kiachta may be interesting.

Prior to 1722, the Russians enjoyed a treaty with China which sanctioned the individual traveling of Muscovitic traders direct from the frontier to Pekin; after a period of three and thirty years, the Russians were abruptly and entirely deprived of those coveted commercial privileges. After all intercourse between the two countries had ceased for five years, the Russians obtained a new treaty in 1728, by which, in order to prevent future misunderstandings, the international trade, as far at least as private individuals were concerned, should be conducted on the boundary line, exactly upon the same spot where this new treaty was negotiated. Here Kiachta was built, though she still had a rival in Pekin; for, by the provisions of the new treaty, government trading caravans were allowed to penetrate to the capital of the Chinese empire. But, in 1762, Catharine the Second relinquished this imperial monopoly, and that action at once rendered this little town the grand and sole emporium of commerce between Russia and China.

DESCRIPTION OF KIACHTA.—Kiachta, then, as now, stands on a rivulet of the same name, which, rising in in Siberia and crossing the frontier line, washes the foundations of Maimatschin, a China town only a few miles away. Taken by itself, it is beset on all sides by rugged mountains; and the streamlet which forms a bond of union between these large empires of Asia is so tiny that, even by the aid of damming, it often fails to afford an adequate supply of water to the four or five thousand dwellers on its banks. These two small settlements, Kiachta and Maimatschin, are situated as nearly as possible on the fiftieth parallel of latitude, being about 1,000 miles from Pekin and 4,000 from Moscow. Though the Chinese route is much the shortest on the map, it is practically as hard a journey; for at a distance of about a week's march from Pekin, the Chinese have a forty days' tramp, and upward, over a dismal desert of table-land. It is parched with heat during one-half of the year, and covered with snow during the other. The Russians, however, whether they come from the west with manufactured goods, or from the north and east with furs, enjoy the advantages of a peopled country and of navigable waters nearly all the way to Irkutsk, and when they have met at this, the common center of all the lines of communication, they may, and often do, prosecute the rest of their journey to the very neighborhood of Kiachta by crossing lake Baikal and ascending its principal tributary, the Selenga river.

CHARACTER OF THE TRADE.—The Russian traders bring chiefly furs, woolens, cottons, and linens, while the Chinese bring teas principally, also silks, and sugar-candy; thus the seal-skins of Alaska were wont to go first from the seal-islands to Sitka; there they were assorted and put up into square bales, about 3 feet by 2, pressing the bundles in an old fashioned hand-lever press, and cording them while under this pressure; then envelopes of green walrus hide were sewed over them, and the packages, duly numbered, went to the Okotsk by ship, then to Kiachta by pack-horses, where the buyers of Pekin finally inspected and purchased them, giving in exchange the celebrated black teas of Maimatschin, the finest brands in all Mongolia, and produced only in the north of China, and which can be more cheaply transported from thence to Siberia than to Canton.

CHINESE DISPOSITION OF FUR-SEAL PELTRIES.—The Chinese buyers sent their Pribylov peltries down to their home-markets on camels, and in carts drawn by oxen, to Kalgan, where the seal-skins were again sold to other dealers, who carried them to the ultimate retail trade.

VOLUME OF KIACHTA TRADE IN 1837.—What the fur-trade of Kiachta to-day is, even though the rare skin of *Callorhinus* is seldom seen, I can find no data; but in 1837 the native land furs were represented by a value of 7,406,188 roubles, and the peltries from Russian America, including the fur-seals, sea-otter, and all the Alaskan land catch, was 1,600,000 roubles. How many fur-seals were sold in this aggregate, I cannot ascertain, but the scanty yield during the two and three years preceding would not warrant any considerable showing.

CHINESE TRADERS.—The Chinese at Kiachta were at first much more shrewd in their bargains than were their Russian neighbors; but the Slavonic instincts did not need much brushing up ere they were fully equal to all emergencies; the methods of the Chinese in selecting seal-skins were elaborate and lengthy—each pelt was handled and measured, then a little metal tag attached on which the result was recorded. I find a great deal of confusion in the data at my command as to what the average price was in this market, because the Russians took all ages, and at all stages of the season, from June to December; consequently, the number of really prime skins was small compared with the whole aggregate sold; the best pelts brought from "10 to 15 roubles"=$8 to $12.50; the average sales were made, however, as low as from $4 to $5 per skin. Techmainov gives the most information touching the value of Russian American furs in those times, that I can find; but, in regard to specific figures for the fur-seal quotations, he is only vague and general, the reason doubtless being that the whole volume of trade at Kiachta was and is exclusively one of barter, without the intervention of coin on either side.

SEASON OF KIACHTA COMMERCE.—The business life of Kiachta is never fully aroused until winter has well set in, continuing until spring. There is no written regulation to this effect, but it has the force of law through habit. In disposing of their commodities, the Chinese have considerable local advantage, because their teas never remain a single season unsold at Maimatschin, while the Russian goods, partly through a diminution of the demand, and partly through the artifices of the Celestials, are often so depreciated in value as to have to wait two and three years for a market.

DEMAND OF CHINESE FOR FURS.—The Chinese have from time immemorial been solicitous purchasers of furs. The northern provinces of their dominions are not only subjected to an extremely rigorous winter climate, but are those where the most wealthy reside, because the best teas of the Celestial Empire grow there; hence the desire for fur robes and garments as measures of comfort during cold weather is universal among the inhabitants; they constitute an important part of the wardrobe of every important Chinaman throughout all "Kathay". A Russian authority, Paul von Krusenstern, says: "With the least change of air the Chinese immediately alter their dress; and even at Canton, which is within the confines of the tropics, they wear furs in the winter."

FIRST TRAFFIC IN FURS BETWEEN AMERICA AND CHINA.—It is a curious fact, that until Captain John Gore anchored, December 18, 1779, near Canton with the ships of Cook's last voyage, from Kamtchatka and the northward, the furs which these English seamen then offered to the Chinese for sale were the first peltries ever brought into their markets by sea. The Chinese had hitherto gained everything of this character from without their precincts, by overland trade with Siberian merchants, or from the Burmese frontier via Bhamo.

When Captain Gore, the surviving senior officer of Cook's last voyage, 1776–'80, returned to England, he found that war was existing with the United States, France, and Spain; the British government determined to withhold from the world all information of the voyage; hence it was not until the winter of 1784–'85 that it was published. The statements contained in this work respecting the great abundance of animals yielding fine furs on the northwest coast, and the successful pecuniary bartering of the ships at Canton, stirred up a great many active men who fitted out vessels for the traffic. The first individual trader from the south on the northwest coast, was John Hanna, an Englishman, who sailed from Canton, May, 1785, and filled his little schooner with sea-otter skins at Nootka; then Portlock and Dixon, and Meares, in 1786; Gray and Kendrick, the first Americans, in 1787, head a long list of traders who came successively after them. In no record whatever of this pelagic fur-trade can I find any mention made of the skin of the fur-seal, nor the slightest hint whatever until the period of the Fraser river gold excitement, in 1862, when the first quotation of a fur-seal skin is made, taken at sea off the straits of Fuca.

WHAT THE RUSSIANS KNEW OF THE BUSINESS.—Perhaps the best, and an entirely correct, epitomé of what the Russians at headquarters of the company in Sitka really knew, biographically and commercially, of the fur-seal, is embodied in the following words of Governor Simpson, of the Hudson Bay Company, who, in 1841–'42, was the guest of Governor Etholine. He had supreme control of Alaskan life and trade then, and gave to his English official peer, doubtless, all the knowledge which he possessed:

> Some twenty or thirty years ago there was a most wasteful destruction of the seal, when young and old, male and female, were indiscriminately knocked on the head. This imprudence, as any one might have expected, proved detrimental in two ways. The race was almost extirpated; and the market was glutted to such a degree, at the rate for some time of two hundred thousand skins a year, that the prices did not even pay the expenses of carriage. The Russians, however, have now adopted nearly the same plan which the Hudson Bay Company pursues, in recruiting any of its exhausted districts, killing only a limited number of such males as have attained their full growth, a plan peculiarly applicable to the fur-seal, inasmuch as its habits render the system of husbanding the stock as easy and certain as that of destroying it.
>
> In the month of May, with something like the regularity of an almanac, the fur-seals make their appearance at the island of St. Paul, one of the Aleutian group. Each old male brings a herd of females under his protection, varying in number according to his size and strength. The weaker brethren are obliged to content themselves with half a dozen wives, while some of the sturdier and fiercer fellows preside over harems that are two hundred strong. From the date of their arrival in May to that of their departure in October, the whole of them are principally ashore on the beach. The females go down to the sea once or twice a day, while the male, morning, noon, and night, watches his charge with the utmost jealousy, postponing even the pleasures of eating and drinking and sleeping to the duty of keeping his favorites together. If any young gallant ventures by stealth among any senior chief's bevy of beauties, he generally atones for his imprudence with his life, being torn to pieces by the old fellow, and such of the fair ones as may have given the intruder any encouragement are pretty sure to catch it in the shape of some secondary punishment. The ladies are in the straw about a fortnight after they arrive at St. Paul; about two or three weeks afterward they lay the single foundation, being all that is necessary, of next season's proceeding, and the remainder of their sojourn they devote exclusively to the rearing of their young. At last the whole band departs, no one knows whither. The mode of capture is this: at the proper time the whole are driven, like a flock of sheep, to the establishment, which is a mile distant from the sea, and there the males of four years, with the exception of the few that are left to keep up the breed, are separated from the rest and killed. In the days of promiscuous massacre such of the mothers as had lost their pups would ever and anon return to the establishment, absolutely harrowing up the sympathies of the wives and the daughters of the hunters, accustomed as they were to such scenes, with their doleful lamentations.

> The fur-seal attains the age of fifteen or twenty years, but not more. The females do not bring forth young till they are five years old. The hunters have frequently marked their ears each season, and many of the animals have been notched in this way ten times, but very few of them oftener.
>
> Under the present system, the fur-seals are increasing rapidly in number. Previously to its introduction, the animal hunts had dwindled down to three and four thousand. They have now gradually got up to thrice that amount, and they are likely soon to equal the full demand, not exceeding thirty thousand skins, of the Russian government.*

It is valuable, as showing that, as long ago as 1841–'42, under Russian management, more than 30,000 skins per annum would be a loss, and not profitable to take from the seal-islands. Also, that, though the tardy recognition of the fact that females should not be slaughtered was made on the Pribylov islands shortly prior to 1841–'42, yet suitable regulations had not yet been made for the management of the business, inasmuch as *all* classes, "as a whole," were driven to the killing-grounds. This harassed and disturbed the females quite as badly as if killed outright. In 1845 the present order of implicit non-trespass upon the breeding-rookeries was first established, and I am sorry that I cannot find the name of the intelligent Russian who promulgated it, so that it might be known and respected, as it so well deserves. nicolai [illegible]

NO FUR-SEALS KNOWN TO EARLY TRADE.—The homely, yet explicit, letters of William Beresford should be noticed, for he sailed from London in 1797–'98, as a trader with Portlock and Dixon, and he gives, perhaps, the only straightforward synopsis of the fur-trade of the northwest coast as it was then. He reviews the subject as it presents itself to him from Cook's inlet to Cape Mendocino, in the series of field-notes which are printed and form the body and soul of *Dixon's Voyage.*

Nowhere does the author mention the fur-seal in this narrative, covering as it does two years' cruising between Kadiak and Cape Flattery. He evidently had not even heard of it, though at the time the Russians were working the Pribylov islands barbarously, taking hundreds of thousands of skins.

When I first went to the northwest coast, May, 1865, I learned from the venerable Doctor Tolmie, a recently retired chief factor of the Vancouver (Hudson Bay Company's) district, a great deal of the fur-bearing animals of that country, as known to the celebrated company which he had represented. I find no mention in my memoranda made at the time, that he indicated the skin of the fur-seal as one of the long list of items of trade; and while I was in that country between the Stikeen mouth and Puget sound, 1865–'67, inclusive, I never heard a single word of the fur-seal, and I, myself, then never recognized its name. I do not think, therefore, it worth while to discuss the idle rumors, now prevalent to some extent, as to the "fact" that the fur-seal is breeding in some lonely nook here and there along the coast. The Indians would have known it full well a hundred years ago, and such anxious seekers after choice peltries as William Beresford and the Hudson Bay Company would have profited accordingly.

PELAGIC FUR-SEALING A RECENT ENTERPRISE.—Fur-seals then, as now, were annually seen in all probability by the natives of the coast at sea, between Prince of Wales island and the Columbia river; but, either they were not deemed worthy of the labor in capture, or else the superior value of the sea-otter chase drew every attention of the pelagic hunters, just as it does to-day. At least I feel warranted in this conclusion, by the full and explicit details which Alexander Mackenzie gives of the furs that he saw in the natives' possession when he came overland from Montreal to the Pacific ocean in 1793. He describes the sea-otter almost exclusively. He speaks, however, of the natives having seal's flesh for sale; that it was eaten raw, "cut into chunks." Most likely this seal-meat of Mackenzie's notice was that of *Phoca vitulina*, which animal I have seen myself, nearly 100 miles up the Fraser river from the coast. However, it may have been that of the fur-seal, for he was among those savages who inhabited the islands and coast of Queen Charlotte sound, where these animals are to-day often seen sleeping or sporting in the broad reach of that open roadstead.

## 14. ECONOMIC VALUE OF THE SKINS, OIL, AND FLESH OF THE FUR-SEAL.

REASON WHY FUR-SEAL SKINS ARE ALL SOLD IN LONDON.—On account of the fact that the labor in this country, especially skilled labor, commands so much more per diem in the return of wages than it does in London or Belgium, it is not practicable for the Alaska Commercial Company, or any other company here, to attempt to dress and put upon the market the catch of Bering sea, which is in fact the entire catch of the whole world. Our people understand the theory of dressing these skins perfectly; but they cannot compete with the cheaper labor of the Old World. Therefore, nine-tenths nearly of the fur-seal skins taken every year are annually purchased and dressed in London, and from thence distributed all over the civilized world where furs are worn and prized.

CAUSE OF VARYING PRICES OF DRESSED SEAL-SKINS.—The great variations of the value of seal-skin sacques, ranging from \$75 up to \$350, and even \$500, is not often due to the variance in the quality of the fur originally; but it is due to the quality of the work whereby the fur was treated and prepared for wear. For instance, the cheap sacques are so defectively dyed that a little moisture causes them to soil the collars and cuffs of their owners, and a little exposure causes them speedily to fade and look ragged. A properly dyed skin, one that has been conscientiously and laboriously finished, for it is a labor requiring great patience and great skill, will not rub off or

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**An Overland Journey Round the World,* 1841–1842, Sir George Simpson, Governor-in-Chief Hudson Bay Company's territories; Philadlephia, 1847, pp. 130–131.

"crock" the whitest linen when moistened; and it will wear the weather, as I have myself seen it on the form of a sea-captain's wife, for six and seven successive seasons, without showing the least bit of dimness or raggedness. I speak of dyeing alone; I might say the earlier steps of unhairing in which the over-hair is deftly combed out and off from the skin, heated to such a point that the roots of the fur are not loosened, while those to the coarser hirsute growth are. If this is not done with perfect uniformity, the fur will never lay smooth, no matter how skillfully dyed; it will always have a rumpled, ruffled look. Therefore, the hastily-dyed sacques are cheap; and are enhanced in order of value just as the labor of dyeing is expended upon them.

GRADATION OF THE FUR OF CALLORHINUS URSINUS.—The gradation of the fur of *Callorhinus* may, perhaps, be best presented in the following manner:

1 YEAR OLD ♂: WELL GROWN: *at July* 1 *of every season:*
FUR fully developed as to uniform length and thickness and evenness of distribution; it is lighter in color, and softer in texture than hereafter, during the life of the animal; average weight of skin as removed by the sealers from the carcass, 4½ pounds.

2 YEAR OLD ♂: WELL GROWN: *at June* 1 *of every season:*
FUR fully developed as to even length and thickness and uniformity of distribution; it has now attained the darker buff and fawn color, sometimes almost brown, which it retains throughout the rest of the life of the animal; it is slightly and perceptibly firmer and stiffer than it was last year, not being at all "fluffy" as in the yearling dress now; average weight of skin, as taken from the body, 5½ pounds.

3 YEAR OLD ♂: WELL GROWN: *at June* 1 *of every season:*
FUR fully developed, as to even length, but a shade longer over the shoulders, where the incipient "wig" is forming; otherwise perfectly uniform in thickness and even distribution; this is the very best grade of pelt which the seal affords during its life; average weight of skin, as taken from the body, 7 pounds.

4 YEAR OLD ♂: WELL GROWN: *at June* 1 *of every season:*
FUR fully developed as to even length, except a decided advance in length and perceptible stiffness over the shoulders, in the "wig"; otherwise perfectly uniform in thickness and even distribution; this grade is almost as safe to take, and as good as is the three-year-old; average weight of skin, as removed, 12 pounds.

5 YEAR OLD ♂: WELL GROWN: *at May to June* 1 *of every season:*
FUR fully developed, but much longer and decidedly coarser in the "wig" region; otherwise, uniform in thickness and distribution; the coarseness of the fur over the shoulders and disproportionate length thereon destroys that uniformity necessary for rating A 1 in the market; in fact it does not pay to take this skin; average weight, 16 pounds.

6 YEAR OLD ♂: WELL GROWN: *from May to June* 1 *of every season:*
FUR fully developed, still longer and stiffer in the "wig" region, with a slightly thinner distribution over the post-dorsal region, and shorter; this skin is never taken—it is profitless; average weight, 25 pounds.

7 YEAR OLD AND UPWARD ♂: *from May to June* 1 *of every season:*
FUR fully developed, but very unevenly distributed, being relatively scant and short over the posterior dorsal region, while it is twice as long and very coarse in the covering to the shoulders especially and the neck and chest. Skins are valueless to the fur trade; weights, 45 to 60 pounds.

The analysis, as above, is a brief epitomé of the entire subject; only, it should be added that the female skins are as finely furred as are the best grades of the males; and also, that age does not cause the quality of their pelage to deteriorate, which it does to so marked an extent in the males. But, taking them into consideration is entirely out of the question, and ought to be so forever.

The fœtal coat of the pup is composed of coarse black hair alone, the underwool not at all developed, when this is shed and the new coat put on in September and October, it is furred and haired as a yearling, which I diagnose above; this pelage has, however, no commercial value.

All the skins taken by the company for the last eight years have been prime skins, in the fair sense of the term; but, all the seal-skin sacques made therefrom have not been of the first quality, by any means.

In order that the rules and regulations and the law governing and protecting the interests of the government on these islands may be fully understood, I embody them in the appendix.

OIL OF THE FUR-SEAL.—I have spoken of the blubber, and as I mentioned it, doubtless the thought will occur, what becomes of the oil contained therein; is it all allowed to waste? A most natural query, and one that I made instantly after my first arrival on the islands. I remember seeing 40 or 50 hogsheads and tierces headed up and standing near the foot of the village hill, in which were many thousands of gallons of fur-seal oil. I asked the agent of the company when he was going to ship it; he shrugged his shoulders and said: "As soon as it will pay."

I made, during the season, careful notes as to the amount of oil represented by the blubber exposed on the 100,000 young male seal carcasses, and I found that the two and three year old "holluschickie" bodies as left by the skinner would not clean up on an average more than a half a gallon of oil; while the four-year-old males would make nearly a gallon. It should be remembered that quite a large portion of the seal's fat is taken off with the skin, as its presence thereon is necessary to that proper amalgamation and preservation by the salt when it is applied to its fresh surface in the "kenches"; hence the amount of oil represented by these carcasses every year is not much over 60,000 gallons.

CONDITION OF THE FUR-SEAL OIL MARKET.—When among the seal-oil dealers in New York city, during the month of May, in 1876, I took these notes with me and investigated the standing and the demand for fur-seal oil in their market and the markets of the world; and the statements of these oil experts and dealers were all in accord as to the striking inferiority of fur-seal oil, compared with the hair-seal and sea-elephant oil, which they dealt in largely. The inferiority of the fur-seal oil is due primarily to the offensive odor of the blubber, which

I have spoken of heretofore. This singularly disagreeable smell does not exist in the blubber of the hair-seal (*Phocidæ*), the sea-elephant or sea-lion, and it makes the process of refining very difficult. They said it was almost impossible to properly deodorize it and leave the slightest margin of profit for the manufacturer and the dealer. It was gummy and far darker in color than any other seal-oil, hence it possessed little or no commercial value. Then, again, when the subject of taking oil from the seal-islands of Alaska is considered, the following obstacles, in addition to the first great objection just cited, arise at once to financial success: the time, trouble, and danger in loading a vessel with oil at the islands where, on account of the absence of a harbor and the frequent succession of violent gales, a ship is compelled to anchor from a mile and a half to three miles from the coast, on which the surf is always breaking. The cost, again, of casks and cooperage will amount to 10 cents per gallon; the cost of the natives' work in securing and bringing the blubber to the try-works, 10 cents per gallon; the cost of refining it, 10 cents; and the cost of transportation of a cargo of, say, 60,000 gallons will amount to nearly 20 cents per gallon; thus making a gallon of fur-seal oil aggregate in cost to the taker 50 cents, which entails upon him nothing but pecuniary loss when the cargo goes upon the market, and where it is worth only from 40 to 50 cents retail, with a dull sale at that.*

FRAGILE CHARACTER OF FUR-SEAL BONES.—I looked at the fur-seal bones, and at first sight it seemed as though a bone-factory might be established there; but a little examination of the singularly light and porous osseous structure of the *Callorhinus* quickly stifled that enterprise. The skull and larger bones of the skeleton are more like pasteboard than the bone which is so common to our minds. When dried out, the entire skeleton of a three-year-old male will not weigh seven pounds; indeed, I am inclined to think it would be much less than that if thoroughly kiln-dried, as after the fashion of the bone-mills. Therefore, although 100,000 of these skeletons bleach out and are trodden down annually, upon the Pribylov islands, yet they have not the standing for any commercial value whatsoever, considering their distance and difficulty of access from those impoverished fields where they might serve our farmers as fertilizing elements.†

DECAY OF SEAL CARCASSES.—Another singular and striking characteristic of the island of St. Paul, is the fact that this immense slaughtering-field, upon which 75,000 to 90,000 fresh carcasses lie every season, sloughing away into the sand beneath, does not cause any sickness among the people who live right over them, so to speak. The cool, raw temperature, and strong winds, peculiar to the place, seem to prevent any unhealthy effect from the fermentation of decay. The *Elymus* and other grasses once more take heart and grow with magical vigor over the unsightly spot, to which the sealing-gang again return, repeating their bateau, which we have marked before, upon this place, three years ago. In that way this strip of ground, seen on my map between the village, the east landing, and the lagoon, contains the bones and the oil-drippings and other fragments thereof, of more than 3,000,000 seals slain since 1786 thereon, while the slaughter-fields at Novastoshnah record the end of a million more.

I remember well the unmitigated sensations of disgust that possessed me when I first landed, April 28, 1872, on the Pribylov islands, and passed up from the beach, at Lukannon, to the village, over the killing-grounds; though there was a heavy coat of snow on the fields, yet each and every one of 75,000 decaying carcasses was there, and bare, having burned, as it were, their way out to the open air, polluting the same to a sad degree. I was laughed at by the residents who noticed my facial contortions, and assured that this state of smell was nothing to what I should soon experience when the frost and snow had fairly melted. They were correct; the odor along by the end of May was terrific punishment to my olfactories, and continued so for several weeks until my sense of smell became blunted and callous to this stench by long familiarity. Like the other old residents I then became quite unconscious of the prevalence of this rich "funk", and ceased to notice it.

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* In 1873, not having had any experience and not even knowing the views of the oil dealers themselves, I left the seal-islands believing that if the special tax which was then laid upon each gallon of oil as it might be rendered was removed, that it would pay the manufacturer, and in this way employ the natives, many days of the year otherwise idle, profitably. The company assured me that as far as its conduct in the matter was concerned, it would be perfectly willing to employ the natives in rendering fur-seal oil, and give them all the profit, not desiring itself to coin a single penny out of the whole transaction; possibly this could be done if the special tax of 55 cents per gallon was stricken off. The matter was then urged upon the Treasury Department, by myself, in October, 1873, and the tax was repealed by the department soon after. But it seems that I was entirely mistaken as to the quality and value of the oil itself. I made, to satisfy myself, a very careful investigation of the subject in 1876, going personally to the leading dealers in whale and seal oil of New York city, and they were unanimous in their opposition to handling fur-seal oil, some of them saying that they would not touch it at any price. I felt considerably chagrined, because had I known as much in 1873, I would have saved myself then, and my friends subsequently, a good deal of unnecessary trouble and profitless action.

† The bones of *Callorhinus*, though apparently strong, are surprisingly light and porous; indeed, they resemble those of *Aves* more than those commonly credited to mammalia; the osseous structure, however, of *Phoca vitulina*, the hair-seal which I examined there, side by side with that of the fur-seal, was very much more solid and weighed, bone for bone of equal age, just about one-third more, the skull especially; also the shoulder-blades and the pelvic series. If the bones of the animals were not divested of their cartilaginous continuations and connections, then the aggregate weight of the fur-seal is equal to its hairy-skinned relative; the entire skeleton of a three-year-old ♂ *Callorhinus*, completely divested by sea-fleas (*Amphipoda*) of all flesh and fat, but with every ligamentary union and articulation perfect (the cartilaginous toe-ends all present), was just 8 pounds, and I have reason to believe that when it became air-dried and bleached it did not weigh more than 4 or 5. The bones of the older seals are relatively very much heavier, but only relatively; the frailness and fragility is constant through life, though the skulls of the old males do thicken up on their crests and about the rami of their jaws very perceptibly.

Sea-lion bones are, however, normally strong and heavy; the bone of the fur-seal is evidently stout enough, but it is singularly light, while the walrus, that dull, sluggish brute, has a massive osteological frame. I made these relative examinations more especially to ascertain something which might pass for a correct estimate of what the bony waste on the killing-grounds of the Pribylov islands amounted to annually, with a view of its possible utilization. The spongy bones of the whole 100,000 annually laid out would not render according to my best judgment, 50 tons of dry bone-meal—an insignificant result and unworthy of further notice on these islands.

Those who land here, as I did, for the first time, nervously and invariably declare that such an atmosphere must breed a plague or a fever of some kind in the village, and hardly credit the assurance of those who have resided in it for the whole period of their lives, that such a thing was never known to St. Paul, and that the island is remarkably healthy. It is entirely true, however, and, after a few weeks' contact, or a couple of months' experience, at the longest, the most sensitive nose becomes used to that aroma, wafted as it is hourly, day in and out, from decaying seal-flesh, viscera, and blubber; and, also, it ceases to be an object of attention. The cool, sunless climate during the warmer months has undoubtedly much to do with checking too rapid decomposition, and consequent trouble therefrom, which would otherwise arise from the killing-grounds.

The freshly-skinned carcasses of this season do not seem to rot substantially until the following year; then they rapidly slough away into the sand upon which they rest; the envelope of blubber left upon each body seems to act as an air-tight receiver, holding most of the putrid gases that evolved from the decaying viscera until their volatile tension causes it to give way; fortunately the line of least resistance to that merciful retort is usually right where it is adjacent to the soil, so both putrescent fluids and much of the stench within is deodorized and absorbed before it can contaminate the atmosphere to any great extent. The truth of my observation will be promptly verified, if the skeptic chooses to tear open any one of the thousands of gas-distended carcasses in the fall, that were skinned in the killing-season; if he does so, he will be smitten by the worst smell that human sense can measure; and should he chance to be accompanied by a native, that callous individual, even, will pinch his grimy nose and exclaim, it is a "keeshla pahknoot"!

At the close of the third season after the skinning of the seal's body, it will have so rotted and sloughed down, as to be marked only by the bones and a few of the tendinous ligaments; in other words, it requires from thirty to thirty-six months' time for a seal carcass to rot entirely away, so nothing but whitened bones remain above ground. The natives govern their driving of the seals and laying out of the fresh bodies according to this fact; for they can, and do, spread this year a whole season's killing out over the same spot of the field previously covered with such fresh carcasses three summer's ago; by alternating with the seasons thus, the natives are enabled to annually slaughter all of the "holluschickie" on a relatively small area, close by the salt-houses, and the village, as I have indicated on the map of St. Paul.

Description of killing-ground of St. Paul.—The killing-ground of St. Paul is a bottomless sand flat, only a few feet above high water, and which unites the village hill and the reef with the island itself; it is not a stone's throw from the heart of the settlement—in fact, it is right in town—not even suburban.

Description of the killing-ground at St. George.—On St. George the "holluschickie" are regularly driven to that northeast slope of the village hill which drops down gently to the sea, where they are slaughtered, close by and under the houses, as at St. Paul; those droves which are brought in from the North Rookery to the west, and also Starry Ateel, are frequently driven right through the village itself. This slaughtering field of St. George is hard tufa and rocky, but it slopes down to the ocean rapidly enough to drain itself well; hence the constant rain and humid fogs of summer carry off that which would soon clog and deprive the natives from using the ground year after year in rotation, as they do. Several seasons have occurred, however, when this natural cleansing of the ground above-mentioned has not been as thorough as must be to be used again immediately; then the seals were skinned back of the village hill, and in the ravine to the west on the same slope from the summit.

This village site of St. George to-day, and the killing-grounds adjoining, used to be, during early Russian occupation, in Pribylov's time, a large sea-lion rookery, the finest one known to either island, St. Paul or St. George. Natives are living there who told me that their fathers had been employed in shooting and driving these sea-lions so as to deliberately break up the breeding-ground, and thus rid the island of what they considered a superabundant supply of the *Eumetopias*, and thereby to aid and encourage the fresh and increased accession of fur-seals from the vast majority peculiar to St. Paul, which could not take place while the sea-lions held the land.*

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*The St. Paul village site is located wholly on the northern slope of the village hill, where it drops from its greatest elevation, at the flagstaff, of 125 feet gently down to the sandy killing-flats below and between it and the main body of the island. The houses are all placed facing the north, at regular intervals along the terraced streets, which run S. E. and N. W. There are 74 or 80 native houses, 10 large and smaller buildings of the company, the treasury agent's residence; the church, the cemetery crosses, and the school building are all standing here in coats of pure white paint. The survey of the town site, when rebuilt, was made by Mr. H. W. McIntyre, of the Alaska Commercial Company, who, himself, planned and devised the entire reconstruction. No offal or decaying refuse of any kind is allowed to stand around the dwellings or lie in the streets. It required much determined effort on the part of the whites to effect this sanitary reform, but now most of the natives take equal pride in keeping their surroundings clean and unpolluted.

The site of the St. George settlement is more exposed and bleak than is the one we have just referred to on St. Paul. It is planted directly on the rounded summit of one of the first low hills that rise from the sea on the north shore; indeed, it is the only hill that does slope directly and gently to the salt water on the island. Here are 24 to 30 native cottages, laid with their doors facing the opposite sides of a short street between, running also east and west, as at St. Paul. There, however, each house looks down upon the rear of its neighbor, in front and below. Here the houses face each other, on the top of the hill. The treasury agent's quarters, the company's six or seven buildings, the school-house, and the church are all neatly painted, and this settlement, from its prominent position, shows from the sea to a much better advantage than does the larger one of St. Paul. The same municipal sanitary regulations are enforced here. Those who may visit the St. George and St. Paul of to-day will find the streets dry and hard as floors. They have been covered with a thick layer of volcanic cinders on both islands.

# F. THE SEA-LION (EUMETOPIAS STELLERI).

## 15. LIFE-HISTORY OF THE SEA-LION.

NATURAL INFERIORITY TO THE FUR-SEAL.—This animal, also a characteristic pinniped of the Pribylov islands, ranks much below the fur-seal in perfected physical organization and intelligence. It can, as well as its more sagacious and valuable relative, the *Callorhinus*, be seen, perhaps, to better advantage on these islands than elsewhere in the whole world that I know of. The marked difference between the sea-lion and the fur-seal up here, is striking; the former being twice the size of its cousin.

The size and strength of the northern sea-lion, *Eumetopias Stelleri*, its perfect adaptation to its physical surroundings, unites with a singular climatic elasticity of organization; it seems to be equally as well satisfied with the ice-floes of the Kamtchatka sea to the northward, or the polished bowlders and the hot sands of the coast of California.* It is an animal, as it appears upon its accustomed breeding-grounds at Northeast point, where I saw it, that commanded my admiration by its imposing presence and sonorous voice, rearing itself before me with head, neck, and chest upon its powerful fore-arms, over six feet in height; while its heavy bass voice drowned the booming of the surf that thundered on the rocks at its flanks.

THE PHYSICAL PRESENCE OF THE SEA-LION.—The size and strength of the adult sea-lion male will be better appreciated, when I say that it has an average length of ten and eleven feet, osteologically, with an enormous girth of eight to nine feet around the chest and shoulders; but, while the anterior parts of the frame are as perfect and powerful on land as in sea, those posterior are ridiculously impotent when the huge beast leaves its favorite element. Still, when hauled up beyond the reach of the brawling surf, as it rears itself, shaking the spray from its tawny chest and short grizzly mane, it has that leonine appearance and bearing, greatly enhanced, as the season advances, by the rich golden rufous-color of its coat, the savage gleam of its expression, due probably to the sinister muzzle and cast of its eye. This optical organ is not round and full, soft and limpid, like the fur-seal's, but it is an eye like that of a bull-dog, small, and clearly showing, under its heavy lids, the white or sclerotic coat, with a light brown iris. Its teeth gleam and glisten in pearly whiteness against the dark tongue and the shadowy recesses of its wide, deep mouth; the long, sharp, broad-based canines, when bared by the wrathful snarling of its gristled lips, glittered more wickedly, to my eye, than the keenest sword ever did in the hand of man.†

With these teeth alone, backed by the enormous muscular power of a mighty neck and broad shoulders, the sea-lion confines its battles to its kind, spurred by terrible energy and heedless and persistent brute courage. No animals that I have ever seen in combat presented a more savage or more cruelly fascinating sight than did a brace of old sea-lion bulls which met under my eyes near the Garden cove at St. George.

SEA-LIONS FIGHTING AT TOLSTOI.—Here was a sea-lion rookery, the outskirts of which I had trodden upon for the first time. These old males, surrounded by their meek, polygamous families, were impelled toward each other by those latent fires of hate and jealousy, which seemed to burst forth and fairly consume the angry rivals. Opening with a long, round, vocal prelude, they gradually came together, as the fur-seal bulls do, with averted heads, as though the sight of each other was sickening—but fight they must. One would play against the other for an unguarded moment in which to assume the initiative, until it had struck its fangs into the thick skin of its opponent's jowl; then, clenching its jaws, was not shaken off until the struggles of its tortured victim literally

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*The sea-lion certainly seems to have a more elastic constitution than is possessed by the fur-seal; in other words, the former can live under greater natural extremes of climate than can the latter. A careful test of this question was made by the late R. B. Woodward, in the aquaria of his famous gardens at San Francisco. He told me at the Grand Hotel, in 1873, that he should not attempt to keep another fur-seal alive in his tanks; that every one of the half dozen live specimens which he had placed therein at different intervals during the last three years had died—began to droop and waste away as soon as they were installed in their new quarters; but he seldom lost a sea-lion, except from clear or natural reasons. Mr. Woodward, from his practical experience, was positive in his belief that no living adult fur-seal could ever be exhibited in New York; while he thought that the sea-lion, both *Zalophus* and *Eumetopias*, could be carried alive, and in good condition, all over this country from New Orleans to Montreal, or San Francisco to Bangor. He said, "Our black sea-lion (*Zalophus*) is tougher than the larger kind (*Eumetopias*), and is just the creature for showmen."

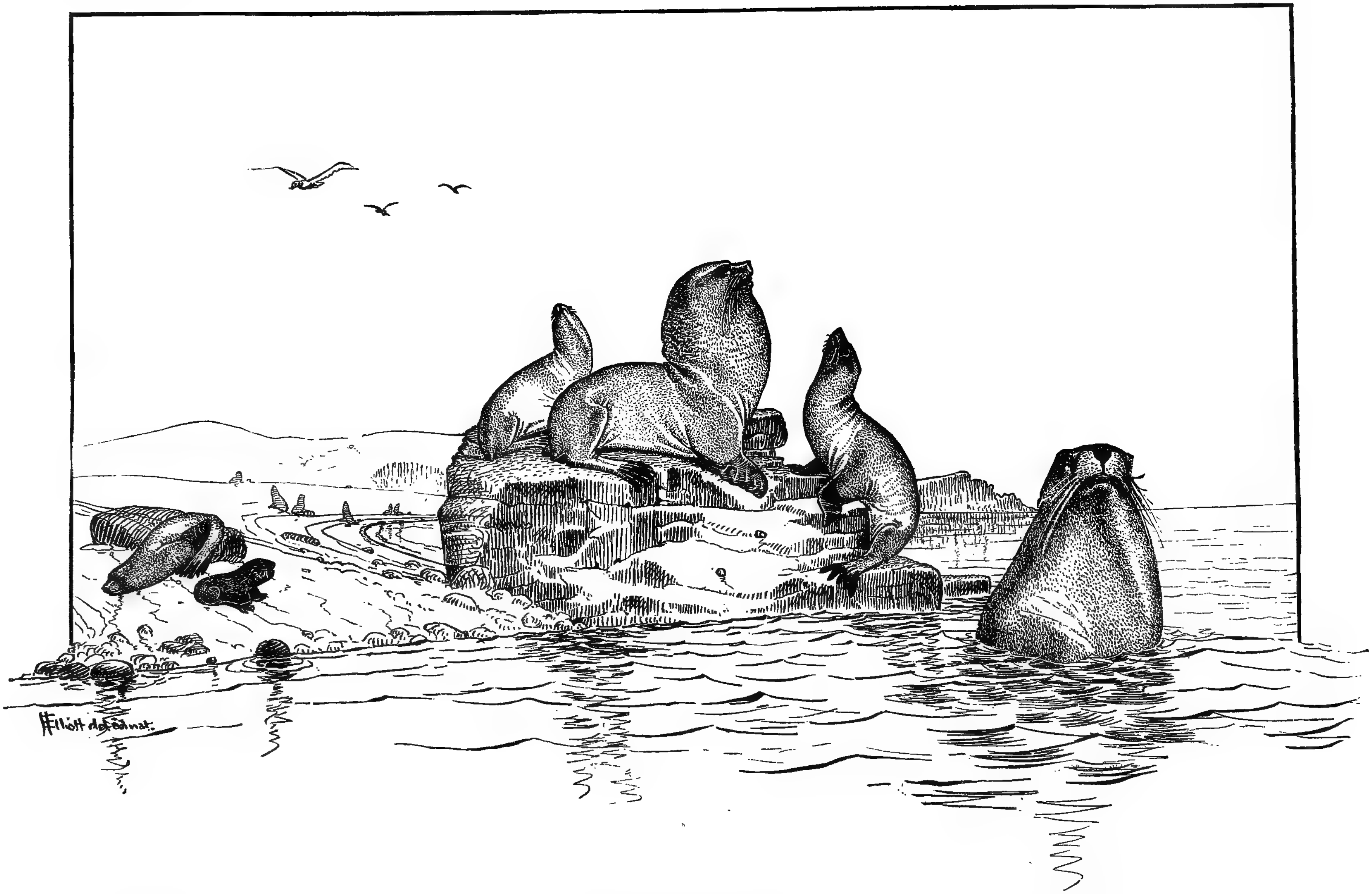
†The teeth of the fur-seal are not, as a rule, clean and white, as they are in the mouths of most carnivora; they are badly discolored by black, brown, and yellowish coatings, especially so with regard to the males; the pup's milk teeth are complete exponents of the dental formula of adolescence, but are small, brittle, mostly black and brown in color; with their shedding, however, the permanent teeth come out quite clear, and glistening white; still, again, in a year or two they rapidly lose their purity of tint, being discolored as above stated. The sea-lion pups, also, are born with dingy, dusky milk teeth, but I found that when their permanent set was grown it usually retained, even into old age, its primitive whiteness. This difference between these animals is quite marked, which, together with the opposite characters of their blubber, mentioned hereafter, constitute a very curious basis of differentiation.

The fur-seal pup, when it spits or coughs in fright, opens its mouth wide, and the small black and brown teeth seem sadly out of place, set in the bright, rosy gums around the fresh pink tinge of the tongue and under the red, flushed palate.

The canines and incisors of *Callorhinus* and *Eumetopias* are well rooted, but the molars are not; their alveoli are only partly filled, so that when the fleshy gums are removed these teeth will easily rattle out of their sockets.

In looking over hundreds and thousands of the skulls of *Callorhinus* as they bleach out on the killing-grounds, I was struck by their astonishing lack of symmetry; they varied fully as much in their extremes as the skulls of many different genera do. The number of teeth differ also; some jaws have sets of but five molars, others six, and others seven.

Plate XVI.


HElliott del ad nat.
Yearling.
Pup.
Old male's face.

THE SEA-LION.

(Eumetopias Stelleri: males and females.)

Life-studies by the author, Pribylov Islands. 1872-'76.

tore them out, leaving an ugly, gaping wound—for the sharp eye-teeth cut a deeper gutter in the skin and flesh than would have held my hand; fired into almost supernatural rage, the injured lion retaliated, quick as a flash, in kind; the hair flew from both of them into the air, the blood streamed down in frothy torrents, while high above the boom of the breaking waves and shrill deafening screams of water-fowl over head, rose the ferocious, hoarse, and desperate roar of the combatants.

LAND TRAVEL OF THE SEA-LION.—Though provided with flippers, to all external view, as the fur-seal is, the sea-lion cannot, however, make use of them at all in the same free manner. The fur-seal may be driven five or six miles in twenty-four hours, under the most favorable conditions of cool, moist weather; the "seevitchie", however, can only go two miles, the conditions of weather and roadway being the same. The sea-lion balances and swings its long and heavy neck, as a lever, to and fro, with every hitching up behind of its posterior limbs, which it seldom raises from the ground, drawing them up after the fore-feet with a slide over the grass or sand, and rocks, as the case may be; ever and anon pausing to take a sullen and savage survey of the field and the natives, who are driving them.

The sea-lion is polygamous, but it does not maintain any regular system and method in preparing for and attending to its harem, like that so finely illustrated on the breeding-grounds of the fur-seal; and it is not so numerous, comparatively speaking. There are not, according to my best judgment, over ten or twelve thousand of these animals altogether on the breeding-grounds of the Pribylov islands; it does not haul more than a few rods anywhere, or under any circumstances, back from the sea. It cannot be visited and inspected by men as the fur-seals are, for it is so shy and suspicious that, on the slightest warning of an approach, a stampede into the water is a certain result.*

PECULIAR COWARDICE OF THE SEA-LION.—That noteworthy, intelligent courage of the fur-seal, though it does not possess half the size nor one-quarter of the muscular strength of the sea-lion, is entirely wanting in the huge bulk and brain of the *Eumetopias*. A boy, with a rattle or a pop-gun, could stampede ten thousand sea-lion bulls, in the height of the breeding-season, to the water; and keep them there for the rest of the season.†

FIRST ARRIVALS.—The males come out and locate over the narrow belts of the rookery-grounds (sometimes as at St. Paul on the immediate sea-margin of the fur-seal breeding places), two or three weeks in advance of the females, which arrive later, *i. e.*, between the 1st to the 6th of June; and these females are never subjected to that intense, jealous supervision so characteristic of the fur-seal harem. The sea-lion bulls, however, fight savagely among themselves, and turn off from the breeding-ground all the younger and weaker males.

THE FEMALE SEA-LION.—The cow sea-lion is not quite half the size of the adult male; she will measure from eight to nine feet in length osteologically, with a weight of four or five hundred pounds; she has the same general cast of countenance and build of the bull; but, as she does not sustain any fasting period of over a week or ten days consecutively, she never comes out so grossly fat as the male. With reference to the weight of the latter, I was particularly unfortunate in not being able to get one of those big bulls to the scales before it had been bled; and in bleeding I know that a flood of blood poured out which should have been recorded in the weight. Therefore, I can only estimate this aggregate avoirdupois of one of the finest-conditioned adult male sea-lions at 1,400 to 1,500 pounds; an average weight, however, might safely be recorded as touching 1,200 pounds.‡

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* That the sea-lion bull should be so cowardly in the presence of man, yet so ferocious and brave toward one another and other amphibious animals, struck me as a line of singular contrast with the undaunted bearing of the fur-seal "seacatch", which, though being not half the size, or possessing muscular power to anything like its development in the "seevitchie", nevertheless, will unflinchingly face, on its station at the rookery, any man, to the death. The sea-lion bulls, certainly, fight as savagely and as desperately, one with another, as the fur-seal males do. There is no question about that; and their superior strength and size only makes the result more effective in the exhibition of gaping wounds and attendant bloodshed. I have repeatedly seen examples of these old warriors of the sea which were literally scarred, from their muzzles to their posteriors, so badly and so uniformly as to have fairly lost all the color, or general appearance even, of hair anywhere on their bodies.

I recall, in this connection, the sight of an aged male sea-lion, which had evidently been defeated by a younger and more lusty rival, perhaps; it was hauled upon a lava shelf at Southwest point, solitary and alone; the rock around it being literally covered with pools of pus, which was oozing out and trickling down from a score of festering wounds; the victim stood planted squarely on its torn fore-flippers, with head erect and thrown back upon its shoulders; its eyes were closed, and it gently swayed its sore neck and shoulders in a sort of troubled, painful day-dreaming or dozing. Like the fur-seal, the sea-lion never notices its wounds to nurse and lick them, as dogs do, or other carnivora; it never pays the slightest attention to them, no matter how grievously it may be injured.

† This marked cowardice of the sea-lion was well noted by Steller, who speaks of it thus: "Though the males have a terrible aspect, yet they take flight on the first appearance of man; and if surprised in their sleep, they are panic struck, sighing deeply, and in their attempt to escape get quite confused, tumble down, and tremble so much that they are scarcely able to move their limbs. If, however, reduced to extremity, they grow desperate, turn on their enemy with great fury and noise, and put even the most valiant to flight."—*Nov. Com. Acad. Sci. Petropol.*, tome ii, 1749.

‡ Often, when the fur-seal and sea-lion bulls haul up in the beginning of the season, examples among them which are inordinately fat will be seen; their extra avoirdupois renders them very conspicuous, even among large gatherings of their kind; they seem to exhibit a sense of self-oppression then, quite as marked as is that subsequent air of depression worn when, later, they have starved out this load of surplus blubber, and are shambling back to the sea, for recuperation and rest.

I thought over and devised many plans to kill and weigh entire one of these unusually heavy bulls; but, they all failed, because I did not have the time to spare from so many other observations pressing and necessary to be made at that season, if made at all during the year. The united effort of five or six men, aided by the mule and cart at St. Paul, would solve the problem, doubtless, almost any day they set about

ORGANIZATION OF SEA-LION ROOKERIES.—The sea-lion rookery will be found to consist of about ten to fifteen females to every male. The females, in landing, seem to be influenced by no preference for one male above another, but are actuated solely to come ashore at a suitable place, where, soon after landing, they are to bring forth their young. The cow seems at all times to have the utmost freedom in moving from place to place; and also often to start with its young—which is noteworthy, inasmuch as I never saw it among the fur-seals—picking the pup up by the nape and carrying it to the water to play with it for short spells in the surf wash. The pup sea-lions are by no means helpless when they are born; when they first come into the world their eyes are promptly opened wide and clear; they stand up quite free and strong on their odd flipper-feet, and commence at once, in their frequent intervals of wakefulness, to crawl over bowlders and the sand, to paddle in the surf, and to roar huskily and shrilly at their parents.

GROWTH OF YOUNG SEA-LIONS.—They are fed upon the richest of rich milk, at irregular and somewhat lengthy periods; regaled in this manner, the young sea-lion grows with surprising rapidity, so much so that its weight, of 9 or 12 pounds at birth, is increased to 75 or 90, in less than four months thereafter. By this time, also, it has shed its natal coat and teeth; it has grown a strong mustache, and has become a facile swimmer and expert fisherman, though at first it was one of the most clumsy, yet never so helpless as the fur-seal. The liquid, pearly-blue eye of the little fellow is soon changed into the sinister expression of adolescence, when it has rounded its second year. It appears to grow up unnoticed by its grim-looking parents, though the maternal attention is more evident, but still scant, indeed, when contrasted with the love evinced by cat or dog for its offspring.

VISITING THE TOLSTOI ROOKERY.—At the east end of St. George island, just to the southward of Tolstoi Mees, is one of the finest sea-lion rookeries on the islands, or, perhaps, in the world. It lies at the base of a frowning wall of precipitous cliffs, the mural walls sheer aloft 400 and 500 feet as they overhang the sea. Here beneath, on a rocky stretch of beach some 30 or 40 feet wide. at high-water mark, stowed thickly side by side, end to end, and crosswise for a distance of half a mile up and down the coast, are four or five thousand sea-lions of all sizes and both sexes; and here they will be found every summer, secure from the approach of enemies by land. Inasmuch as they rest there under the cliffs, they cannot be practically approached and driven, as their kind are by the Aleuts, from their more accessible breeding-haunts at Northeast point, St. Paul island.*

By paying attention to the direction of the wind, the observer can descend at intervals from the heights above, unheeded and unsuspected by them, to within a stone's throw of their tawny forms; where you may notice their thousand and one unconstrained and peculiar maneuvers, which would be interrupted at once by a tumultuous and universal rush for the water should you make yourself known. You will be impressed, first, by their excessive restlessness; they are ever twisting and turning, coiling and uncoiling themselves over the rocks; now stretched out prone in slumber, the next minute up and moving. The roar of one is instantly caught up by another, so that the aggregate sound, as it rises and falls from this rookery, reverberating along the bluffs at irregular though close intervals, can only be compared, in my mind, to the hoarse sound of a tempest as it howls through the rigging of a ship, or sighs through the branches of a forest growth.

The voice of the northern sea-lion, *Eumetopias*, is confined to either a deep, resonant roar, or a low, muttering growl; not only to the males alone is this monotone peculiar, but also to the females and the young. It does not have that striking flexibility of the *Callorhinus*, and in this respect their vocal organization is very marked and different from that of the fur-seal. I might say, further, that the pups are exceedingly playful, but, unlike the noisy "kotickie", they are almost silent; when they utter a sound it is a short, sharp, querulous growling.

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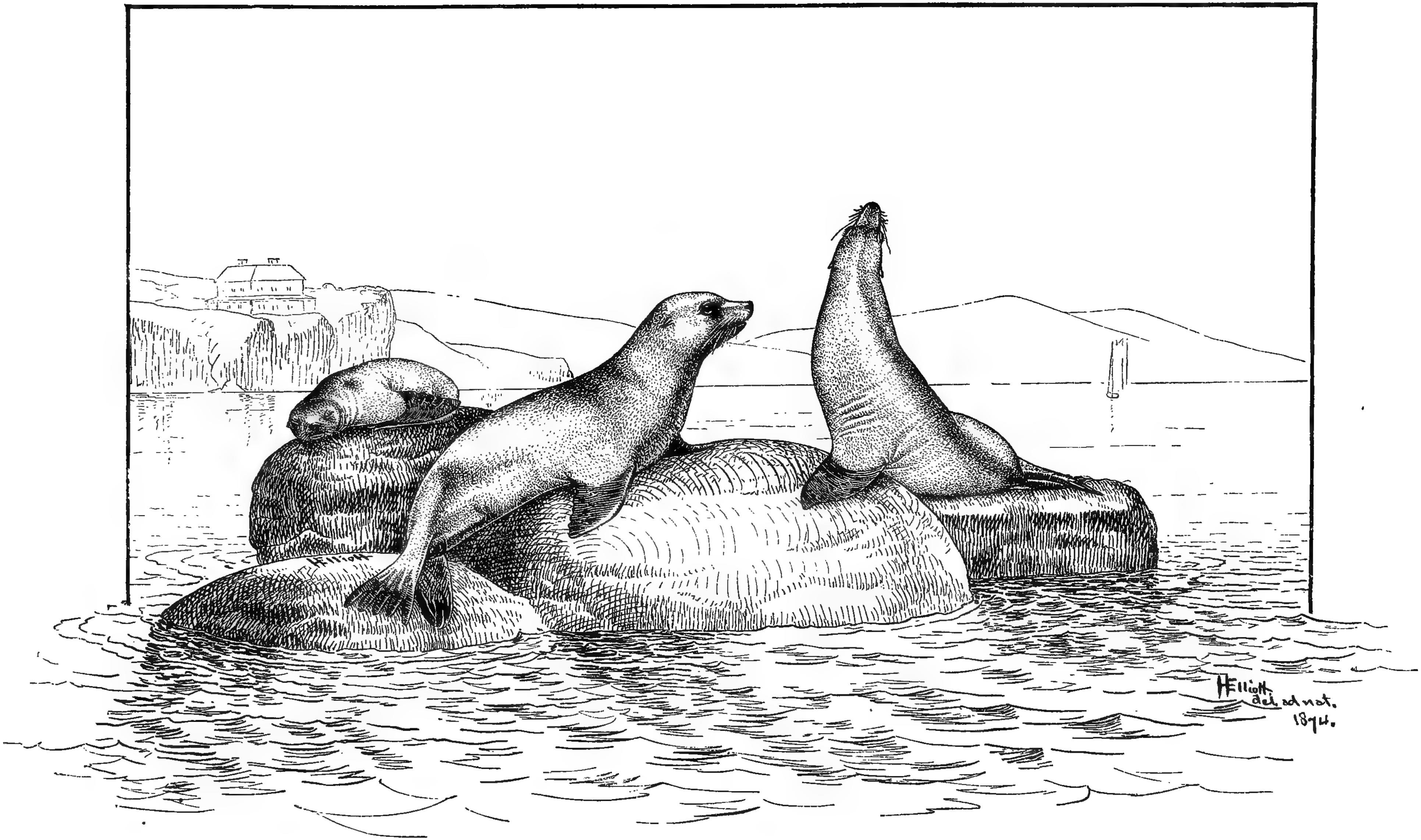
it, early in May. Some of these super-fleshy fur-seal males look as though they were from 600 to 700 pounds weight, while I have seen several sea-lion bulls that actually appeared equal to turning the scales at 1,500 pounds avoirdupois. Those fur-seals which I did weigh in July, 1873, and September, 1872, were not at all extra fleshy, and consequently do not give a fair return for these examples above referred to.

*It will be noticed that I have made no especial spacing or reservation on my maps for the sea-lions at Northeast point, on St. Paul island, but have included them solidly within the lines of the breeding fur-seals. The reason why I omit these lines of exact limitation is due to the fact that they laid in, along the water's edge at intervals, so closely with the fur-seals, and in such apparent good fellowship, that I could not observe any sharp demarkation between them; except only the irregular, confused patches of their bright golden coats in contrast with the dull rusty dress of *Callorhinus*. The *Eumetopias*, here, where it was breeding, never lay far back from the surf, but always close to its high-water washings; in this method, I should judge, about 12,000 to 15,000 of them occupy little strips of Novastoshnah and Seevitchie Kammin; being the only rookery spots on the Pribylov islands where they breed in close juxtaposition with the fur-seals. Then, there is a sea-lion rookery on St. George, all to itself, under the high mural walls just north of the Garden cove sand beech, where I estimate another 4,000 to 5,000 of these animals annually haul out and breed. Very likely my allowance of 12,000 to 15,000 sea-lions on St. Paul is too large, and 10,000 is a better figure of their numerical expression. My published estimates of 25,000 on the two islands, in 1874, I feel now are larger than the facts allow.

As might be inferred, the sea-lions at Novastoshnah do not allow the fur-seals to disturb them, nor do they in turn ever appear to annoy or drive their physically weaker brethren; they seem to wear an air of perfect unconcern for each other; although the fur-seal bulls, I observed, were never caught lounging over the narrow littoral margins of the sea-lions' breeding-grounds; but meekly bowed their heads and scuttled across, wholly beneath the notice of the huge "seevitchie".

Why the sea-lion should be relatively so scant in numbers over the great extent of the large geographical area wherein it is found, is perplexing to me, for, it is physically as active and much more powerful than the fur-seal; perhaps, this increased bulk of body deters it from feeding as successfully as its more lithesome cousin does. I should estimate that the full-grown sea-lion bull, after it leaves the islands at the end of the breeding-season, until it reappears for the next, would require at least 100 pounds of fish per diem, while the females and younger males would crave and consume from 40 to 60 pounds of such food every twenty-four hours.


H Elliott del. ad nat. 1874.
Yearling.
Female.

THE BLACK SEA-LION.

(Zalophus Gillespii.)

**The author's life-studies of a four-year-old male, an adult female, and a yearling, at San Francisco, Cal. (Woodward's Gardens).**

The young promptly deserted.—You will notice that if you disturb and drive off any portion of the rookery, by walking up in plain sight, those nearest to you will take to the water, instantly swim out to a distance of fifty yards or so, leaving their pups behind, helplessly sprawled around and about the rocks at your feet. Huddled up all together in the water in two or three packs or squads, the startled parents hold their heads and necks high out of the sea, peering keenly at you, and all roaring in an incessant concert, making an orchestra to which those deep sonorous tones of the organ in that great Mormon tabernacle, at Salt Lake City, constitute the fittest and most adequate resemblance.

Movements when undisturbed on rookery.—You will witness an endless tide of these animals traveling to the water, and a steady stream of their kind coming out, if you but keep in retirement and do not disturb them. When they first issue from the surf they are a dark chocolate-brown and black, and glisten; but, as their coats dry off, the color becomes an iron-gray, passing into a bright golden rufous, which covers the entire body alike—shades of darker brown on the pectoral patches and sterno-pectoral region. After getting entirely dry, they seem to grow exceedingly uneasy, and act as though oppressed by heat, until they plunge back into the sea, never staying out, as the fur-seal does, day after day and week after week. The females and the young males frolic in and out of the water, over rocks awash, incessantly one with another, just as puppies play upon the geeen sward; and, when weary, stretch themselves out in any attitude that will fit the character of the rock, or the lava-shingle upon which they may happen to be resting; the movements of their supple spines, and ball-and-socket joint attachments, permit of the most extraordinary contortions of the trunk and limbs, all of which, no matter how distressing to your eyes, they seem actually to relish. But, the old battle-scarred bulls of the harem stand or lie at their positions day and night without leaving them, except to take a short bath when the coast is clear, until the end of the season.

Method of swimming.—When swimming, the sea-lion only lifts its head above the surface long enough to take a deep breath, and then drops down a few feet below, and propels itself, for about ten or fifteen minutes, like a cigar-steamer, at the rate of 6 or 7 knots, if undisturbed; but, if chased or alarmed, it seems fairly to fly under water, and can easily maintain for a long time a speed of 14 or 15 miles per hour. Like the fur-seal, its propulsion through the water is the work entirely of the powerful fore-flippers, which are simultaneously struck out, both together, and back against the water, feathering forward again to repeat, while the hind-flippers are simply used as a rudder oar in deflecting the ever-varying swift and abrupt course of the animal. On land the hind-flippers are employed just as a dog does his feet in scratching fleas—the long peculiar toe-nails thereof seeming to reach and comb the spots affected by vermin, which annoys them, as it does the fur-seal to a great extent, and causes them both to enjoy a protracted scratching.

Again, both genera, *Callorhinus* and *Eumetopias*, are happiest when the surf is strongest and wildest; just in proportion to the fury of a gale, so much the greater joy and animation of these animals. They delight in riding on the crests of each dissolving breaker up to the moment when it fairly foams over the iron-bound rocks; at that instant they disappear like phantoms beneath the creamy surge to reappear on the crown of the next mighty billow.

When landing, they always ride on the surf, so to speak, to the objective point, and it is marvelous to see with what remarkable agility they will worm themselves up steep, rocky landings, having an inclination greater than 45°, to those bluff tops above, which have an almost perpendicular drop to water.

The value of the sea-lion, commercially: Shedding.—As the sea-lion is without fur, its skin has little or no commercial value.* The hair is short, an inch to an inch and a half in length, being longest over the nape of the neck; straight, and somewhat coarse, varying in color as the season comes and goes. For instance, when the *Eumetopias* makes its first appearance in the spring and dries out after landing, it has then a light brownish rufous-tint, with darker shades back and under the fore flippers and on the abdomen; by the expiration of a month or six weeks, about the 15th of June generally, this coat will then be weathered into a glossy rufous, or ocher; and this is soon before shedding, which sets in by the middle of August, or a little earlier. After the new coat has fairly grown, and just before the animal leaves the island for the sea in November, it is a light sepia or vandyke brown, with deeper shades, almost black, upon the abdomen. The cows after shedding never color up so darkly as the bulls; but when they come back to the land next year they return identically the same in tinting; so that the eye, in glancing over a sea-lion rookery during June and July, cannot discern any dissimilarity in color, at all noteworthy, existing between the coats of the bulls and the cows; and also the young males and yearlings appear in the same golden-brown and ocher, with here and there an animal which is noted as being spotted somewhat like a leopard, the yellow rufous-ground predominating, with patches of dark-brown, blotched, and mottled irregularly interspersed over the anterior regions down to those posterior. I have never seen any of the old bulls or cows thus mottled, and this is likely due to some irregularity of shedding in the younger animals; for I have not noticed it early in the season, and it seems to fairly fade away so as not to be discerned on the same animal at the close of its summer solstice. Many of the old bulls have a grizzled or "salt and pepper" look during the shedding period, which is from the 10th of August up to the 10th or 20th of November. The pups, when born, are a rich dark-chestnut brown; this coat they shed in October, and take one much lighter in its stead; still darker, however, than their parents.

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*The sea-lion and hair-seals of Bering sea, having no commercial value in the eyes of civilized men, have not been subjects of interest enough to the pioneers of those waters for mention in particular; such record, for instance, as that given of the walrus, the sea-otter, and the fur-seal. Steller was the first to draw the line clearly between them and seals in general, especially defining their separation from the fur-seal; still, his description is far from being definite or satisfactory in the light of our present knowledge of the animal.

In the South Pacific and Atlantic the sea-lion has been curiously confounded by many of the earliest writers with the sea-elephant, *Macrorhinus leoninus*, and its reference is inextricably entangled with the fur-seal at the Falklands, Kerguelen's Land, and the Crozettes. The proboscidean seal, however, seems to be the only pinniped which visits the Antarctic continent; but that is a mere inference of mine, because so little is known of those ice-bound coasts, and Wilkes, who gives the only record made of the subject, saw no other animal there save this one.

ARRIVAL AT AND DEPARTURE FROM THE PRIBYLOV ISLANDS.—The time of arrival at, stay on, and departure from, the islands, is about the same as that which I have recorded as characteristic of the fur-seal; but, if the winter is an open, mild one, some of the sea-lions will frequently be seen about the shores during the whole year; and then the natives occasionally shoot them, long after the fur-seals have entirely disappeared.

GREAT RANGE OF SEA-LION: IT IS NOT RESTRICTED TO THE SEAL-ISLANDS.—Again, it does not confine its landing to the Pribylov islands alone, as the fur-seal unquestionably does, with reference to such terrestrial location in our own country. On the contrary, it is a frequent visitor to almost all of the Aleutian islands, and ranges, as I have said before, over the mainland coast of Alaska, south of Bristol bay, and about the Siberian shores to the westward, throughout the Kuriles and the Japanese northern waters.*

DIFFERENCES BETWEEN ZALOPHUS AND EUMETOPIAS.—When I first returned, in 1873, from the seal-islands, those authors, whose conclusions were accepted prior to my studies there, had agreed in declaring that the sea-lion, so common off the port of San Francisco, was the same animal also common in Alaska, and the Pribylov islands in especial; but my drawings from life, and studies, quickly pointed out the error, for it was seen that the creature most familiar to the Californians was an entirely different animal from my subject of study on the seal-islands. In other words, while scattered examples of the *Eumetopias* were, and are, unquestionably about and off the harbor of San Francisco, yet nine-tenths of the sea-lions there observed were a different animal—they were the *Zalophus Californianus*. This *Zalophus* is not much more than half the size of *Eumetopias*, relatively; it has the large, round, soft eye of the fur-seal, and the more attenuated Newfoundland-dog-like muzzle; and it never roars, but breaks out incessantly with a *honk*, *honk*, *honking* bark, or howl.

No example of *Zalophus* has ever been observed in the waters of Bering sea, nor do I believe that it goes northward of Cape Flattery.

EARLY DISPOSITION OF SEA-LIONS ON ST. GEORGE.—According to the natives of St. George, some fifty or sixty years ago the *Eumetopias* held almost exclusive possession of the island, being there in great numbers, some two or three hundred thousand strong; and they aver, also, that the fur-seals then were barely permitted to land by these animals, and in no great number; therefore, they say, that they were directed by the Russians (that is, their ancestry) to hunt and worry the sea-lions off from the island, the result being that, as the sea-lions left, the fur-seals came, so that to-day they occupy nearly the same ground which the *Eumetopias* alone covered sixty years ago. I call attention to this statement of the people because it is, or seems to be, corroborated in the notes of a French naturalist and traveler, who, in his description of the island of St. George, which he visited fifty years ago, makes substantially the same representation;† but directly to the contrary, and showing how difficult it is to trace these faint records of the facts, I give the account as rendered by Bishop Veniaminov, which I translate and place in my appendix. The reader will notice that the Russian author differs entirely from the natives and the Frenchman; for, by his tabulation, almost as many fur-seals were taken on St. George during the first years of occupation as were taken from St. Paul; and according to these figures, again continued, the

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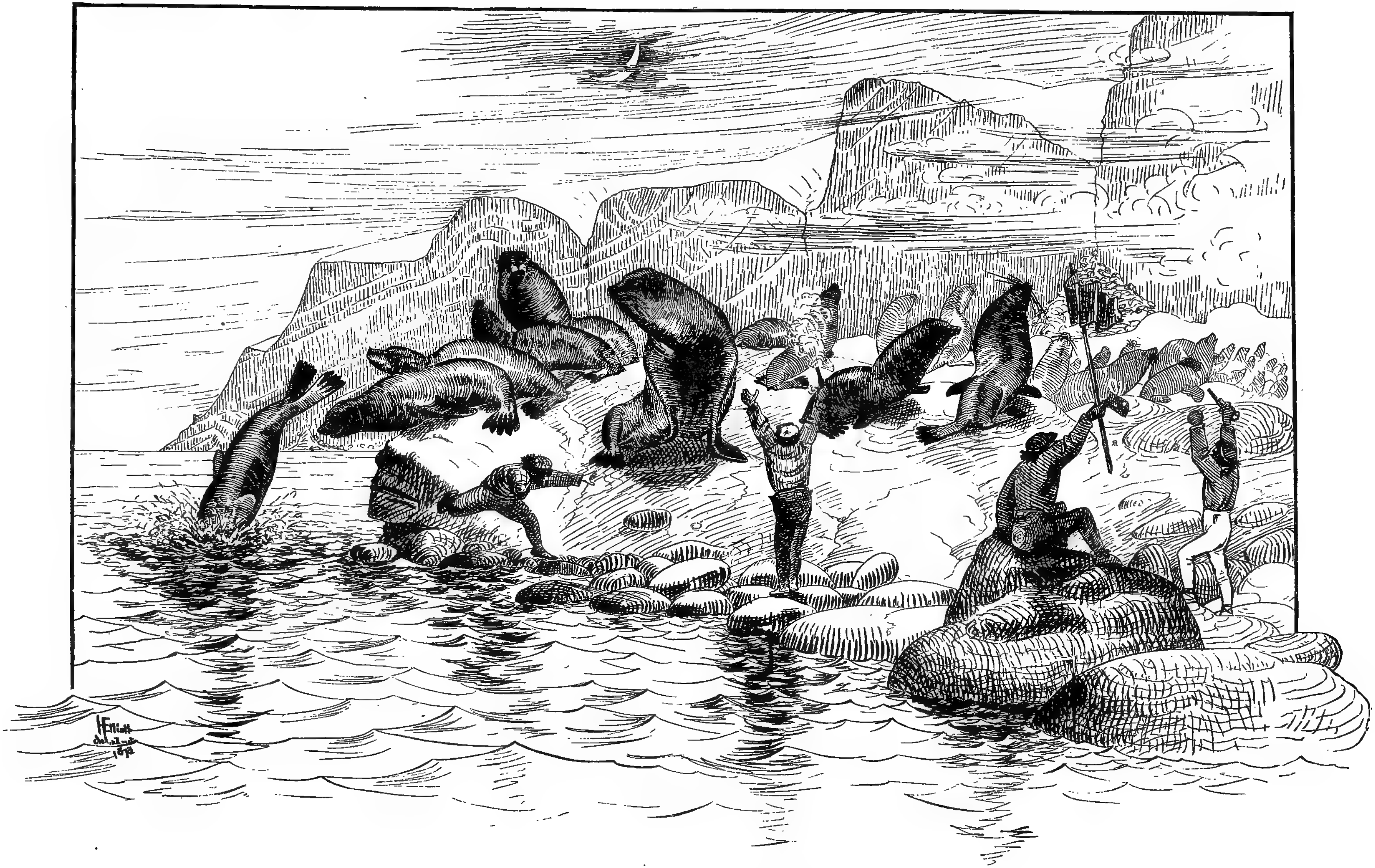
* The winter of 1872–'73, which I passed on the Pribylov islands, was so rigorous that the shores were ice-bound and the sea covered with floes from January until the 28th of May; hence, I did not have an opportunity of seeing, for myself, whether the sea-lion remains about its breeding-grounds there throughout that period. The natives say that a few of them, when the sea is open, are always to be found, at any day during the winter and early spring, hauled out at Northeast point, on Otter island, and around St. George. They are, in my opinion, correct; and, being in such small numbers, the "seevitchie" undoubtedly find enough subsistence in local crustacea, pisces, and other food. The natives, also, further stated that none of the sea-lions which we observe on the islands during the breeding-season leave the waters of Bering sea from the date of their birth to the time of their death. I am also inclined to agree with this proposition, as a general rule, though it would be strange if Pribylov sea-lions did not occasionally slip into the North Pacific, through and below the Aleutian chain, a short distance, even to traveling as far to the eastward as Cook's inlet. *Eumetopias Stelleri* is well known to breed at many places between Attoo and Kadiak islands. I did not see it at St. Matthew, however, and I do not think it has ever bred there, although this island is only 200 miles away to the northward of the seal-islands—too many polar bears. Whalers speak of having shot it in the ice-packs in a much higher latitude, nevertheless, than that of St. Matthew. I can find no record of its breeding anywhere on the islands or mainland coast of Alaska north of the 57th parallel or south of the 53d parallel of north latitude. It is common on the coast of Kamtchatka, the Kurile islands, and the Commander group, in Russian waters.

There are vague and ill-digested rumors of finding *Eumetopias* on the shores of Prince of Wales and Queen Charlotte islands in breeding-rookeries; I doubt it. If it were so, it would be authoritatively known by this time. We do find it in small numbers on the Farralone rocks, off the entrance to the harbor of San Francisco, where it breeds in company with, though sexually apart from, an overwhelming majority of *Zalophus;* and it is creditably reported as breeding again to the southward, on the Santa Barbara, Guadaloupe, and other islands of southern and Lower California, consorting there, as on the Farralones, with an infinitely larger number of the lesser-bodied *Zalophus*.

† Choris: *Voyage Pittoresque autour du Monde*.

Plate XVIII.



SPRINGING THE ALARM.

Natives capturing Sea-lions (Eumetopias Stelleri), Pribylov Islands.

catch never has been less than one-sixth of the number of the quota on the larger island. Thus the two authors seem to stand each other off, and I am thrown back to the ground itself for an answer, which I am inclined to believe will be correct, when I say that the island of St. George never was resorted to in any great numbers by the fur-seal, and that the sea-lion was the dominant animal there until disturbed and driven from its breeding-grounds by the people, who naturally sought to encourage its more valuable relative by so doing, and made room, in this way, for it.

## 16. CAPTURE OF THE SEA-LION.

**The driving on St. Paul.**—The great intrinsic value to the domestic service of the Aleuts rendered by the flesh, fat, and sinews of this animal, together with its skin, arouses the natives of St. Paul and St. George, who annually make a drive of "seevitchie", by which they capture, on the former island, two or three hundred, as the case may be. On St. George, driving is so much more difficult, owing to the character of the land itself, that very few are secured there; but, at St. Paul unexceptional advantages are found on Northeast point for the capture of these shy and wary brutes. The natives of St. Paul, therefore, are depended upon to secure the necessary number of skins required by both islands for their boats, and other purposes. This capture of the sea-lion is the only serious business which the people have on St. Paul; it is a labor of great care, industry, and some physical risk for the Aleutian hunters.*

By reference to my sketch-map of Northeast point rookery, the observer will notice a peculiar neck or boot-shaped point, which I have designated as Sea Lion neck. This area is a spot upon which a large number of sea-lions are always to be found during the season. As they are so shy, and sure to take to water upon the appearance or presence of man near by, the natives adopt this plan:

**Preparations for the drive.**—Along by the middle or end of September, as late sometimes as November, and after the fur-seal rookeries have broken up for the season, fifteen or twenty of the very best men in the village are selected, by one of their chiefs, for a sea-lion rendezvous at Northeast point; they go up there with their provisions, tea and sugar, and blankets, and make themselves at home in the *barrabbora* and houses, which I have located on the sketch-map of Novastoshnah, prepared to stay, if necessary, a month, or until they shall get the whole drove together of two or three hundred sea-lions.

**Methods of driving sea-lions.**—The "seevitchie", as the natives call these animals, cannot be approached successfully by daylight, so these hunters lie by, in this house of Webster's, until a favorable night comes along—one in which the moon is partially obscured by drifting clouds, and the wind blows over them from the rookery where the sea-lions lie; such an opportunity being afforded, they step down to the beach at low water, and proceed to creep on all-fours over the surf-beaten sand and bowlders up to the dozing herd, and between it and the high-water mark where it rests. In this way, a small body of natives, crawling along in Indian file, may pass unnoticed by the sea-lion sentries, which doubtless, in the uncertain light see, but confound, the forms of their human enemies with those of seals. When the creeping Aleuts have all reached the strip of beach that is left bare by ebb-tide, which is between the water and the unsuspecting animals, at a given signal from their crawling leader they all at once leap to their feet, shout, yell, brandishing their arms, and firing off pistols, while the astonished and terrified lions roar and flounder in all directions.

**Behavior of the sea-lions when surprised.**—If, at the moment of surprise, the brutes are sleeping with their heads pointed toward the water, they rise up in fright and charge straight on in that way directly over the men themselves, but if their heads have been resting at this instant pointed landward, up they rise and follow that course just as desperately, and nothing will turn them either one way or the other; those sea-lions which charged for the water are lost, of course;† but the natives promptly follow up the land-turned animal with a rare combination of horrible noises and demoniacal gesticulations, until the first frenzied spurt and exertions of the terrified creatures so completely exhaust them that they fall panting, gasping, prone upon the earth, extended in spite of their huge bulk and powerful muscles, helpless, and at the mercy of their cunning captors; who, however, instead of slaying them as they lie, rudely rouse them up again, and urge the herd along to the house, in which they have been keeping this watch during the several days past.

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* A curious, though doubtless authentic, story was told me, in this connection, illustrative of the strength and energy of the sea-lion bull when at bay. Many years ago (1847), on St. Paul island, a drive of September sea-lions was brought down to the village in the usual style; but when the natives assembled to kill them, on account of the great scarcity, at that time, of powder on the island, it was voted best to lance the old males also, as well as the females, rather than shoot them in the customary style. The people had hardly set to work at the task when one of their number, a small, elderly, though tough, able-bodied Aleut, while thrusting his lance into the "life" of a large bull, was suddenly seen to fall on his back, directly under the huge brute's head; instantly the powerful jaws of the "seevitchie" closed upon the waistband, apparently, of the native, and, lifting the yelling man aloft, as a cat would a kitten, the sea-lion shook and threw him high into the air, away over the heads of his associates, who rushed up to the rescue, and quickly destroyed the animal by a dozen furious spear-thrusts, yet death did not loosen its clenched jaws, in which were the tattered fragments of Ivan's clothing.

† The natives appreciate this peculiarity of the sea-lion very keenly, for good and sufficient cause, though none of them have ever been badly injured in driving, or "springing the alarm". I camped with them for six successive nights in September, 1872, in order to witness the whole procedure. During the several drives made while I was with them, I saw but one exciting incident; everything went off in the orthodox manner, as described in the text above. The exceptional incident occurred during the first drive of the first night, and rendered the natives so cautious that it was not repeated. When the alarm was sprung, old Luka Mandrigan was leading the van, and at that moment, down upon him, despite his wildly gesticulating arms and vociferous yelling, came a squad of bull "seevitchie". The native saw instantly that they were pointed for the water, and, in his sound sense, turned to run from under, his tarbosar slipped upon a slimy rock awash, he fell flat as a flounder, just as a dozen or more big sea-lions plunged over and on to his prostrate form in the shallow water. In less time than this can be written, the heavy pinnipeds had disappeared, while the bullet-like head of old Luka was quickly raised, and he trotted back to us with an alternation of mirth and chagrin in his voice; he was not hurt in the least.

THE "CORRAL".—Here, at this point, is a curious stage in the proceedings. The natives drive up to that "Webster's" house the 25 or 30 or 40 sea-lions, as the case may be, which they have just captured—they seldom get more at any one time—and keep them in a corral or pen right by the barrabbora, on the flattened surface of a sand-ridge, in the following comical manner: when they have huddled up the "pod", they thrust stakes down around it at intervals of 10 to 30 feet, to which strips of cotton cloth are fluttering as flags, and a line or two of sinew-rope, or thong of hide, is strung from pole to pole around the group, making a circular cage, as it were; within this flimsy circuit the stupid sea-lions are securely imprisoned; and though they are incessantly watched by two or three men, the whole period of caging and penning which I observed, extending over nine or ten days and nights, passed without a single effort being made by the "seevitchie" to break out of their flimsy bonds; and it was passed by these animals not in stupid quiescence, but in alert watchfulness; writhing, twisting, turning one upon and over the other.

By this method of procedure, after the lapse usually of two or three weeks, a succession of favorable nights will have occurred; and the natives secure their full quota, which, as I have said before, is expressed by a herd of two or three hundred of these animals.

PREPARATION AND METHOD OF DRIVING TO THE VILLAGE.—The complement filled, the natives prepare to drive their herd back to the village, over the grassy and mossy uplands and intervening stretches of sand-dune tracts, fully eleven miles, preferring to take the trouble of prodding the clumsy brutes, wayward and obstinate as they are, rather than to pack their heavy hides in and out of boats; making, in this way, each sea-lion carry its own skin and blubber down to the doors of their houses in the village. If the weather is normally wet and cold, this drive, or caravan of sea-lions, can be driven to the point of destination in five or six days; but, should it be dry and warmer than usual, three weeks, and even longer, will elapse before the circuit is traversed.

When the drive is started the natives gather around the herd on all sides, save the opening which they leave pointing to the direction in which they desire the animals to travel; and, in this manner they escort and urge the "seevitchie" on to their final resting and slaughter near the village. The young lions and the females being much lighter than the males, less laden with fat or blubber, take the lead; for they travel twice and thrice as easy and as fast as the old males; which, by reason of their immense avoirdupois, are incapable of moving ahead more than a few rods at a time, when they are completely checked by sheer loss of breath, though the vanguard of the females allures them strongly on; but, when an old sea-lion feels his wind coming short, he is sure to stop, sullenly and surlily turning upon the drivers, not to move again until his lungs are clear.

In this method and manner of conduction the natives stretch the herd out in extended file, or, as a caravan, over the line of march, and, as the old bulls pause to savagely survey the field and catch their breath, showing their wicked teeth, the drivers have to exercise every art and all their ingenuity in arousing them to fresh efforts. This they do by clapping boards and bones together, firing fusees, and waving flags; and, of late, and best of all, the blue gingham umbrella repeatedly opened and closed in the face of an old bull has been a more effective starter than all the other known artifices or savage expedients of the natives.*

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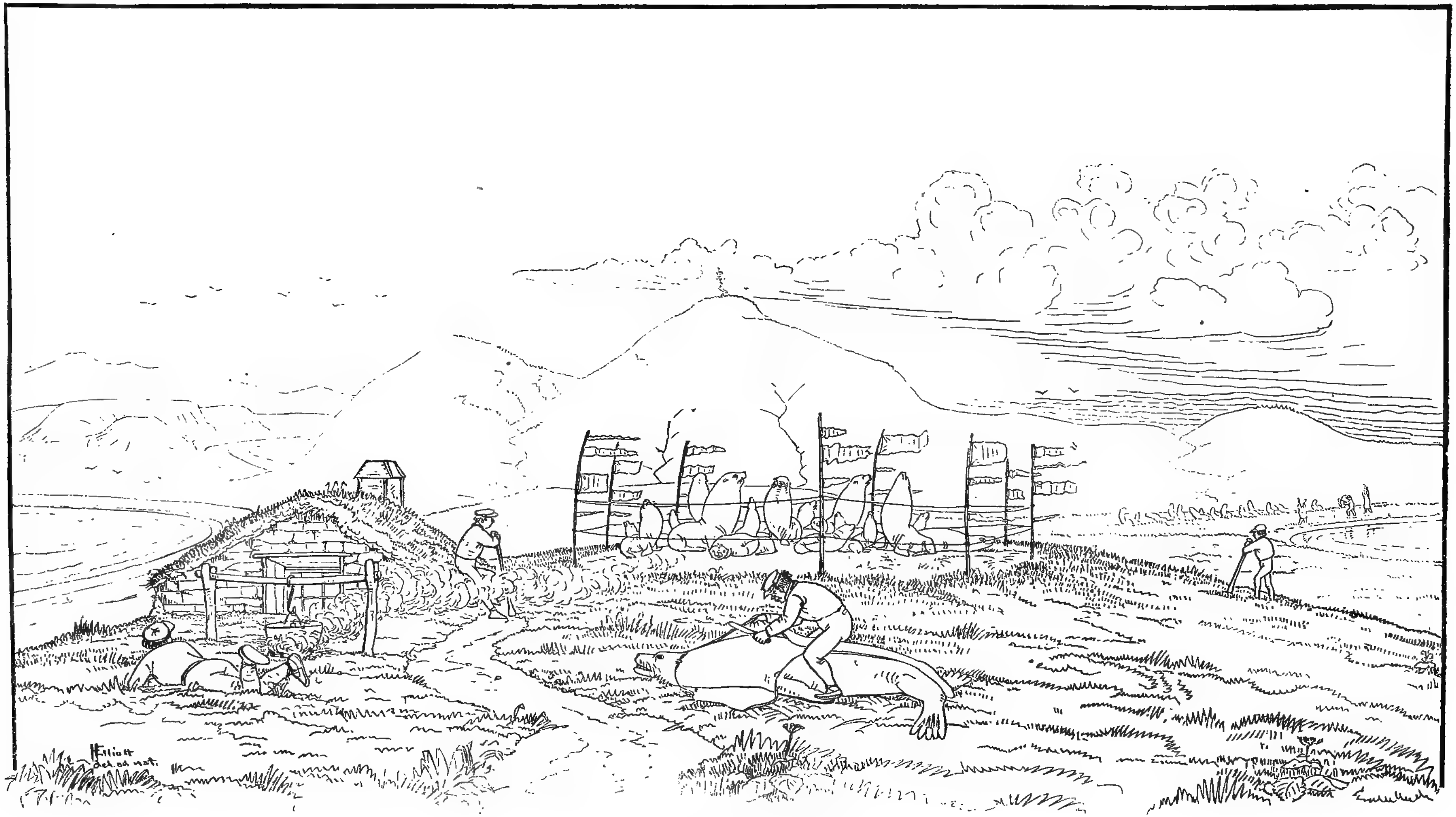
* The curious behavior of the sea-lions in the Big lake, when they are *en route* and driven from Novastoshnah to the village, deserves mention. After the drove gets over the sand-dunes and beach between Webster's house and the extreme northeastern head of the lake, a halt is called and the drove "penned" on the bank there; then, when the sea-lions are well rested, they are started up, and pell-mell into the water; two natives, in a bidarka, keep them from turning out from shore into the broad bosom of Meesulkmahnee, while another bidarka paddles in their rear and follows their swift passage right down the eastern shore; in this method of procedure, the drive carries itself nearly two miles by water in less than twenty minutes from the time the sea-lions are first turned in, at the north end, to the moment when they are driven out at the southeastern elbow of the Big pond. The shallowness of the water here accounts probably for the strange failure of the sea-lions to regain their liberty, and so retards their swimming as to enable the bidarka, with two men, to keep abreast of their leaders easily, as they plunge ahead; and, "as one goes, so go all sheep," it is not necessary to pay attention to those which straggle behind in the wake; they are stirred up by the second bidarka, and none make the least attempt to diverge from the track which the swifter mark out in advance; if they did, they could escape "scot-free" in any one of the twenty minutes of this aquatic passage.

By consulting the map of St. Paul, it will be observed that in a direct line between the village and Northeast point there are quite a number of small lakes, including this large one of Meesulkmahnee; into all of these ponds the sea-lion drove is successively driven; this interposition of fresh water at such frequent intervals serves to shorten the time of the journey fully ten days in warmish weather, and at least four or five under the best of climatic conditions.

This track between Webster's house and the village killing-grounds is strewn with the bones of *Eumetopias*. They will drop in their tracks, now and then, even when carefully driven, from cerebral or spinal congestion principally; and when they are hurried the mortality *en route* is very great. The natives when driving them, keep them going day and night alike, but give them frequent resting spells after every spurt ahead. The old bulls flounder along for a hundred yards or so, then sullenly halt to regain breath, five or ten minutes being allowed them, then they are stirred up again, and so on, hour after hour, until the tedious transit is completed.

The younger sea-lions, and the cows which are in the drove, carry themselves easily far ahead of the bulls, and being thus always in the van, serve unconsciously to stimulate and coax the heavy males to travel. Otherwise, I do not believe that a band of old bulls, exclusively, could be driven down over this long road successfully.



THE SEA-LION PEN.

Natives corralling Sea-lions at the Barrabora near Webster's House, under Cross Hill, Northeast Point, St. Paul Island.

**Arrival of the drive at the village.**—The procession of sea-lions managed in this strange manner day and night—for the natives never let up—is finally brought to rest within a stone's throw of the village, which has pleasurably anticipated, for days, and for weeks, its arrival, and rejoices in its appearance. The men get out their old rifles and large sea-lion lances, and sharpen their knives, while the women look well to their oil-pouches, and repair to the field of slaughter with meat-baskets on their heads.

**Manner in which the killing is conducted.**—No attempt is made, even by the boldest Aleut, to destroy an old bull sea-lion by spearing the enraged and powerful beast, which, now familiar with man and conscious as it were of his puny strength, would seize the lance between its jaws and shake it from the hands of the stoutest one in a moment. Recourse is had to the rifle. The herd is started up the sloping flanks of the Black Bluff hill-side; the females speedily take the front, while the old males hang behind. Then the marksmen, walking up to within a few paces of each animal, deliberately draw their sights upon their heads and shoot them just between the eye and the ear. The old males thus destroyed, the cows and females are in turn surrounded by the natives, who, dropping their rifles, thrust the heavy iron lances into their trembling bodies at a point behind the fore-flippers, touching the heart with a single lunge. It is an unparalleled spectacle, dreadfully cruel and bloody.*

## 17. ECONOMIC USES OF THE SEA-LION.

**High appreciation of the sea-lion by the Aleuts.**—Although the sea-lion has little or no commercial value for us, yet to the service of the natives themselves, who live all along the Bering sea coast of Alaska, Kamtchatka, and the Kuriles, it is invaluable; they set great store by it. It supplies them with its hide, moustaches, flesh, fat, sinews, and intestines, which they make up into as many necessary garments, dishes, etc. They have abundant reason to treasure its skin highly, for it is the covering to their neat *bidarkies* and *bidarrahs*, the former being the small *kyak* of Bering sea, while the latter is a boat of all work, exploration, and transportation. These skins are unhaired by sweating in a pile; then they are deftly sewed and carefully stretched over a light keel and frame of wood, making a perfectly water-tight boat that will stand, uninjured, the softening influence of water for a day or two at a time, if properly air-dried and oiled. After being used during the day, these skin boats are always drawn out on the beach, turned bottom-side up and air-dried during the night; in this way made ready for employment again on the morrow.†

**Value of the intestines.**—A peculiar value is attached to the intestines of the sea-lion, which, after skinning, are distended with air and allowed to dry in that shape; then they are cut into ribbons and sewed strongly together into that most characteristic water-proof garment of the world, known as the "kamlaika";* which, while being fully as water-proof as India rubber, has far greater strength, and is never affected by grease and oil. It is also transparent in its fitting over dark clothes. The sea-lions' throats are served in a similar manner, and, when cured, are made into boot tops, which are in turn soled by the tough skin that composes the palms of this animal's fore-flippers.

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* This surrounding of the cows, is, perhaps, the strangest procedure on the islands. To fully appreciate the subject, the reader must first call to his mind's eye the fact that these female sea-lions, though small beside the males, are yet large animals; seven and eight feet long, and weighing, each, as much as any four or five average men. But, in spite of their strength and agility, fifteen or twenty Aleuts, with a rough, iron-tipped lance in their hands, will surround a drove of 50 or 150 of them by forming a noisy, gesticulating circle, gradually closing up, man to man, until the sea-lions are literally piled in a writhing, squirming, struggling mass, one above the other, three or four deep, heads, flippers, bellies, backs all so woven and interwoven in this panic-stricken heap of terrified creatures, that it defies adequate description. The natives spear the cows on top, which, as they sink in death, are mounted in turn by the live animals underneath; these meet the deadly lance, in order, and so on until the whole herd is quiet and stilled in the fatal ebbing of their heart's blood.

† When slowly sketching, by measurements, the outlines of a fine adult bull sea-lion which the ball from Booterin's rifle had just destroyed, an old "starooka" came up abruptly; not seeming to see me, she deliberately threw down a large, greasy, skin meat-bag, and whipping out a knife, went to work on my specimen. Curiosity prompted me to keep still in spite of the first sensations of annoyance, so that I might watch her choice and use of the animal's carcass. She first removed the skin, being actively aided in this operation by an uncouth boy; she then cut off the palms to both fore-flippers; the boy at the same time pulled out the moustache bristles; she then cut out its gullet, from the glottis to its junction with the stomach, carefully divested it of all fleshy attachments, and fat; she then cut out the stomach itself, and turned it inside out, carelessly scraping the gastric walls free of copious biliary secretions, the inevitable bunch of *ascaris;* she then told the boy to take hold of the duodenum end of the small intestine, and as he walked away with it she rapidly cleared it of its attachments, so that it was thus uncoiled to its full length of at least 60 feet; then she severed it, and then it was recoiled by the "melchiska", and laid up with the other members just removed, except the skin, which she had nothing more to do with. She then cut out the liver and ate several large pieces of that workhouse of the blood before dropping it into the meat-pouch. She then raked up several handfuls of the "leaf-lard", or hard, white fat that is found in moderate quantity around the viscera of all these pinnipeds, which she also dumped into the flesh-bag; she then drew her knife through the large heart, but did not touch it otherwise, looking at it intently, however, as it still quivered in unison with the warm flesh of the whole carcass. She and the boy then poked their fingers into the tumid lobes of the immense lungs, cutting out portions of them only, which were also put into the grimy pouch aforesaid; then she secured the gall-bladder and slipped it into a small yeast-powder tin, which was produced by the urchin; then she finished her economical dissection by cutting the sinews out of the back in unbroken bulk from the cervical vertebra to the sacrum; all these were stuffed into that skin bag, which she threw on her back and supported it by a band over her head; she then trudged back to the barrabkie from whence she sallied a short hour ago, like an old vulture to the slaughter; she made the following disposition of its contents: The palms were used to sole a pair of tarbosars, or native boots, of which, the uppers and knee tops were made of the gullets—one sea-lion gullet to each boot top; the stomach was carefully blown up, and left to dry on the barrabkie roof, eventually to be filled with oil rendered from sea-lion or fur-seal blubber. The small intestine was carefully injected with water and cleansed, then distended with air, and pegged out between two stakes, 60 feet apart, with little cross-slats here and there between to keep it clear of the ground. When it is thoroughly dry, it is ripped up in a straight line with its length and pressed out into a broad band of parchment gut, which she cuts up and uses in making a water-proof "kamlaikie", sewing it with those sinews taken from the back. The liver, leaf-lard, and lobes of the lungs were eaten without further cooking, and the little gall-bag was for some use in poulticing a scrofulous sore. The moustache-

STOMACH-WALLS USED AS OIL-POUCHES.—Around the natives' houses, on St. Paul and St. George, constantly appear curious objects which, to the unaccustomed eye, resemble overgrown gourds or enormous calabashes with attenuated necks; an examination proves them to be the dried, distended stomach-walls of the sea-lion, filled with its oil; which, unlike the offensive blubber of the fur-seal, boils out clear and inodorous from its fat. The flesh of an old sea-lion, while not very palatable, is tasteless and dry; but the meat of a yearling is very much like veal, and when properly cooked I think it is just as good; but the superiority of the sea-lion meat over that of the fur-seal is decidedly marked. It requires some skill, in the *cuisine*, ere sausage and steaks of the *Callorhinus* are accepted on the table; while it does not, however, require much art, experience, or patience for the cook to serve up the juicy ribs of a young sea-lion so that the most fastidious palate will fail to relish it.

CARING FOR THE FLESH.—The carcass of the sea-lion, after it is stripped of its hide, and disemboweled, is hung up in cool weather by its hind-flippers, over a rude wooden frame or "labaas", as the natives call it, where, together with many more bodies of fur-seals treated in the same manner, it serves from November until the following season of May, as the meat-house of the Aleut on St. Paul and St. George. Exposed in this manner to the open weather, the natives keep their seal-meat almost any length of time, in winter, for use; and, like our old duck and bird hunters, they say they prefer to have the meat tainted rather than fresh, declaring that it is most tender and toothsome when decidedly "loud".

CHINESE DEMAND FOR WHISKERS.—The tough, elastic moustache bristles of the sea-lion are objects of great commercial activity by the Chinese, who prize them highly for pickers to their opium pipes, and several ceremonies peculiar to their joss houses. These lip bristles of the fur-seal are usually too small and too elastic for this service. The natives, however, always carefully pluck them out of the *Eumetopias*, and get their full value in exchange.

DIET OF THE SEA-LION.—The sea-lion also, as in the case of the fur-seal, is a fish-eater, pure and simple, though he, like the latter, occasionally varies his diet by consuming a limited amount of juicy sea-weed fronds, and tender marine crustaceans; but he hunts no animal whatever for food, nor does he ever molest, up here, the sea-fowl that incessantly hovers over his head, or sits in flocks without fear on the surface of the waters around him. He, like the *Callorhinus*, is, without question, a mighty fisherman, familiar with every submarine haunt of his piscatorial prey; and, like his cousin, rejects the heads of all those fish which have hard horny mouths, or are filled with teeth or bony plates.†

## G. THE WALRUS OF BERING SEA (ODOBÆNUS OBESUS).

### 18. LIFE-HISTORY OF THE WALRUS.

VOLUMINOUS WRITINGS RELATIVE TO THE WALRUS.—When I first set out for the seal-islands, from the Smithsonian Institution, in 1872, I fancied that, as far as the walrus was concerned, I should have nothing to learn, because of the literature on that subject which I had read, from the Congressional Library, viz:

The curious histories written by Olaus Magnus, in 1555; by Gesner, in 1558; by Martens, in 1675; by Pennant, in 1781–1792; by Buffon, in 1785; and by Cuvier, in 1816; together with an almost innumerable list of authors who have since contributed papers on the walrus and its character to nearly all the learned associations of the world.

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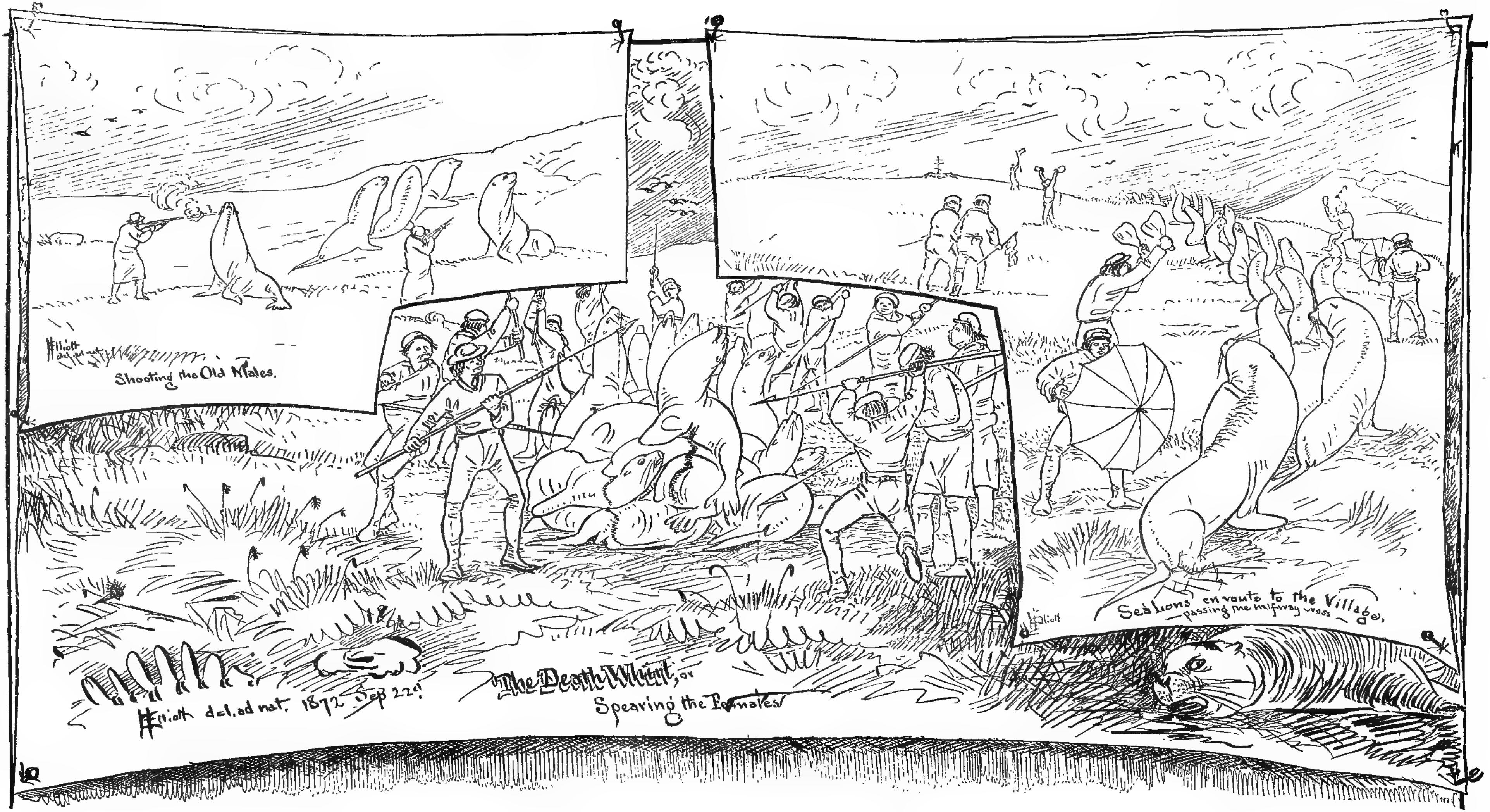
bristles were a venture of the boy, who gathers all that he can, then sends them to San Francisco, where they find a ready sale to the Chinese, who pay about one cent apiece for them. When the natives cut up a sea-lion carcass, or one of a fur-seal, on the killing-grounds for meat, they take only the hams and the loins. Later in the season they eat the entire carcass, which they hang up by the hind-flippers on a "laabas" by their houses.

*The Aleutian name for this garment is unpronounceable in our language, and equally so in the more flexible Russian; hence the Alaskan "kamlaika," derived from the Siberian "kamläia." That is made of tanned reindeer skin, unhaired, and smoked by larch bark until it is colored a saffron yellow; and is worn over the reindeer skin undershirt, which has the hair next to the owner's skin, and the obverse side stained red by a decoction of alder bark. The kamläia is closed behind and before, and a hood, fastened to the back of the neck, is drawn over the head, when leaving shelter; so is the Aleutian kamlaika; only the one of Kolyma is used to keep out piercing dry cold, while the garment of the Bering sea is a perfect water repellant.

†Many authorities, who are quoted in regard to the habits of the hair-seals and southern sea-lions, speak with much fine detail of having witnessed the capture of sea-fowl by *Phocidæ* and *Otariidæ*. To this point of inquiry on the Pribylov islands, I gave continued close attention; because, off and around all of the rookeries large flocks of auks, arries, gulls, shags, and choochkies were swimming upon the water, and shifting thereupon incessantly, day and night, throughout the late spring, summer, and early fall. During the four seasons of my observation I never saw the slightest motion made by a fur-seal or sea-lion, a hair-seal, or a walrus toward intentionally disturbing a single bird, much less of capturing and eating it. Had these seals any appetite for sea-fowl, this craving could have been abundantly satisfied at the expense of absolutely no effort on their part. That none of these animals have any taste for water-birds I am thoroughly assured.

Plate XX.



SPEARING THE SEA-LION COWS.

Natives bring the Sea-lion drove from Northeast Point. Shooting the old males.

With this imposing list of authorities in my mind, I thought I had reason to believe that there was nothing about this pinniped which I should find new, or even interesting to science.

**The walrus of Bering sea.**—When, therefore, looking for the first time upon the walrus of Bering sea, judge of my astonishment as I beheld the animal before me. It was a new species; it was a new creature, or all that had been written by five hundred authors in regard to the appearance and behavior of its Atlantic cousin was in error. The natives who accompanied me were hurriedly summoned to my side, called from their eager task of picking up birds' eggs. "Are these walrus sick?" said I. They looked at me in astonishment; "No, they are not." "Do they always look like that?" "Serovnah,"[*] was the answer.

Such was my introduction to *Rosmarus arcticus* (Pallas), and the occasion of my describing it in 1873, for the first time, as the walrus of Bering sea—a distinct and separate animal, specifically, from its congener of the North Atlantic. *Odobœnus rosmarus* (Allen).[†]

**Walrus on the Pribylov islands.**—In early days, when the Pribylov islands were first occupied by the Russians, report has it that large numbers of these creatures frequented the entire coast line of St. Paul island, and many were found around St. George; but, being relatively more timid than the sea-lion in respect to the presence of man, they rapidly disappeared as he took possession of the land; the disappearance, however, was not total—a few of them every year were and can now be observed upon that little rocky islet, lying six miles to the southeast of the Northeast point of St. Paul island, owing to its comparative isolation; since the natives only go there once a year, and then only for a few days during the egging season.[‡]

**Selection of landings by walrus herds.**—The walrus rests upon the low rocky tables characteristic of this place, without being disturbed; hence the locality afforded me a particularly pleasant and advantageous opportunity of minutely observing these animals. My observations, perhaps, would not have passed over a few moments of general notice, had I found the picture presented by them such as I had drawn in my mind from the descriptions of the army of writers cited above; the contrary, however, stamping itself so suddenly and decidedly upon my eye, set me to work with pen and brush in noting and portraying the extraordinary brutes, as they lay grunting and bellowing, unconscious of my presence, and not ten feet from the ledge upon which I sat.[§]

**Life-studies of the herd.**—Sitting as I did to the leeward of them, a strong wind blowing at the time from seaward, which, ever and anon, fairly covered many of them with the foaming surf-spray, they took no notice of me during the three or more hours of my study. I was first surprised at observing the raw, naked appearance of the hide, a skin covered with a multitude of pustular looking warts and large boils or pimples, without hair or fur, save scattered and almost invisible hairs; the skin wrinkled in deep, flabby seam-folds, and marked by dark-red venous lines, which showed out in strong contrast through the thicker and thinner yellowish-brown cuticle, that in turn seemed to be scaling off in places as if with leprosy; indeed, a fair expression of this walrus-hide complexion, if I may use the term, can be understood by the inspection of those human countenances in the streets and on the highways of our cities which are designated as the faces of "bloats". The forms of *Rosmarus* struck my eye at first in the most unpleasant manner, and the longer I looked at them the more heightened was my disgust; for they resembled distorted, mortified, shapeless masses of flesh; the clusters of swollen watery pimples, which were of yellow parboiled flesh-color, and principally located over the shoulders, and around the necks, painfully suggested unwholesomeness.

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[*] Just the same.

[†] Allen, in reviewing the history of this species, cites the hesitating opinions of Pennant, in 1792; of Shaw, in 1800; of F. Cuvier, in 1825; of Leidy, in 1860, all of whom suggest the specific distinctness of the Bering sea walrus, but give their ideas clouded by expressed hints or mental reservations. He shows, however, that Illiger, in 1811, formally recognized three varieties, but that this author gives nowhere his reasons for so doing; he named them *Trichecus rosmarus* for the North Atlantic, and *T. obesus* and *T. divergens* for the Bering sea region and waters north of the straits thereof. Then Allen says, page 21, "I have met with nothing further touching this subject prior to Mr. H. W. Elliott's report on the seal-islands of Alaska, published in 1873, and he quotes it freely. Professor Allen has, however, done the osteological part of the work so well in his *History of North American Pinnipeds*, that now I deem it finished.

While Allen agrees with me finally in my early determination of the Bering sea walrus as a distinct species from that of the Atlantic, he seems to base all of his belief upon the osteological differentiation between them. I have had my faith in that one line of evidence as to genera and species, so sadly shaken by the amazing asymmetry and differences in the skulls and skeletons of the fur-seal which are bleaching out here side by side, thousands and tens of thousands of them, that I feel better satisfied with the characteristic external features of the pinnipeds, which are really more fixed and exact among the hundreds of thousands on the Pribylov islands. Perhaps ten thousand skulls of *Odobœnus obesus* would show a great number of examples which could not, alone by themselves, be separated from types of *O. rosmarus*. From my inspection of the wide range of variation presented in a large series of *Callorhinus* and *Eumetopias* skulls, I do not have any hesitation in saying so.

[‡] As to the number of walrus on the Pribylov islands in prehistoric time, and when the Russians first took possession of the same, 1786–1787, I have not been able to find any record of the least authentic value. Beyond the general legend of the natives that in olden times the "morsjee" were wont to haul in considerable number at Novashtoshnah and over the entire extent of the north and south shores of St. Paul, while herds were also common under the precipitous sea-walls of St. George. Gavrila Sarietschev, one of the several imperial agents commissioned at intervals to examine into the affairs of the old Russian American Fur Company, in the details of his report made in December, 1805, incidentally states, speaking of the walrus, that while they had abandoned the Pribylov islands then, yet, formerly they were there in such numbers that 28,000 pounds of their teeth (tusks) were obtained in a single year; as the average weight of well assorted walrus ivory is about 8 pounds to the head, of each animal, this memorandum of the agent shows that between 3,500 and 4,000 walrus were taken then. From the quantity of old bones of *Rosmarii* which are constantly covered and uncovered by the caprice of the wind at Nahsayvernia and Novastoshnah, I should judge the Russian officer was correct.

[§] These favored basaltic tables are also commented upon in similar connection by an old writer in 1775, Shuldham, who calls them "echouries"; he is describing the Atlantic walrus as it appears at the Magdalen islands: "The echouries are formed principally by nature, being a gradual slope of soft rock, with which the Magdalen islands abound, about 80 to 100 yards wide at the water side, and spreading so as to contain, near the summit, a very considerable number." The tables at Walrus island and those at Southwest point, are very much less in area than those described by Shuldham, and are a small series of low, saw-tooth jetties of the harder basalt washed in relief, from a tufa matrix; there is no room to the landward of them for many walruses to lie upon. The *Odobœnus* does not like to haul up on loose or shingly shores, because it has the greatest difficulty in getting a solid hold for its fore-flippers with which to pry up and ahead its huge, clumsy body. When it hauls on a sand beach, it never attempts to crawl out to the dry region back of the surf, but lies just awash, at high water. In this fashion they used to rest all along the sand reaches of St. Paul prior to the Russian advent in 1786–1787; and when Shuldham was inditing his letters on the habits of *Rosmarus*, *Odobœnus* was then lying out in full force and great physical peace on the Pribylov islands.

On examining the herd individually, and looking over perhaps 150 specimens directly beneath and within the purview of my observation, I noticed that there were no females among them; they were all males, and some of the younger ones had considerable hair, or enough of that close, short, brown coat to give a hairy tone to their bodies—hence I believe that it is only the old, wholly matured males which offered to my eyes their bare and loathsome nakedness.

I observed, as they swam around, and before they landed, that they were clumsy in the water, not being able to swim at all like the *Phocidæ* and the *Otaridæ;* but their progress in the sea was wonderfully alert when brought into comparison with that terrestrial action of theirs; the immense bulk and weight of this walrus contrasted with the size and strength of its limbs, renders it simply impotent when hauled out of the water, and on the low rocky beaches or shelves upon which it rests. Like the seal, however, it swims entirely under water when traveling, but it does not rise, in my opinion, so frequently to take breath; when it does, it blows or snorts not unlike a whale. Often I have noticed this puffing snort of these animals, since the date of these observations on Walrus islet, when standing on the bluffs near the village of St. Paul and looking seaward; on one cool, quiet morning in May especially, I followed with my eye a herd of walrus, tracing its progress some distance off and up along the east coast of the island very easily by the tiny jets of moisture or vapor from the confined breath, which the animals blew off as they rose to respire.*

METHODS OF LANDING: CLUMSY EFFORTS.—In landing and climbing over the low, rocky shores at Morserovia,† this animal is fairly as clumsy and almost as indolent as the sloth. A herd crowds up from the water, one after the other, in the most ungainly manner, accompanying their movements with low grunts and bellowings; the

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* Mariners, while coasting in the Arctic, have often been put on timely footing by the walrus fog-horn snorting and blowing when a ship dangerously sails silently in through dense fog toward land or ice-floes, upon which these animals may be resting; indeed, these uncouth monitors to this indistinct danger rise and bob under and around a vessel like so many gnomes or demons of fairy romance; and the sailors may well be pardoned for much of the strange yarning which they have given to the reading world respecting the sea-horse, during the last three centuries; but when we find Albert Magnus, and Gesner the sage, talking in the following extraordinary manner of the capture of *Rosmarus*, we are constrained to laugh heartily; especially do we so, because a more shy, timid brute than the walrus of Bering sea never existed when he is hunted by man, unless it be the sea-otter.

Says Gesner in 1558: "Therefore these fish called *Rosmarii* or *Morsii*, have heads fashioned like to an oxe, and a hairy skin, and hair growing as thick as straw or corn-reeds, that lie loose very largely. They will raise themselves with their teeth, as by ladders, to the very tops of rocks that they may feed upon the dewie grasse, or fresh water, and role themselves in it, and then go to the sea again, unless in the mean time they fall very fast asleep, and rest upon the rocks, for then the fishermen make all the haste they can and begin at the tail, and part the skin from the fat; and into this that is parted they put most strong cords, and fasten them on the rugged rocks or trees that are near; and then they throw stones at his head, out of a sling, to raise him, and they compel him to descend spoiled of the greatest part of his skin which is fastened to the ropes; he being thereby debilitated, fearful and half dead, he is made a rich prey, especially for his teeth, that are very pretious amongst the *Scythians*, the *Muscovites, Russians* and Tartars (as ivory amongst the Indians) by reason of its hardness, whiteness and ponderousnesse".

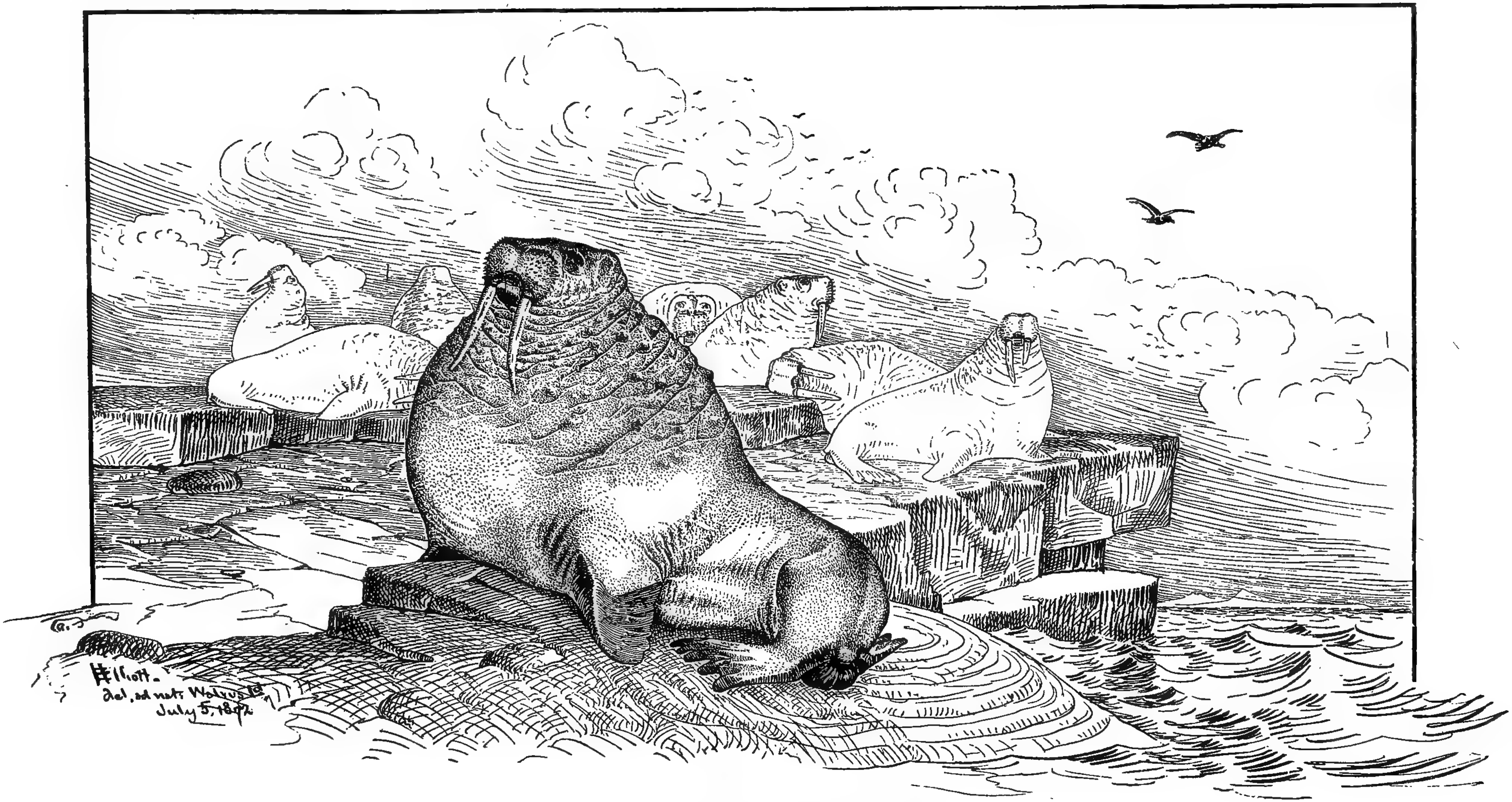
In spite of the many remarkable and well authenticated stories printed as to the ferocity of the Atlantic walrus when hunted, it can be safely said that no boat has ever been assailed by the Alaskan species, which is as large if not larger, and in every respect quite as able-bodied; the Eskimo capture them without danger or difficulty—mere child's play or woman's work—spearing and lancing. By spearing, a line of walrus hide is made fast to the plethoric body of *Rosmarus*, and when it has expended its surplus vitality by towing the natives a few miles in a mad frenzied burst of swimming, the bidarrah is quietly drawn up to its puffing form, close enough to permit the coup of an ivory-headed lance, then towed to the beach at high water; when the ebb is well out, the huge carcass is skinned by its dusky butchers, who cut it up into large square chunks of flesh and blubber, which are deposited in the little "Dutch-oven" caches of each family that are waiting for its reception.

Dressing the walrus hides is the only serious hard labor which the Alaskan Innuit subjects himself to; he cannot lay it entirely upon the women, as do the Sioux when they spread buffalo bodies all over the plains; it is too much for female strength alone, and so the men bear a hand right lustily in the business. It takes from four to six stout natives, when a green walrus hide is removed, to carry it to the sweating hole where it is speedily unhaired; then stretched alternately upon air-frames and pinned over the earth, it is gradually scraped down to the requisite thinness for use in covering the bidarrah skeletons, etc.

There are probably six or seven thousand human beings in Alaska who live alone by virtue of the existence of *Rosmarus;* and, every year, when the season opens, they gather together by settlements, as they are contiguous, and discuss the walrus chances for the coming year as earnestly and as wisely as our farmers do, for instance, regarding the prospects for corn and potatoes. But the Eskimo hunter is a sadly improvident mortal, though he is not wasteful of morse life; while we are provident, and yet wasteful of our resources.

If the north pole is ever reached by our people, they will do so only when they can eat walrus meat, and get plenty of it; at least that is my belief; and knowing now what the diet is, I think the journey to the hyperborean ultima is a long one, though there is plenty of meat, and many men who want to try it.

† *Morserovia*, the Russian name for Walrus island; the natives also call Otter island by the Russian title of *Bobrovia.*


H. Elliott.
del. ad nat. Walrus Id.
July 5, 1872.

THE WALRUS OF BERING SEA.

(Rosmarus arcticus.)

A life-study of an old male by the author: Walrus Island, July 5, 1872.

first one up from the sea no sooner gets composed upon the rocks for sleep, than the second one comes along, prodding and poking with its blunted tusks, demanding room also, and causes the first to change its position to another location still farther off and up from the water, a few feet beyond; then the second is in turn treated in the same way by a third, and so on until hundreds will be slowly packed together on the shore, as thickly as they can lie, never far back from the surf, however, pillowing their heads upon the bodies of one another, and not acting at all quarrelsome toward each other. Occasionally, in their lazy, phlegmatic adjusting and crowding, the posteriors of some old bull will be lifted up, and remain elevated in the air, while the passive owner sleeps with its head, perhaps, beneath the pudgy form of its neighbor.

**USE OF TUSKS.**—A great deal has been written in regard to the manner in which the walrus uses his enormous canines; many authors have it that they are employed by *Rosmarus* as landing hooks, so that by sticking them into the icy floes, or inserting them between rocky interstices or inequalities, the clumsy brute aids his hauling out from the sea. I looked here at Walrus island very closely for such manifestation of their service to the members of the herd, which was continually augmented by fresh arrivals from the surf while under my eye. They did not in a single instance use their tusks in this manner; it was all done by the fore-flippers, and "boosting" of exceptionally heavy surf which rolled in at wide intervals, and for which marine assistance the walrus themselves seemed to patiently wait.*

With all this apparent indifference, however, they have established their reputation for vigilance in spite of it; and they resort to a very singular method of keeping guard, if I may so term it. In this herd of three or four hundred male walrus that were under my eyes, though nearly all were sleeping, yet the movement of one would disturb the other, which would raise its head in a stupid manner, for a few moments, grunt once or twice, and before lying down to sleep again, it would strike the slumbering form of its nearest companion with its tusks, causing that animal to rouse up in turn for a few moments also, grunt, and pass the blow on to the next, lying down in the same manner. Thus the word was transferred, as it were, constantly and unceasingly around, always keeping some one or two aroused, which consequently were more alert than the rest.

**HELPLESSNESS ON LAND.**—In moving on land they do not seem to have any physical power in the hind limbs; these are usually dragged and twitched up behind, or feebly flattened out at right angles to the body; terrestrial progression is slowly and tediously made by a dragging succession of short steps forward on the fore-feet; but, if the alarm is given, it is astonishing to note the contrast which they present in their method of getting back to sea; they fairly roll and hustle themselves over and into the waves.

How long they remain out from the water, in this country, I am unable to say; but, stored up as they are with such an enormous supply of surplus fat, dull and sluggish in temperament, I should think that they could sustain a fasting period equal to that of the *Otariidæ*, if not superior to them in endurance.

These adult males before me looked very much larger than I expected to find the walrus,† and it was fortunate

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*I have seen no description of this Pacific walrus which is as good as is the first notice of it ever made to English readers, by Captain Cook, in his *Last Voyage*; it is, as far as it goes, precisely in accordance with my views of the same animal, nearly a century later, viz, July, 1872. He said: "They lie in herds of many hundreds upon the ice, huddling one over the other like swine, and roar or bay very loud, so that in the night, or in foggy weather, they gave us notice of the vicinity of the ice before we could see it. We never found the whole herd asleep; some being always on the watch. These, on the approach of the boat, would wake those next to them, and the alarm being thus gradually communicated, the whole herd would be awake presently. But they were seldom in a hurry to get away till after they had once been fired at, when they would tumble one over the other into the sea in the utmost confusion, and if we did not at the first discharge kill those we fired at, we generally lost them, though mortally wounded. They did not appear to be that dangerous animal some authors have described, not even when attacked. They are rather more so to appearance than in reality. Vast numbers of them would follow, and some come close up to the boats; but the flash of a musket in the pan, or even the bare pointing of one at them, would send them down in an instant. The female will defend the young one to the very last, and at the expense of her own life, whether in the water or upon the ice. Nor will the young one quit the dam though she be dead; so that, if you kill one you are sure of the other. The dam, when in the water, holds the young one between her fore-fins." [*Cook's* (1778) *Voyages to the Pacific Ocean*, etc., vol. ii, p. 458. London, 1785.]

I do not wish to appear in the light of desiring to detract one iota from that credit of accurate description which so justly belongs to Cook; but he himself did not indicate that he thought the Pacific walrus a distinct species from its Atlantic congener; his figure of the Bering sea *Rosmarus* is entirely grotesque; a human face with beard, a thin neck and immensely inflated posteriors, and fore-flippers divided up into distinct fingers, make a creature as totally unlike *Odobænus obesus* as need be; yet, naturalists have gravely spoken of it as "excellent"! Had Captain Cook possessed the same explicit and graphic power of description in his pencil that characterizes his pen, I know full well that this caricature above referred to [*Cook's Voyage to the Pacific Ocean*, etc., 1776–1780, vol. ii, pl. lii] would never have appeared.

The pinnipeds are, perhaps, of all animals, the most difficult subjects that the artist can find to reproduce from life; there are no angles or elbows to seize hold of—the lines of body and limbs are all rounded, free and flowing; yet the very fleshiest examples never have that bloated, wind-distended look which most of the figures published give them. One must first become familiarized with the restless, varying attitudes of these creatures, by extended personal contact and observation, ere he can satisfy himself with the result of his drawings, no matter how expert he may be in rapid and artistic delineation. Life-studies, by artists, of the young of the Atlantic walrus have been made in several instances, but of the mature animal, there is nothing extant of that character.

†The most satisfactory result that I can obtain from a careful study of what is on record as to the length of the adult ♂ Atlantic walrus is a mean of 10 feet 7 inches; while my observations on Walrus island give the Bering sea ♂ adult walrus an average of 11 feet; the only two examples which I measured were both over this figure, viz, 11 feet 9 inches, and 12 feet 7 inches, from tip of muzzle to the skinny nodule or excrescence, scientifically known as the tail; but they were striking exceptions in superior size to all the others in the large herd of old males before my eyes at the time, and were singled out for shooting on that score. I fully realize this, because in July,

for the accuracy and good sense of these notes now published, that one of the natives kindly volunteered to shoot any of the bulls, of which I might select, after I should have finished my sketching and writing. I therefore, when my drawings were completed, selected the largest animal in the group; and, promptly at my signal, a rifle ball crashed into the skull at the only place where it could enter, just on the line of the eye and the ear, midway between them.

GREAT SIZE OF THE WALRUS.—This animal, thus slain, certainly was the largest one of the entire herd, and the following measurements and notes can, therefore, be relied upon: it measured 12 feet 7 inches from its bluff nostrils to the tip of its excessively abbreviated tail, which was not more than 2½ or 3 inches long; it had the surprising girth of 14 feet. The immense mass of blubber on the shoulders and around the neck made the head look strangely small in proportion, and the posteriors decidedly attenuated; indeed, the whole weight of the animal was bound up in its girth anteriorly; it was a physical impossibility for me to weigh this brute, and I therefore can do nothing but make a guess, having this fact to guide me: that the head cut directly off at the junction with the spine, or the occipital or atlas joint, weighed 80 pounds; that the skin, which I carefully removed with the aid of these natives, with the head, weighed 570 pounds. Deducting the head, and excluding the flippers, I think it is safe to say that the skin itself would not weigh less than 350 pounds, and the animal could not weigh much less than a ton—from 2,000 to 2,200 pounds.

CHARACTERS OF HEAD.—The head has a decided flattened appearance, for the nostrils, eyes, and ear-spots seem to be placed nearly on top of the cranium; the nasal apertures are literally so, opening directly over the muzzle; they are oval, and closed parallel with the longitudinal axis of the skull, and when dilated are about an inch in their greatest diameter.

The tusks, or canines, are set firmly under the nostril-apertures in deep, massive, bony pockets, giving that strange, broad, square-cut front of the muzzle, so characteristic to the physiognomy.

The upper lips of the walrus of Bering sea are exceedingly thick and gristly, and the bluff, square muzzle is studded, in regular rows and intervals, with a hundred or so short, stubby, gray-white bristles, varying in length from one-half to three inches. There are a few very short and much softer bristles set, also, on the fairly hidden chin of the lower jaw, which closes up under the projecting snout and muzzle, and is nearly concealed by the enormous tushes, when laterally viewed.

PECULIARITIES OF THE EYES.—The eyes are small, but prominent; placed nearly on top of the head, and protruding from their sockets, bulge like those of the lobster. The iris and pupil of this eye is less than one-fourth of the exposed surface; the sclerotic coat swells out from under the lids when they are opened, and is of a dirty, mottled, coffee-yellow and brown, with an occasional admixture of white; the iris itself is light brown, with dark brown rays and spots. I noticed that whenever the animal roused itself, instead of turning its head, it rolled its eyes about, seldom moving the cranium more than to elevate it. The eyes seem to move, rotating in every direction when the creature is startled, giving the face of this monster a very extraordinary attraction, especially when studied by an artist. The expression is just indescribable. The range of sight enjoyed by the walrus out of water, I can testify, is not well developed; for, after throwing small chips of rock down upon the walruses near me, several of them not being ten feet distant, and causing them only to stupidly stare and give vent to low grunts of astonishment, I then rose gently and silently to my feet, standing boldly up before them; but then, even, I was not noticed, though their eyes rolled all over from above to under me. Had I, however, made a little noise, or had I been standing as far as 1,000 yards away from them to the windward, they would have taken the alarm instantly and tumbled off into the sea like so many hustled wool-sacks; for their sense of smell is of the keen, keenest.

ACUTE HEARING.—The ears of the walrus, or rather the auricles to the ears, are on the same lateral line at the top of the head with the nostrils and eyes, the latter being just midway between. The pavilion, or auricle, is a mere fleshy wrinkle or fold, not at all raised or developed; and, from what I could see of the *meatus externus*, it was very narrow and small; still, the natives assured me that the *Otariidæ* had no better organs of hearing than "Morsjee".

LOOSE SETTING OF THE TUSKS.—The head of the male walrus, to which I have alluded, and from which I afterward removed the skin, was 18 inches long between the nostrils and the post-occipital region; and, although the enormous tusks seemed to be so firmly planted in their osseous sockets, judge of my astonishment when one of the younger natives flippantly struck a tusk with a wooden club quite smartly, and then easily jerked the tooth forth. I had frequently observed that it was difficult to keep the teeth from rattling out of their alveoli in any of the best skulls I had gathered of the fur-seals and sea-lions; especially difficult in the case of the latter. But again, on this interesting subject of dentition, it is best that I refer to Dr. Allen. Repetition of his admirable diagnosis is unnecessary here.

UNUSUAL THICKNESS OF THE SKIN.—The thickness of the hide* of the walrus is, after all, in my opinion, its

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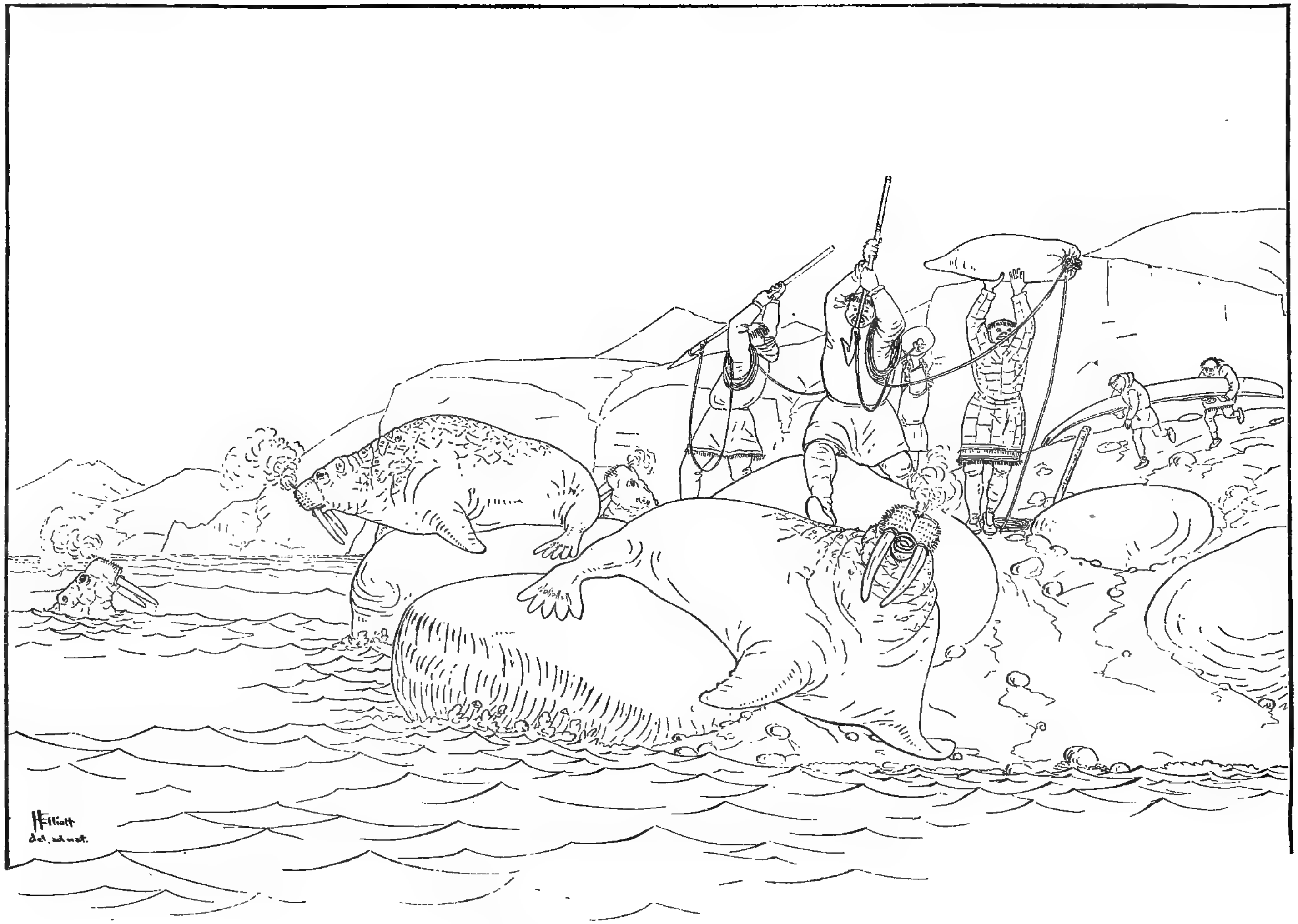
1874, when I revisited Walrus island, I caused a younger male, and one tolerably well haired over with a very dark brown and short coat, to be shot; when measured it gave a length of only 10 feet 9 inches, and would not weigh, in my best estimation, more than 1,200 to 1,500 pounds. It was, however, fully matured. Thus the "greater size" which I recognized in 1872, means an increased length of five or six inches to the Alaska form, with a relative greater avoirdupois. The complete and uniform unhairing of the old Alaskan male *Odobænus*, is another very characteristic feature in different expression from Atlantic herds.

*While savage man has utilized the tough hide of *Rosmarus* and *Obesus*, the skin was also used by the Russians themselves to cover the packages of furs sent from Sitka to Kiachta, China; the skin was there stripped and again sewed anew over the chests of tea that were



PLUNGING THE HARPOON.

Innuits of St. Lawrence Island, Alaska, making fast to Walruses surprised by the Eskimo while hauled up on the sea-beaches at Kagallegak.

most anomalous feature. I remember well how surprised I was when I followed the incision of the broad-axe used in beheading the specimen shot for my benefit, to find that the skin over the shoulders and around the throat and chest was three inches thick—a puffy, spongy epidermis, outward hateful to the sight, and inwardly resting upon the slightly acrid fat or blubber so characteristic of this animal. Nowhere is this hide, upon the thinnest point of measurement, less than half an inch thick. It feeds exclusively upon shellfish (*Lamellibranchiatà*), or clams principally, and also upon the bulbous roots and tender stalks of certain marine plants and grasses which grow in great abundance over the bottoms of broad, shallow lagoons and bays of the main Alaskan coast. I took from the paunch of the walrus above mentioned, more than a bushel of crushed clams in their shells, all of which that animal had evidently just swallowed, for digestion had scarcely commenced. Many of those clams in that stomach, large as my clenched hands, were not even broken; and it is in digging this shellfish food that the services rendered by the enormous tusks become apparent.[*]

Cowardice of the walrus of Bering sea.—It may not accord with the singular tales told, on the Atlantic side, about the uses of these gleaming ivory teeth, so famous and conspicuous; but I believe that the Alaskan walrus employs them solely in the labor of digging clams and rooting bulbs from those muddy oozes and sand-bars in the estuary waters peculiar to his geographical distribution. Certainly, it is difficult for me to reconcile the idea of such uncouth, timid brutes, as were those spread before me on Walrus islet, with any of the strange chapters written as to the ferocity and devilish courage of the Greenland morse. These animals were exceeding cowardly; abjectly so. It is with the greatest difficulty that the natives, when a herd of walruses are surprised, can get a second shot at them; so far from clustering attacks around their boats, it is the very reverse; and the hunter's only solicitude is which way to travel in order that he may come up with the fleeing animals as they rise to breathe. Again, I visited Walrus islet in 1874, accompanied by Lieutenant Maynard, United States navy, and the captain of the revenue-cutter Reliance. We rowed from the ship directly toward the islet, to a point where we saw the accustomed and expected sight of walrus lying thereon. The wind was fair for us and we came up almost to within a boat's oar distance of the dozing, phlegmatic herd. One was singled out, and Captain Baker shot it—his first walrus; the whole herd, as usual, hustled with terrible energy into the water, and all around our boat, for we had not landed, and they did not rise about or near us to give one snort of defiance, or to give us the faintest suggestion of any disposition to attack us, but they disappeared unpleasantly soon—too quickly.

Absence of females on Walrus island.—As I have said before, there are no females on this island, and I can therefore say nothing about them; I regret it exceedingly. On questioning the natives, as we returned, they told me that the walrus of Bering sea was monogamous; and that the difference between the sexes in size, color, and shape is inconsiderable; or, in other words, that until the males are old, the young males and the females of all ages are not remarkably distinct, and would not be at all if it were not for the teeth; they said that the female brings forth her young, a single calf, in June, usually, on the ice-floes in the Arctic ocean, above Bering straits, between point Barrow and cape Seartze Kammin; that this calf resembles the parent in general proportions and color when it is hardly over six weeks old, but that the tusks (which give it its most distinguishing expression) are not visible until the second year of its life; that the walrus mother is strongly attached to her offspring,[†] and nurses it later through the season in the sea; that the walrus sleeps profoundly in

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received in exchange for these furs thus enveloped, and which were carried hence to Moscow. Here the soundest portions of the hide remaining on the boxes were finally cut up and stamped into "kopecks" and a variety of small change, in time, to revisit its native seas; used as a circulating medium, for value received, throughout all Alaska where the Russians held power. A leather currency was long known to that country, and old Philip Volkov, of St. Paul, told me that he never saw silver or gold coin used on the seal-islands until our people brought it in 1868. These walrus parchment roubles were worth much less than their face value—sometimes only one-third. The Russians also made harness out of walrus leather. As long as the weather remained cold and dry the wear of this material was highly satisfactory, but woe to the "kibitscha" if caught out in a rain storm! The walrus harness then stretches like india-rubber, and the horses fairly leave the vehicle far behind, sticking in the road, though the traces are unbroken.

[*] It is, and always will be, a source of sincere regret to me and my friends, that I did not bodily preserve this huge paunch and its contents. It would have filled a half barrel very snugly, and then its mass of freshly swallowed clams (*Mya truncata*), filmy streaks of macerated kelp, and fragments of crustaceans, could have been carefully examined during a week of leisure at the Smithsonian Institution. It was, however, ripped open so quickly by one of the Aleuts, who kicked the contents out, that I hardly knew what had been done, ere the strong-smelling subject was directly under my nose. The natives then were anxious that I should hurry through with my sketches, measurements, etc., so that they might the sooner push off their egg-laden bidarrah and cross back to the main island, before the fogs would settle over our homeward track, or the rapidly rising wind shift to the northward and imperil our passage. Weighty reasons, these, which so fully impressed me, that this unique stomach of a *carnivora* was overlooked and left behind; hence, with the exception of curiously turning over the clams (especially those uncrushed specimens), which formed the great bulk of its contents, I have no memoranda or even distinct recollection of the other materials that were incorporated. The olivaceous green color of its soft, pasty excrement must be derived from eating *chlorospermæ* and divers branches of algoid growth.

[†] That the sea-lion and the fur-seal should be so apathetic when danger to their young arises, and that the clumsy, timid walrus fights for their protection to the death, under the same circumstances, is somewhat strange. According to all reports which I can gather from reputable authority, notably Captain Cook's brief, yet explicit, account, the walrus never deserts its young in that manner, hitherto described, so characteristic of the *Otariidæ* of Bering sea; this odd contrast in behavior is worthy of further attention, as far as

the water, floating almost vertically, with barely more than the nostrils above water, and can be easily approached if care is taken as to the wind, so as to spear it or shove a lance into its bowels; that the bulls do not fight as savagely as the fur-seal or the sea-lion; that the blunted tusks of these combatants seldom do more than bruise their thick hides; that they can remain under water nearly an hour, or about twice as long as the seals; and that they sink like so many stones, immediately after being shot at sea.*

First record of the occurrence of females.—The reason why this band of males, and many of them old ones, should be here to the exclusion of females throughout the year, is not plain. The natives assured me that walrus females, or their young, never have been seen around the shores of these islands; but I have trustworthy advices from the village of St. Paul, at the date of this publication, declaring the fact of the capture of a female on Walrus islet last fall, the first one ever recorded.

Geographical distribution of the walrus of Alaska.—The walrus has, however, a very wide range of distribution in Alaska, though not near so great as in prehistoric times.† They abound to the eastward and southeastward of St. Paul, over in Bristol bay, where great numbers congregate on the sand-bars and flats, now flooded, now bared by the rising and ebbing of the tide. They are hunted here to a considerable extent for their ivory; no walrus are found south of the Aleutian islands; still, not more than forty-five or fifty years ago, small gatherings of these animals were killed here and there on the islands between Kadiak and Oonimak pass; the greatest aggregate of them, south of Bering straits, will always be found in the estuaries of Bristol bay and on the north side of the peninsula.

Prehistoric range of the walrus.—Geologists find the record of the great ice period well filled up by the range of the walrus, then, as far down on the Atlantic coast as the littoral margins of South and North Carolina; and its fossil remains are common in the diluvial deposits of England and France, while the phosphate beds of New Jersey are exceedingly rich in old walrus bones; but, within historic times, there is no evidence that points to the existence of the walrus on the New England coast. During the last half of the sixteenth century they are known to have frequented the southern confines of Nova Scotia. That hardy navigator, James Cartier, tells us, in his quaint vernacular, that in May, 1534, he met at the island of "Ramea" (probably Sable island), sporting in the sea, "very greate beastes, as greate as oxen, which have two greate teeth in their mouths like unto Elephant's teeth, & live also in the Sea. We saw them sleeping on the banke of the water; wee, thinking to take it, went with our boates, but so soon as he heard us he caste himselfe into the sea". Another old salt, "Thomas James, of Bristoll," speaking of the same subject shortly after, says, "the fish cometh on banke (to do their kind) in April, May, and June, by numbers of thousands, which fish is very big, and hath two great teeth; and the skin of them is like Beeffes leather; and they will not away from their yong ones. The yong ones are as good meat as Veale. And with the bellies of five of the saide fishes they make a hogshead of Traine, which Traine is very sweet, which,

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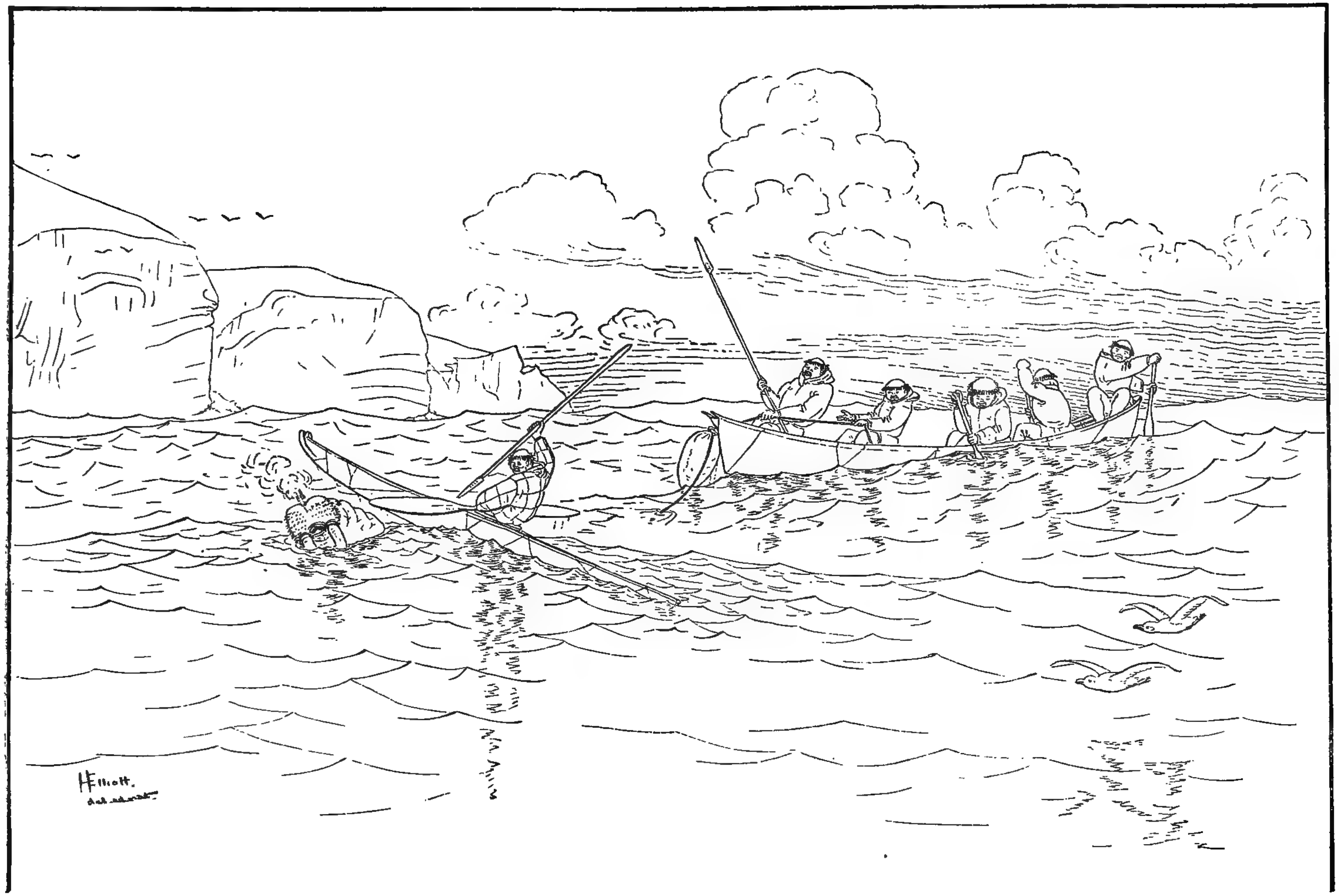
the walrus is concerned. There were no females or young among the herds of *Rosmarus* which I observed at Walrus island; hence, I am unable myself to give any facts based upon life-studies.

The reported affection and devotion of the mother walrus seems only natural, being, as it is, the rule throughout all the higher grades of mammalia; while this attitude of the sea-lion and fur-seal is decidedly opposed to it; and, were it not that it was so plainly presented in a thousand and one cases to my senses, I should have seriously doubted its correctness. Still, the best authority that I can recognize on the habits of the *Phocidæ*, Kumlein, says that the hair-seals all display the same indifference which I portray in this respect as characteristic of the fur-seal and sea-lion.—[Kumlein: *Contributions to the Natural History of Arctic America. Bull. U. S. National Museum:* Washington, p. 59, 1879.]

*I personally made no experiments touching the peculiarity of sinking immediately after being shot; of course, on reflection, it will appear to any mind that all seals, no matter how fat or how lean, would sink instantly out of sight, if not killed at the stroke of the bullet; even if mortally wounded, the great involuntary impulse of brain and muscle would be to dive and speed away; for all swimming is submarine when the pinnipeds desire to travel.

Touching this mooted question, I had an opportunity when in Port Townsend, during 1874, to ask a man who had served as a partner in a fur-sealing schooner off the straits of Fuca. He told me that unless the seal was instantly killed by the passage of the rifle bullet through its brain, it was never secured, and would sink before they could reach the bubbling wake of its disappearance; if, however the aim of the marksman had been correct, then the body was invariably taken within five to ten minutes after the shooting. Only one man did the shooting; all the rest of the crew, 10 to 12 white men and Indians, manned canoes and boats which were promptly dispatched from the schooner, after each report, in the direction of the shooting. How long one of the bodies of these "clean" killed seals would float, he did not know; the practice always was to get it as quickly as possible, fearing that the bearings of its position, when shot from the schooner, might be confused or lost; he also affirmed that, in his opinion, there were not a dozen men on the whole northwest coast who were good enough with a rifle, and expert at distance calculation, to shoot fur-seals successfully from the deck of a vessel on the ocean. The Indians of Cape Flattery get most of the pelagic fur-seals by cautiously approaching from the leeward when they are asleep, and throwing line darts or harpoons into them before they awaken.

†I have been frequently questioned whether, in my opinion, it was more than a short space of time ere the walrus was exterminated or not, since the whalers had begun to hunt them in Bering sea and the Arctic ocean. To this I frankly make answer, that I do not know enough of the subject to give correct judgment. The walrus spend most of their time in waters that are within reach of these skillful and hardy navigators; and if they (the walrus) are of sufficient value to the whaler, he can, and undoubtedly will, make a business of killing them, and work the same sad result that he has brought about with the mighty schools of cetacea, which once whistled and bared their backs throughout the now deserted waters of Bering sea in perfect peace and seclusion prior to 1842. The returns of the old Russian America Company show that an annual average of 10,000 walrus have been slain by the Eskimo since 1799 up to 1867. There are a great many left yet. But unless the oil of *Rosmarus* becomes very precious, commercially, I think the shoal waters of Bristol bay and Kuskokvim mouth, together with the eccentric tides thereof, will preserve it indefinitely. Forty years ago, when the North Pacific was the rendezvous of


H. Elliott.
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THE DEATH-STROKE OF THE WALRUS.

Eskimo lancing the exhausted Walrus, St. Lawrence Island.

Mahlemoot dress, bidarka, baidar, etc., of Alaska.

if it will make sope, the King of Spaine may burne some of his Olive trees.” (!) This spice of Yankee enterprise in “sope”, evidently, did not come to a successful head.*

THE WALRUS “BIDARRAH”.—The finest bidarrah skin-boats of transportation that I have seen in this country, were those of the St. Lawrence natives; these were made out of dressed walrus hides, shaved and pared down by them to the requisite thickness, so that when they were sewed with sinews to the wooden whalebone-lashed frames of these boats, they dried into a pale, greenish-white, prior to oiling; and were even then almost translucent, tough and strong.

USES OF WALRUS HIDES.—Until I saw the bidarrahs of the St. Lawrence natives in 1874, I was more or less inclined to believe that the tough, thick, and spongy hide of the walrus would be too refractory in dressing for use in covering such light frames, especially those of the bidarka; but the manifest excellence and seaworthiness of these Eskimo boats satisfied me that I was mistaken. I saw, however, abundant evidence of the much greater labor required in tanning or paring down the thick cuticle to that thin, tough transparency so marked on their bidarrahs; for the pelt of the hair-seal, or sea-lion, does not require any more attention when applied to this service than simply unhairing it; this is done by first sweating the “loughtak” in piles, then rudely, but rapidly, scraping, with blunt knives or stone flensers, the hair off in large patches at every stroke; the skin is then air-dried, being stretched on a stout frame, where, in the lapse of a few weeks, it becomes as rigid as a board. When required for use thereafter, it is soaked in water until soft or “green” again, then it is sewed with sinews, while in this fresh condition, tightly over the slight wooden skeleton of the bidarka or the heavier frame of the bidarrah. In this manner the skin-boats and lighters at the islands are covered; then they are air-dried thoroughly before oiling, which is done when the skin has become well indurated, so as to bind the ribs and keel as with an iron plating; the thick, unrefined seal-oil keeps the water out for twelve to twenty hours, according to the character of the hides; when, however, the skin-covering begins to “bag in” between the ribs of the frame, then it is necessary to haul the bidarrah out and air-dry it again, and re-oiling. If attended to thoroughly and constantly, those skin-covered boats are the best species of lighter which can be used at these islands, for they will stand more thumping and pounding on the rocks and alongside ship than all wooden, or even corrugated iron lighters could endure, and remain seaworthy.

MANNER OF DRESSING WALRUS AND SEA-LION HIDES.—I noticed that the St. Lawrence Eskimo pared the walrus hide down from the outer surface or hairy side; while at St. Paul, when it became necessary to reduce the thickness of a sea-lion's skin at spots around the neck and shoulders, the paring was done on the fleshy side. Very little thinning, however, was needed in the case of sea-lion “loughtak”.†

GASTRONOMIC QUALITIES OF WALRUS MEAT.—The flavor of the raw, rank mollusca, upon which it feeds, seems to permeate the fiber of the flesh, making it very offensive to the civilized palate; but the Eskimos, who do

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the greatest whaling fleet that ever floated, those vessels could not, nor can they now, approach nearer than sixty or even eighty miles of the muddy shoals, sands, and bars upon which the walrus rest there; scattered in herds of a dozen or so in numbers up to bodies of thousands; living in lethargic peace, and almost unmolested, except in several small districts which are carefully hunted over by the natives of Oogashik for oil and ivory. I have been credibly informed that they also breed in Bristol bay, and along the coast as far north as Cape Avinova, during some seasons of exceptional rigor in the Arctic.

* I depart from the Pacific walrus, for a moment, in thus speaking of its Atlantic brother with reference to the testimony of the rocks as to its limit of southern range north of the equator; for the thought of herds of walrus floating down on immense frigid floes over the present low lands of Virginia and North Carolina, and of Anvers and near Paris, France, is an interesting one, relative to the features of the great ice age; down they came, that is certain. Van Beneden and Leidy have recently figured their aged bones as they are silicified or cast in the marls of those southern coasts and interiors. [See Leidy, *Trans. Am. Phil. Soc.*, xi, 1860, Philadelphia. Van Beneden: *Des de Oss. Foss. des Envirns d'Anvers; Annales Mus. d'Hist. Nat. de Belgique*, 1877, tome i, pp. 40–41.] No such bones have as yet been founp on the northwest coast, or in Alaska.

† When I stepped, for the first time, into the baidar of St. Paul island, and went ashore, from the “Alexander”, over a heavy sea, safely to the lower bight of Lukannon bay, my sensations were of emphatic distrust; the partially water-softened skin-covering would puff up between the wooden ribs, and then draw back, as the waves rose and fell, so much like an unstable support above the cold green water below, that I frankly expressed my surprise at such an outlandish craft. My thoughts quickly turned to a higher appreciation of those hardy navigators who used these vessels in circumpolar seas years ago, and the Russians, who, more recently, employed bidarrahs chiefly to explore Alaskan and Kamtchatkan *terra incognita*. There is an old poem in *Avitus*, written by a Roman as early as 445 A. D.; it describes the ravages of Saxon pirates along the southern coasts of Britain, who used just such vessels as is this bidarrah of St. Paul.

Quin et armoricus piratim Saxona tractus
Spirabat, cui pelle falum fulcare Britannum
Ludus, et assuto glaucum mare findere lembo.

These boats were probably covered with either horse or bull's hides. When used in England they were known as *coracles;* in Ireland they were styled *curachs;* Pliny tells us that Cæsar moved his army in Britain over lakes and rivers in such boats. Even the Greeks used them, terming them *karabia;* and, the Russian word of *korabl'*, or “ship”, is derived from it. King Alfred, in 870–872, tells us that the Finns made sad havoc among the Swedish settlements on the numerous “meres” (lakes) in the moors of their country, by “carrying their ships (baidars) overland in the meres whence they make depredations on the Northmen; their ships are small and very light”.

All air-dried seal pelts, no matter whether hair- or fur-seal, sea-lion or walrus hides, are called by the Aleutians, and also by the Kamtchadales, “loughtak” or “lofftak”. When the natives of Kamtchatka told Steller in 1740–'42, that the large hair-seal, *Phoca barbata*, was known to them as “loughtak”, they evidently did not give him their specific name for the seal; but rather expressed their sense of its large skin, which was so highly prized by them as to be “the loughtak” of all other loughtak in those waters of their country. *Erignathus barbatus* has never been seen around or on these islands of the Pribylov group, but every air-dried fur-seal, or sea-lion skin, there, is called “loughtak” by the people.

not have the luxurious spread of sea-lion steak and fur-seal hams, regard it as highly and feed upon it as steadily as we do our own best corn-fed beef. Indeed, the walrus to the Eskimo answers just as the cocoa-palm does to the South Sea islander; it feeds him, it clothes him, it heats and illuminates his "igloo"; and it arms him for the chase, while he builds his summer shelter and rides upon the sea by virtue of its hide. Naturally, however, it is not much account to the seal-hunters on the Pribylov islands; they still find, by stirring up the sand-dunes and digging about them at Northeast point, all the ivory that they require for their domestic use on the islands, nothing else about the walrus being of the slightest economic value to them. Some authorities have spoken well of walrus meat as an article of diet; either they had that sauce for it born of inordinate hunger, or else the cooks deceived them. Starving explorers in the arctic regions could relish it—*they* would thankfully and gladly eat anything that was juicy, and sustained life, with zest and gastronomic fervor. The Eskimo naturally like it; it is a necessity to their existence, and thus a relish for it is acquired. I can readily understand, by personal experience, how a great many, perhaps a majority of our own people, could speak well, were they north, of seal meat, of whale "rind", and of polar bear steaks, but I know that a mouthful of fresh or "cured" walrus flesh would make their "gorges rise". The St. Paul natives refuse to touch it as an article of diet in any shape or manner. I saw them removing the enormous testicles of one of the old bull walrus which was shot, for my purposes, on Walrus island; they told me that they did so in obedience to the wish of the widow doctress of the village, Maria Seedova, who desired a pair for her incantations.

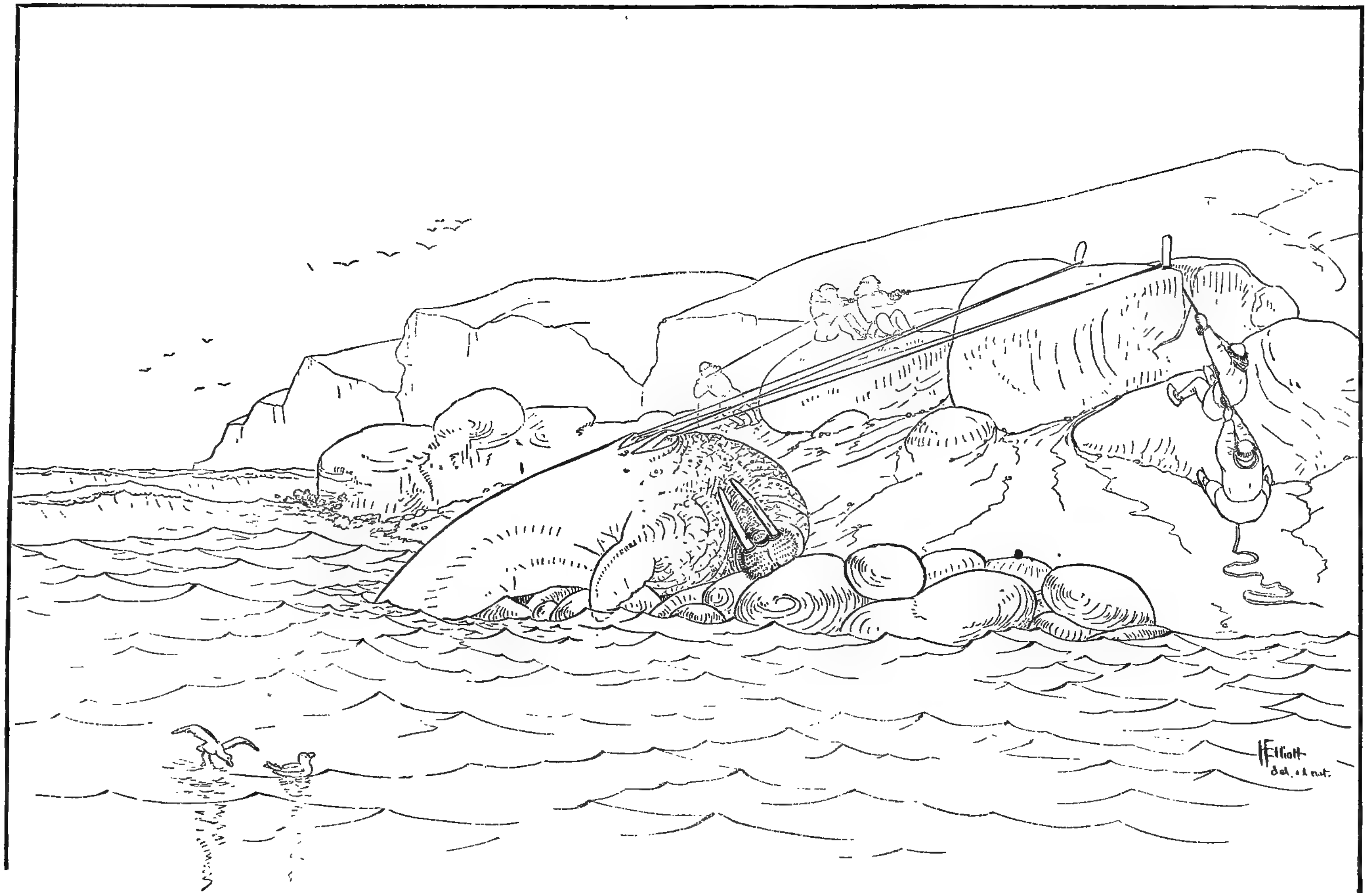
Curiosity, mingled with a desire to really understand, alone tempted me to taste the walrus meat which was placed before me at Poonook, on St. Lawrence island; and candor compels me to say that it was worse than the old beaver's tail which I had been victimized with in British Columbia; worse than the tough brown-bear steak of Bristol bay—in fact, it is the worst of all fresh flesh of which I know; it has a strong flavor of an indefinite acrid nature, which turned my palate and my stomach instantaneously and simultaneously, while the surprised natives stared in bewildered silence at their astonished and disgusted guest. They, however, greedily put chunks, two inches square and even larger, of this flesh and blubber into their mouths as rapidly as the storage room there would permit; and, with what grimy gusto! the corners of their large lips dripping with the fatness of their feeding. How little they thought then, that in a few short seasons they would die of starvation sitting in these same igloos—their caches empty and nothing but endless fields of barren ice where the life-giving sea should be. The winter of 1879-'80 was one of exceptional rigor in the Arctic, although in the United States it was unusually mild and open. The ice closed in solid around St. Lawrence island—so firm and unshaken by the giant leverage of wind and tide, that the walrus were driven far to the southward and eastward beyond the reach of the unhappy inhabitants of that island, who, thus unexpectedly deprived of their mainstay and support, seem to have miserably starved to death, with the exception of one small village on the north shore. The residents of the Poonook, Poogovellyak, and Kagallegak settlements perished, to a soul, from hunger; nearly three hundred men, women, and children. I recall the visit which I made to these settlements, in August, 1874, with sadness, in this unfortunate connection, because they impressed me with their manifest superiority over the savages of the northwest coast. They seemed, then, to be living, during nine months of the year, almost wholly upon the flesh and oil of the walrus. Clean limbed, bright eyed, and jovial, they profoundly impressed me with their happy reliance and subsistence upon the walrus herds of Bering sea. I could not help remarking then, that these people had never been subjected to the temptations and subsequent sorrow of putting their trust in princes; hence, their independence and good heart. But now it appears that it will not do to put your trust in walrus, either.

I know that it is said by Parry, by Hall, and lately by others, that the flesh of the Atlantic walrus is palatable; perhaps the nature of food-supply is the cause. We all recognize the wide difference in pork from hogs fed on corn and those fed on beech mast and oak acorns, and those which have lived upon the offal of the slaughtering houses or have gathered the decayed castings of the sea shore; the walrus of Bering sea lives upon that which does not give pleasant flavor to its flesh.

IMPERFECTION OF WALRUS IVORY.—Touching the ivory, I was struck, in looking over the tusks as they protruded from the live animals' mouths, by the fact that only rare examples of perfect teeth could be found; they were broken off irregularly, some quite close to the socket, hardly a single animal having a sound and uniform pair of tusks. Most of the walrus ivory taken is of very poor quality; it has a deep core, or yellow, suspended pith, and is frequently so cracked, where the ivory is the whitest and the firmest, as to be of mere nominal value; but exceptional teeth now and then occur, of prodigious size and superior texture; these are carefully treasured and sold to great advantage.

THE ANTIQUITY OF WALRUS HUNTING.—Generally, when we look for the earliest records of this or that action or occupation, we are treated to a vast store of indeterminate material, upon which any theory or conjecture may be raised. But, touching the case of the hunting of the fur-seal and the walrus, in northern waters, we have exact data as to records of the earliest chase and capture of these animals by our own people. The history of walrus hunting comes down to us from rare old antiquity, in this way: Shortly after 868 A. D., King Alfred, of England, gave a translation of the Spanish *Ormestra*, or "*Di miserere mundi*," of Paul Orosius, in his mother tongue, the Anglo-Saxon; into this complete and only geographical review of the earth's form, as known at

Plate XXIV.



"DOUBLE PURCHASE" OF THE ESKIMO.

Innuits of St. Lawrence Island, Alaska, hoisting a Walrus carcass.

that time, he interwove the relations of Othere and the Dane Wulfstan. The former was a great man from Norway; he undertook a voyage of discovery beyond the north cape of his native land, and to the then unknown eastward as far as our modern Finland, which he indicated as the "country of the Beormas". He shaped his course to this region, "on account of the horse whales, inasmuch as they have very good bone in their teeth"; also, "this sort of whale is much less than the other kinds, it being not larger commonly than seven ells"; and states further that he Othere, "had killed fifty-six in two days".

DESCHNEV THE FIRST TO SEE THE WALRUS OF BERING SEA.—The earliest personal record made of the walrus of Bering sea, was the discovery of these animals by Simeon Deschnev, that Cossack who, first of all civilized men, sailed through Bering straits, October, 1648; and who made use of their ivory, *en voyage*, in repairing his rude shallop. He also, in 1651, discovered extensive sand shoals north of the Anadyr mouth, upon which large herds of walrus were resting. But in this connection it is proper to say, that the walrus of Bering sea is the same animal of which Isaiah Ignatiev learned in 1646, when he led a party of Russian fur-hunters east of the mouth of the Kolyma as far as Tchaun bay. He did not see it, however, and traded with the Tschukchies for the teeth in question. His report of a nation rich in walrus ivory far to the eastward along the shores of the Polar ocean, is what stimulated the remarkable voyage of Deschnev, above referred to, as well as many others who were not so successful,* viz: Staduchin, Alexiev, Ankudinov, Buldákov, all in 1647–1649.

BOREAL RANGE OF THE WALRUS OF BERING SEA.—The range of the Bering sea walrus now appears to be restricted in the Arctic ocean to an extreme westward at Cape Chelagskoi, on the Siberian coast, and an extreme eastward between Point Barrow and the region of Point Beechey, on the Alaskan shore. It is, however, substantially confined between Koliutchin bay, Siberia, and Point Barrow, Alaska. As far as its distribution in polar waters is concerned, and how far to the north it travels from these coasts of the two continents, I am unable to present any well authenticated data illustrative of the subject; the shores of Wrangell Land were found this year (1881) in possession of walrus herds.

The Japanese seem to have known of the walrus of Bering sea, but evidently have not observed it—at least, I think so, from the testimony of their spirited drawings of this animal. They represent it with the body, the neck, and the limbs of a horse, running on camel-like feet, with an equine head, from the upper jaw of which two enormous tusks depend; it is made to gallop rather as a land- than a sea-horse. The hair-seals are very much better delineated by both Chinese and Japanese artists; and, further, no suggestion, by such means, has been made of the fur-seal by them.

The chief demand for walrus ivory first came, and still comes, from those patient, skillful Mongolian hand-carvers, who work the teeth up into a variety of exceedingly attractive articles, both useful and fanciful. Wrangell says that the Tschukchies "make long, narrow drinking vessels from the teeth", which require much time to hollow out; they are frequently sold to the Reindeer Tschukchies, who convey them to the Russians.

The walrus ivory carving of the Alaskan Mahlemoots, at Oogashik and Nushagak, in particular, is remarkably well executed; clever and even beautiful imitations of our watch chains, guards, table, and pocket cutlery, rings, bracelets, and necklace jewelry are made by them. They have earned the just reputation of being "the sculptors of the north".

PARRY'S HISTORY OF THE ATLANTIC WALRUS.—In closing here this brief biography of the walrus of Bering sea, I desire to say that the graphic and detailed account given by Sir Edward Parry, in the narrative of his third voyage to the north pole, of the manner in which the Eskimo hunt and use the walrus of Prince Regent inlet (*Odobœnus rosmarus*), fitly expresses my own observations made at St. Lawrence island, among the Tschukchie Eskimo there; hence, I shall not embody them in type; my illustrations will supply the vacancy which his accurate and lengthy description alone allows.† I call attention to this economic history of the Atlantic walrus by Parry, for, in my opinion, it is written with great fidelity.

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*Allen erroneously gives the credit (on p. 172, *Hist. of N. A. Pinnipeds*) of first discovery and report of the walrus ivory of Bering sea to "the Cossak adventurer Staduchin, who found (about 1645 to 1648) its tusks on the Tschukchie coast, near the mouth of the Kolyma river. A century later, Deschnev also found large quantities of walrus teeth on the sand-bars at the mouth of the Anadyr". Michael Staduchin did not sail from the Kolyma mouth until 1649. He ventured at that time as far east probably as Cape Chelagskoi; he was obliged to return then, after getting a load of walrus teeth from the Tschukchies, but from whom he could get no meat or provision of any kind; he saw no more than his predecessor, Ignatiev, did, three years prior; in other words, he did not then see the walrus itself.

†As the natives of the Pribylov islands do not hunt the walrus, I have, in my studies of this animal, introduced the figures, method, and costumes of the St. Lawrence Eskimo, which faithfully typify the entire Alaskan people, who live largely upon the flesh of this animal. I do so, not only on account of its being wholly germane to the subject of my discussion in this monograph, but more so, as it is the first pictorial presentation of the ideas involved ever given.

# H. A BRIEF REVIEW OF OFFICIAL REPORTS UPON THE CONDUCT OF AFFAIRS ON THE SEAL-ISLANDS.

## 19. SPECIAL INVESTIGATIONS OF LIEUT. WASHBURN MAYNARD, U. S. N.

A synopsis of Lieut. Maynard's report.—In closing this biology of the seal-life on the Pribylov islands, it it is not superfluous on my part to present to the reader a brief review of the writings which have been ordered by the government upon the condition of the subject at the islands. I have previously called attention to the fact that prior to my work in 1872 and 1874, inclusive, a singular absence of a business-like and succinct method of comprehensive information existed in the archives of the Treasury Department, which is charged by law with the absolute control of these interests, and is responsible to Congress for the same. In order, therefore, that this statement of mine shall not pass as a mere assertion on my part, I deem it due to the history of the subject of this memoir, at the present writing, to give a brief abstract of the labors of those officials of the government who have made the fur-seals of Alaska the thesis of their publications and correspondence. These papers are so scattered that a combination here of their substance may not be uninteresting. I shall comment only upon those documents which have a direct reference to the Pribylov islands.

Special report of Lieut. Washburn Maynard, U. S. N.—Before touching upon the special labors of the treasury officials, I wish to direct the attention of the reader to the following synopsis of an exceedingly concise and interesting contribution to the subject of the business on the seal-islands. It is from the pen of Lieut. Washburn Maynard, U. S. N., and was submitted by him to the Secretary of the Navy on the 30th of November, 1874. His work of investigation was in obedience to the order of Congress expressed in an act approved April 22, 1874. The occasion of this gentleman's labor arose directly from the constant and reiterated charges, made more by insinuation than by specific writing, against the correctness of my published position in regard to the conduct of the business on the seal-islands, and he proceeded to that field of duty conscious of the fact, and determined to settle it as far as he was able to, by a thorough and personal scrutiny of the whole subject. He did so; and I now desire to embody the substance of his communication above referred to.

The only fault which can be found with Lieutenant Maynard's report is, that it is exceedingly brief, though explicit. I should say here that he evidently did not consider this writing, from which I shall quote, more than a simple statement of fact, and made it in the nature of an answer to the order of a superior officer.

## 20. SYNOPSIS OF LIEUT. MAYNARD'S INVESTIGATIONS.

The substance of Lieut. Maynard's report.—The islands of St. Paul and St. George, or the seal-islands, as they are more commonly called, are the principal ones of the Pribylov group; the other two, known as Otter and Walrus, are merely outlying islets. They are situated in Bering sea, between the parallels of 56° to 58° of north latitude and 169° to 171° of west longitude. St. Paul has an area of 33 square miles, while St. George claims but 29, with, respectively, 42 and 29 miles of shore-line each.

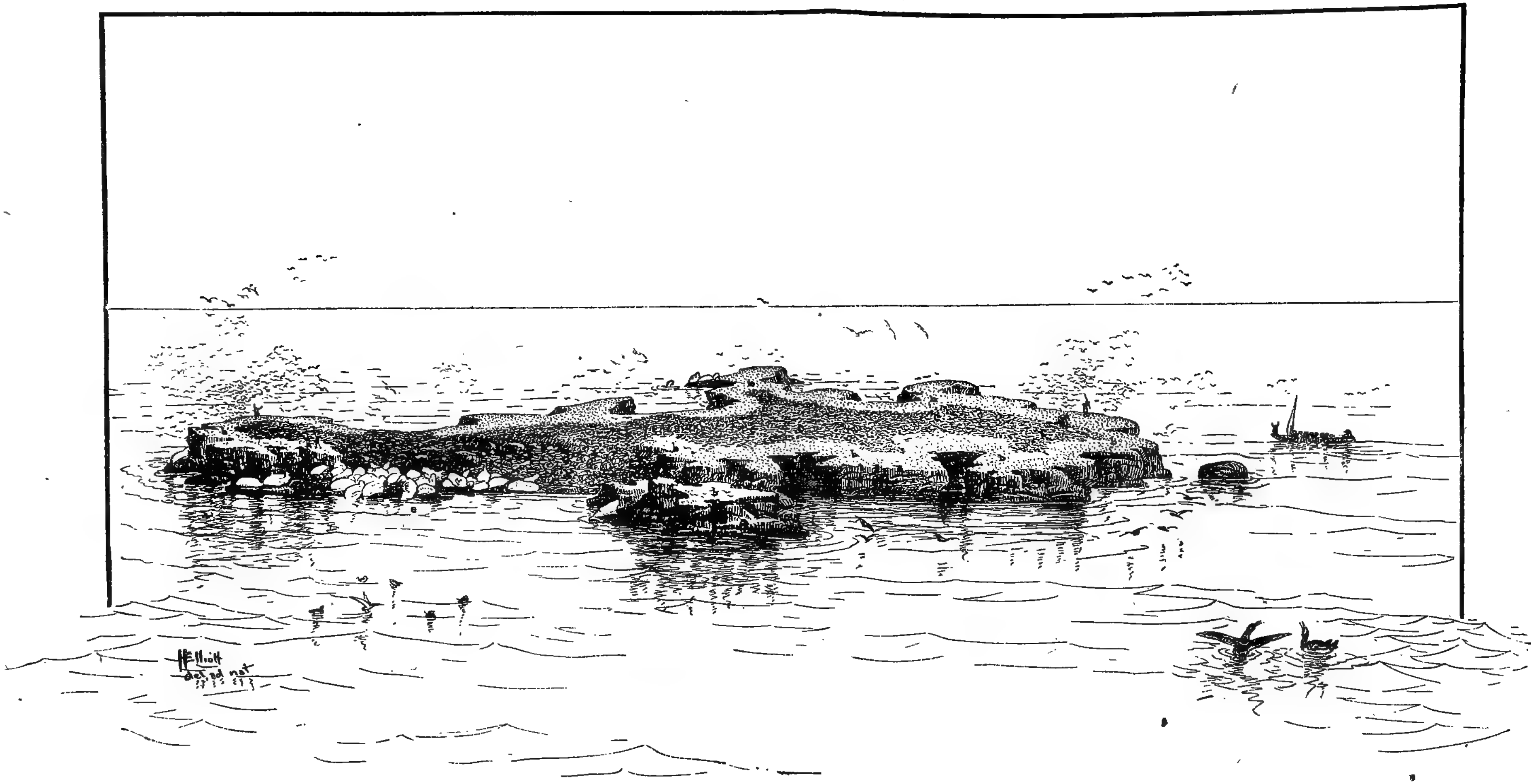
Climate.—They are enveloped in summer by dense fogs, through which the sun rarely makes its way, and are surrounded in severe winters by fields of ice driven down by the Arctic winds. They have no sheltered harbors beyond slight indentations in the shore-line that afford a lee for vessels and tolerable landing places for boats when certain winds are blowing.

Shores and vegetation.—The shores are bold and rocky, with strips of sand-beach, and are covered by broken rocks at intervals between them. The interior of both islands is broken and hilly; neither tree nor shrub grows upon them, but they are clothed with grass, moss, and wild flowers. For nearly one hundred years fur-seals have been known to visit them annually in great numbers for the purpose of bringing forth and raising their young, which circumstance gives those islands their great commercial importance.

Habits of the seal.—These seals occupy the islands from the breaking away of the ice in the spring until it surrounds their coasts again in early winter, that is, from the middle of May until December. In milder hyemal seasons, when there is little or no ice about the islands, a few seals have been seen swimming around in the water throughout the entire year, but these exhibitions rarely occur. The fur-seals are not known to haul up on land elsewhere within the limits of the North Pacific ocean, except at Bering and Copper islands, lying in Bering sea near the Asiatic coast, and Robbin's reef, a small rock on the coast. They certainly go from those landing places to the southward in the fall, for they are frequently seen in the sea, either solitary or in shoals of thousands, and are killed in the water all the way from Sitka to the straits of Fuca. In 1833, 54 were taken by the Russians on the Farralone islands, off seaward from the entrance to the bay of San Francisco. There seems to be no reason why they cannot remain in the water during the entire time they are absent from the islands, for they eat their food there at all times, and are able to sleep upon its surface.

Classification of the seals.—They may be divided into two classes, the breeding and the non-breeding seals; the former comprise the full-grown males or bulls, the adult females or cows, and their young or pups; the

Plate XXV.


HElliott del. ad nat.

## WALRUS ISLET.

Showing the Walrus as it herds, and the peculiar zones of breeding-birds.

A. Cliff fronts occupied by the Rissa and Kittiwake gulls, and the cormorant (*Rissa brevirostris*, *Larus tridactylus*, and *Graculus bicristatus*). b b b. Plateau belt covered by the Arries (*Lomvia arra*) to the exclusion of all other water-fowl. It is white with the droppings of these birds. c c c. The grassy interior, occupied chiefly by the Burgomaster gull (*Larus glaucus*), and a few *Rissa* and *L. tridactylus*). d. Rocky shingle and loose surf-thrown bowlders, between and in the chinks of which the Auks and Puffins nest. e. Walrus herds on the "Echouries."

latter embrace the young or bachelor males and the yearlings of both classes. Each of these classes leave the water and haul up along the shores of the islands nearly in juxtaposition to each other as they are massed on the land, but they are entirely separate. They choose certain portions of the shore to the exclusion of the rest, not all of any one class being together, but spreading into many communities, which are often several miles apart.

POSITION OF THE BREEDING-ROOKERIES.—The breeding seals occupy a slip of ground, between the cliffs, which is covered with bowlders and broken rocks, beginning a few feet above high-water mark, and extending back over a depth of from 50 to 200 feet in a compact and uniform mass. Such places are called breeding-rookeries.

POSITION OF THE HAULING-GROUNDS.—The non-breeding seals, on the contrary, are scattered over the sand-beaches and the higher ground in the rear without any regular order of distribution. When these hauling-grounds lie to the rear of the breeding-grounds, as they sometimes do, pathways are left open in the rookeries at convenient points, to allow a passage up from the sea and back thereto, for the non-breeding seals.

NUMBER OF ROOKERIES.—There are 7 rookeries on St. Paul island, extending with the adjacent hauling-grounds over one-third of its shore-line, and on St. George island there are 5 breeding places and hauling reaches, which, however, take up less than one-tenth of its coast. These breeding-grounds are re-occupied each year with but little change.

DESCRIPTION OF THE LANDING OF THE SEAL.—About the middle of May, usually, the bulls, which are the first of the breeding-seals to arrive, crawl from the water and establish the rookeries in readiness for the cows that begin to come somewhat later. It seems probable that the rookeries are occupied by the same bulls and cows from year to year, as they, the rookery grounds, change but little, either in size or form; but it has been proven that the bachelors do not return to the same hauling-grounds, or even to the same island, with regularity from year to year. The time of arrival of cows is governed by their period of gestation, as they do not appear on the rookeries until within a short time of giving birth to their pups. Hence all do not come at the same period, but arrive continuously from the last days of May until the middle of July.

POLYGAMOUS AND ANGRY NATURE OF THE MALES.—The bulls are polygamous, having from 20 to 50 cows each, so the number of them upon the rookeries is not more than one-tenth of that of the cows. They have frequent and bloody fights for the possession and retention of their places upon the breeding-grounds, and for control of the cows, in which they are often killed, or are driven from the rookeries, and are more or less badly bitten by the sharp teeth of their opponents. The females do not even always escape unhurt, as two males seize one and literally tear her in two by their struggle for her possession.

ARRIVAL OF THE FEMALES AND BIRTH OF THEIR YOUNG.—The cows are continuously arriving upon the rookeries and giving birth to their pups, from the last of May until the middle of July. Usually each female bears a single pup, though I have been told by persons, whose statement I have no reason to doubt, that they have witnessed one or two instances of twins. From the 20th to the 25th of July the rookeries are fuller than at any other time during the season, as the pups have all been born, and all the bulls, cows, and pups remain within these limits.

PROTRACTED FASTING OF THE MALES.—During the breeding-season, which lasts three consecutive months, or nearly so, the bulls remain upon the rookeries, never leaving them for an instant, even to procure food. This fast, and the constant watchfulness necessary to keep their harems together, and to prevent the encroachments of other bulls, and the service of the cows, renders their position no sinecure. Their emaciated bodies and loose and wrinkled skins at the close of the season are in marked contrast to the fat, sleek-looking cows, for the latter have been constantly going and coming between the rookeries and the water, so that at any one time there are seldom more than one-half of the females on land.

CHANGES AT THE CLOSE OF THE SEASON.—About the first of August the breeding-season ends, and the pups, which grow rapidly, now are large and strong enough to move about, so that the rookeries begin to lose their compact form and rigid exclusiveness. The bulls begin to go into the water, their places being filled by the younger males, which up to this time have not been allowed by the older males to go upon the rookeries, while the cows and pups spread back over the haulings in scattered groups, and occupy more than twice the space that had previously held them.

ARRIVAL AND LANDING OF THE BACHELOR SEALS.—Meanwhile the young males or bachelor seals have been coming to the hauling-grounds, which are covered more or less thickly by them all summer. They do not remain on shore long at any one time, but haul up to sleep and play for awhile, and then return to the water for food. They are so numerous, however, that thousands can always be seen upon the hauling-grounds, because all of them are never either on shore or in the water at the same time. The yearling seals, distinguished by their size, and the silvery color of their sides and abdomens, do not make their appearance until the latter part of July; then they arrive together in a great body, males and females, and go out upon the hauling-grounds in large numbers and play one with the other for hours at a time. The bachelors join them in their sport, and singling out the baby cows form mimic rookeries, and imitate the roaring, fighting, and caressing of the bulls in a ludicrous manner.

SHEDDING OF THE PUPS AND THEIR LEARNING TO SWIM.—In September and October the pups exchange their coat of black hair, which has been their only covering from their birth, for one of fur and hair combined, similar in appearance to that of the yearling, and then begin to learn to swim, so as to be ready for their departure from the islands in November and December. Prior to this period many of them are killed by the surf, especially if the season be a stormy one, since they are not strong enough swimmers or expert enough to save themselves from being dashed against the rocks by the heavy rollers. The cows remain with their pups and suckle them, until all classes have left the islands, usually by the 1st or 10th of December. It is probable that of all the seals born each year an aggregate of about one half are males. The experiment was tried of examining one hundred pups, taken at random from the rookeries, and in that number the sexes were about equally divided. The number of bachelor seals in proportion to the cows would also seem to confirm the supposition.

CHARACTERISTIC CHANGES OF THE PELAGE.—There is not the slightest perceptible difference in appearance between the seals of the two classes, either in the first or in the second year after their birth, but as they grow older they vary and diverge in the tinting of their coats, so as to be readily determined each from the other. The pups when born have only short black hair, no fur. This coat is gradually replaced in their first year by a dress of fine elastic fur, of a light buff color, and of hair longer than the fur, so as to cover it completely and give that silvery-gray to their sides and bellies, and that dark gray characteristic of their necks and heads. The color of their hair changes in their second year to a uniform dark gray. In their fifth year the hair upon the neck and shoulders of the males begins to grow coarser and longer, forming a sort of mane, which increases in length and stiffness until the animal attains its full growth, during the lapse of its eighth or ninth year of life. The females are not found upon the hauling-grounds with the males after they are two years old, hence it seems probable that they go from the rookery in their third, and bear a pup in their fourth year. When both are full grown the sexes differ most widely in appearance; the male, weighing from four to five hundred pounds, is about three times as large as the female, has a mane, and is either black or dark brown in color. The tinting of the female is a soft, rich brown on the back and sides, changing almost to orange upon the belly, and there is no mane. The fur of the cows is rather thicker and finer than that of the yearling seals, though the skins of young males from three to six years old are not very much inferior.

IMPORTANCE OF KNOWING THE NUMBER OF SEALS.—It is of very great significance in this connection to know how many seals come annually to the islands, or rather to understand how many may be killed for their skins annually, without causing less to come hereafter than do at the present time. To determine how many there are with accuracy is a task almost on a par with that of numbering the stars. The singular motion of the animals when on shore, the great variety in size, color, and position; the extent of surface over which they are spread, and the fact that it cannot be determined exactly what proportion of them, of their several classes, are on shore, at any given time; all these desiderata for comprehension make it simply impossible to get more than an approximation of their numbers. They have been variously estimated at from one to fifteen millions.

METHODS OF ENUMERATION OF THE FUR-SEAL.—I think the most accurate enumeration yet made is that by Mr. H. W. Elliott, special agent of the Treasury Department, in 1872. This calculation is based upon the hypothesis that the breeding-seals are governed in hauling by a common and invariable law of distribution, which is, that the area of the rookery ground is directly proportional to the number of seals occupying it. He estimates that there is one seal to every two square feet of rookery surface. Hence the problem is reduced to the simple operation of obtaining half the sum of the superficial area of all the rookeries in square feet. He surveyed these breeding-grounds of both islands in 1872 and 1873, when at their greatest limit of expansion, and obtained the following results: Upon St. Paul island there were 6,060,000 feet of ground occupied by 3,030,000 breeding-seals and their young. On St. George island he announced 326,840 square feet of superficial rookery area occupied by 163,420 breeding-seals and their young; a total for both islands of 3,193,420 breeding-seals and their young. The number of non-breeding seals cannot be determined in the foregoing manner, as they haul most irregularly, but it seems to me probable that they are nearly as numerous as the other class is. If so, it would give not far from 6,000,000 as the stated number of seals of all kinds which visited the Pribylov islands during the season of 1872.

GENERAL ACCURACY OF THESE RESULTS.—It is likely that these figures are not far from the truth, but I do not think it necessary myself to take into consideration the actual number of seals in order to decide the question of how many can be taken each year without injury to the fishery. The law that the size of the rookeries varies directly as the number of seals increases or diminishes, seems to me, after close and repeated observation, to be correct. All the rookeries, whether large or small, are uniform in appearance, alike compact, without waste of space, and never crowded. Such being the case, it is unimportant to know the actual number of seals upon the rookeries. For any change in the number of seals, which is the point at issue, increases or decreases in size, and the rookeries taken collectively, will show a corresponding increase or decrease in the number of breeding-seals; consequently changes in the aggregate of pups born annually upon which the extent and safety of the fisheries depends, can be observed accurately from year to year by following these lines of survey.

SURVEYED PLATS OF THE ROOKERIES.—If, then, a plan or map of each rookery be made every year, showing accurately its size and form, when at its greatest expansion, which is between the 10th and 25th of July annually, a comparison of this map will give the relative number of the breeding-seals as they increase or diminish from year to year. I submit with this report maps of St. Paul and St. George islands, showing the extended location of breeding-rookeries, and hauling-grounds upon them. These maps are from surveys made in July, 1874, by Mr. Elliott and myself, and a map of each rookery on both islands drawn from careful surveys made by Mr. Elliott in 1872, show them now as they were in the season of 1874 as compared with that of 1872. I respectfully recommend that enlarged copies of these latter maps be furnished to the government agents in charge of the islands, and that they be required to compare them each year with the respective rookeries, and note what change in size and form, if any, exists upon them. This, if carefully done, will afford data, after a time, by which the seal fisheries can be regulated with comparative certainty, so as to produce the greatest revenue to the government, without injury to this valuable interest.

NUMBER OF SEALS KILLED.—Since 1870 there have been killed, on both islands, 112,000 young male seals each year. Whether this slaughter has prevented the seals from increasing in numbers or not, and, if so, to what extent, can only be deduced from their past history, which unfortunately is very imperfectly given. In 1836 to 1839 there were fewer seals upon the islands than had ever been seen before since their first discovery in 1786. On St. Paul island, then, there were not more than twelve or fifteen thousand of all kinds. The killing of them was then stopped, and not resumed until 1845, when it was done gradually, and, as had never been the case before, only the young males were killed. The rookeries continued to increase in size until 1857, since which time they have remained in about the same aggregate, although a less number of bachelor seals were killed yearly between 1857 and 1868 than have been slaughtered since.

THOUGHTS ON THEIR INCREASE AND DIMINUTION FOR THE FUTURE.—This would seem to show that there is a limit beyond which they will not increase, and that this limit, a natural one, has been reached. If they could be under our control and protection at all times, and if a sufficient supply of food for them could be procured, we would doubtless be able to cause them to multiply, for there are more of both sexes born each year than are necessary to meet the losses from the natural causes of death, such as old age, diseases, and accidents, and, in reality, we do not even know where they are and what they are about for seven months in each year, while we do know that they have deadly enemies, which make sad havoc, particularly among the pups and yearlings, inasmuch as a single killer-whale has been found to have as many as 16 young seals in its stomach, when destroyed and opened for examination.

THE EXTENT OF HUMAN PROTECTION.—Our protection of them can only be partial; that is to say, we can limit the number to be killed when they are within our reach, and prevent their being dispersed on the breeding rookeries, or driven from the islands. On the other hand, the question raised is, whether the killing of the number above mentioned has had, or has not had, the effect of decreasing the aggregate number of seals. Judging from the comparison between the maps of the rookeries as they were in 1872, and the condition of the rookeries themselves as surveyed, and from the testimony of the best informed men on the island, both whites and natives, I think it has not as yet. Since the young males alone are killed, injury would be effected through this action, if it did not allow a sufficient number to reach that maturity necessary for the satisfaction of all demands of the breeding females on the rookeries. The young males do not grow strong enough to reach the rookeries until they are at least six years old; hence, the effect of the first year's killing cannot be seen in that connection until the pups have attained this age. For that reason it seems to me that it is now a little too soon to decide whether we are killing too many or not, since the present conduct of affairs has now been only four years in operation. It is possible, however, that more, even twice as many as are now killed annually, might be taken every year without injury, but it would be making a severe and most hazardous experiment before any definite result has been obtained from the first, which is now in operation. The number now killed annually is entirely experimental, because we have nothing to start from in the past as a basis of estimation for the future until the effect produced is satisfactorily shown. I would, therefore, not recommend an extension of the contract as to the number of seals to be killed until within seven or eight years from the date of the one now existing went into effect, when, if the rookeries have not decreased in size, it can then safely be done.

THE LEASE OF THE ISLANDS.—In June, 1870, Congress passed an act entitled "An Act to prevent the extermination of the fur-bearing animals in Alaska", which authorized the Secretary of the Treasury to lease to private parties for a term of years the right to engage in the business of taking fur-seals on the islands of St. Paul and St. George, under certain specified conditions and restrictions. Therefore, the subject was publicly advertised, and bids solicited, the privilege to be awarded to the highest responsible bidder. A number of individuals doing business in San Francisco under the firm-name of the "Alaska Commercial Company" were the successful bidders, and the right was granted to them under the terms of the lease now in force (a copy of which is here annexed) for a period of twenty years, from the 1st day of May, 1870. The terms were not arranged and the lease delivered until the 31st day of August, 1870, and the vessels and agents of the company did not reach the islands until the 1st of October. The season allowed by law for killing seals being nearly over, but few skins, consequently, were taken by the company that year (3,448 on St. Paul, and 5,789 on St. George island). But the following and each succeeding year they have taken nearly the full number.

When the lease was made it was erroneously supposed that there were about one-third as many seals on St. George island as there were on St. Paul, and, in consequence of this understanding, the number to be taken from each island was fixed at 25,000 and 75,000 respectively. In reality there are only about one-eighteenth as many on the former as on the latter, which fact having been clearly shown by Mr. Elliott, the power was given to the

Secretary of the Treasury by Congress to change the ratio on each island to a correct basis. In consideration of being the only company allowed to take fur-seals on the islands, it has agreed to pay a yearly rental for the use of them, and a tax or duty upon each skin taken and shipped from them; not to kill more than the stipulated number of seals, and seals of a particular kind; not to molest them on the rookeries or in the water, and to do nothing which would tend to frighten them from the islands, to provide for the comfort, maintenance, education, and protection of the native inhabitants, and neither to furnish nor allow any of its agents to use distilled spirits or spirituous liquors, or to supply them to any of the natives.

EMPLOYÉS OF THE ALASKA COMMERCIAL COMPANY.—The company employs on St. Paul an agent who has general charge of the business on both islands, three assistants, a physician, a school teacher, three carpenters, a cooper, a steward, and a cook; and on St. George, an agent, a physician, a school teacher, and a cook.

CONDUCT OF THE SEALING.—The great work of the season, the taking and curing of seal-skins, begins the first week in June, and is pushed forward as rapidly as possible, as the skins are in the best condition early in the season. This year 90,000 skins were taken on St. Paul by eighty-four men in thirty-nine days. The natives do all the work of driving, killing, and skinning the seals, and of curing and bundling the skins, under the direction of the company's agents and of their own chiefs. The first operation is that of driving the seals from the hauling- to the killing-grounds. The latter are near the salt-houses, which are built at points most convenient for shipping the skins, and all the killing is done upon them, in order not to disturb the other seals, and to save the labor of carrying the skins. The seals suitable for killing (which are the young males from two to six years old) are readily collected into droves upon the hunting-grounds by getting between them and the water, and are driven as easily as a flock of sheep. They move in a clumsy gallop, their bellies being raised entirely from the ground, upon their flippers, which gives them, when in motion, the appearance of bears. They are sometimes called "sea-bears" on account of this resemblance. In driving them care is taken not to hurry them, for if driven too fast they crowd together and injure the skins by biting each other, and also become overheated and exhausted. They are driven from one-half mile to five miles in from three to thirty-six hours, according to the location of the hauling-grounds. After reaching the killing-grounds they are allowed to rest and cool for several hours, particularly if the drive has been a long one. The drives vary in number from five hundred to as many thousand, as there happen to be few or many seals upon the hauling-ground where the drive is made. In each drive there are some seals that are either so large or so small that their skins are not desirable, and sometimes a few females are driven up, not often, however, as they seldom stray from the rookeries. All such are singled out and permitted to escape to the water. The killing is done with a blow on the head by a stout club, which crushes the skull, after which the skins are taken off and carried into the salt-houses. During the first half of the month of June, from five to eight per cent. of the seals in the drive are turned away, being either too small or too large, and from ten to twelve per cent. during the latter half. In July the percentage is still greater, being about forty per cent. for the first and from sixty to seventy-five per cent. for the latter half. About one-half the seals killed are about three years old, one-fourth four, and the remainder two, five, and six. No yearlings have been killed up to the present time, though allowed by the lease, as their skins are too small to be saleable in the present state of the trade, but by some change in it they may become desirable in the future and would then be taken. This would, however, injure the fisheries, because the yearlings of both sexes haul together, and it would be almost impossible to separate them so as to kill only the males. There has been a waste in taking the skins, due partly to the inexperience of the company's agent, and partly to accident and the carelessness of the natives. In making the drive, particularly if they are long, and the sun happens to pierce through the fog, some of the seals become exhausted and die at such a distance from the salt-houses that their skins cannot well be carried to them by hand, and are therefore left upon the bodies. This was remedied during the last killing-season, by having a horse and cart to follow the drive and to collect such skins. Some skins have also been lost by killing more seals at a time than the force of men employed could take care of properly. Good judgment and constant care are required in taking the skins, as fifteen minutes' exposure to the sun will spoil them, by loosening the fur. Another source of waste is by cutting the skins in taking them off in such a manner as to ruin them. It was very difficult at first to induce the natives to use their knives carefully, and several hundred skins were lost in a season by careless skinning; but by refusing to accept and pay for badly-cut skins, the number has been greatly reduced, so that the loss this year on St. Paul was but one hundred and thirty from all causes. The salt-houses are arranged with large bins called kenches, made of thick planks, into which the skins are put, fur-side down, with a layer of salt between each two layers of skins. They become sufficiently cured in from five to seven days, and are then taken from the kenches and piled up in "books", with a little fresh salt. Finally they are prepared for shipment by rolling them into compact bundles, two skins in each, which are secured with stout lashings. The largest of these bundles weigh sixty-four pounds, but their average weight is but twenty-two. The smallest skins, those taken from seals two years old, weigh about seven pounds each, and the largest, from seals six years old, about thirty.

COUNTING THE SKINS.—The skins are counted four times at the island, as follows: by the company's agent and the native chiefs when they are put into the salt-houses, the latter giving in their accounts, after each day's killing, to the government agent; again when they are bundled by the natives, who do the work, as each is paid for his labor by the bundle; by the government agents when they are taken from the salt-houses for shipment, and the fourth time by the first officer of the company's steamer, as they are delivered on board. An official certificate of the number of skins shipped is made out and signed by the government agents in triplicate, one copy being sent to the Treasury Department, one to the collector of San Francisco, the third given to the master of the vessel in which they are shipped. The amount of the tax or duty paid by the company to the government is determined by the result of a final counting at the custom-house in San Francisco. The books of the company show that it has paid into the treasury since the date of the lease (up to the present writing, November 30, 1874), $170,480 54 on account of the rental of the islands, and $1,057,709 74 as tax on the seal-skins taken. The latter sum is less by $16,458 63 than the tax that should have been paid had one hundred thousand skins been taken each year since 1870, or, in other words, 6,269 fewer skins have been shipped than the law permitted. The record kept at the islands by both the government's and company's agents shows that in 1871 but 19,077 skins were taken from St. George instead of 25,000, the legal number allowed, and that every year since the number shipped has fallen a little short of 100,000.

POLICY OF THE ALASKA COMMERCIAL COMPANY.—The company has wisely adopted a fair and liberal policy in its dealings with the natives, and is more than repaid for the expense incurred by the increased ease and rapidity with which they work while taking skins. I examined carefully the books and papers of the company, both at its office in San Francisco and upon the island; also the record kept by the government agents, and talked privately with the most intelligent of the natives, but I was unable to discover by so doing that there has been any fraud practiced toward the government, or want of compliance with the terms of the lease. The natives keep a jealous watch upon the seals, being fully impressed with the fact that their welfare depends upon the safety of the fisheries, and they are also well informed in regard to all laws and contracts which have been made by the government concerning them.

TREATMENT OF THE NATIVES BY THE COMPANY.—The lease requires that provision be made by the company for the comfort, maintenance, education, and protection of the native inhabitants of the islands.

The natives do all the work of taking and curing the seal-skins, for which they are paid by the company forty cents a skin. This produces each year a fund of $40,000, which is divided between the inhabitants of the two islands, according to the number of skins taken from each, which gives $30,000 to the people of St. Paul, and $10,000 to those of St. George. In addition to this, they are paid forty cents apiece for sea-lion skins, ten cents for their throats, and $5 a barrel for their intestines. As this sum is earned by the joint labor of all the able-bodied men, it is considered a common fund, to be divided equitably among them. Payment is made for all other labor to each individual performing it at established rates. In dividing the sealing fund, the ability of the sealers is considered, and the division made accordingly. Thus the strongest and most skillful men, who work the entire season, receive a first class share. Those who are less skillful, and the old men who are unable to do the harder part of the work, receive second and third shares, while the boys who take part in the sealing for the first time receive a fourth class share. The assignment of shares is made by the chiefs and acquiesced in by the others. Each year, after all the skins have been taken, the chiefs furnish the company's agents with a list of the men who have been engaged in sealing during the season, and the share assigned to each. The second, third, and fourth class are, respectively, 90, 80, and 70 per cent. of the first class share. Two first class shares are voluntarily given for the support of the church, and one for that of the priest. The value of the shares varies a little from year to year, with the number of men engaged in sealing. This year (1874) it was for each, respectively, $429 53, $368 58, $343 62, and $300 63. The result of the division is formally made to the people by the company's agents, through the chiefs and in the presence of the government's agents. These sums are not paid at the time to the natives, but are placed to their credit in the book of the company and in pass-books which are furnished to each man. All other labor is paid for in coin when performed, at the rate of from 6 to 10 cents an hour, according to the nature of the work, except that of bundling skins, which is at the rate of 1 cent a bundle. The first chief is paid a monthly salary of $15, and each of the others, three in number, one of $10, in addition to their shares of the sealing fund. Other natives, men and women, employed throughout the year in other capacities, receive from $4 to $30 a month and board.

THE COMPANY'S STORE.—Clothing, provisions, and other articles are kept in the company's store-houses on the island, and are sold to the natives at prices not exceeding those for which the same could be bought at retail in San Francisco. I examined the goods, and found them to be of good quality. The people have but little idea of economy, and would spend all their money in a short time for certain articles of which they are fond, hence it is necessary to limit their sale, such as butter, sugar, and perfumery. They are encouraged to save money by the company, which receives deposits from them, subject to the usual rules of "savings banks", and pays an interest of 9 per cent. per annum. Deposits range from $100 to $1,100. The church has a deposit of $8,000. Some are in debt to the company, but become less so every year. Such as are without means of support, widows and orphan children, are supported by the company.

SANITARY ADVANCEMENT.—The natives live partly in "barrabaras," or earth-houses, and partly in comfortable frame-houses. Thirty of the latter have been built within the last two years by the company, and given rent free. Others are being built as rapidly as possible, it being the intention of the company to give each family a house. The lease requires the annual delivery upon the island of sixty cords of fire-wood, and twenty-five thousand dried salmon, for the use of the natives; but, with the consent of the Secretary of the Treasury, coal, ton for cord, has been substituted for the former, and an equivalent quantity of salted salmon and codfish for the latter. Both have been regularly supplied, as shown by the receipts of the government agent and the statements of the natives, together with as much salt and as many barrels as have been desired for curing and storing their seal-meat.

Two physicians are in the employ of the company, one residing on each island, who are charged with the care of the sick, and have already, by their efforts, seconded by the example of the other white residents, induced greater cleanliness and a more healthful mode of living among the natives.

SCHOOL ATTENDANCE.—The education of the native children has not been neglected, though so far the attempt to teach them has not been as successful as could be desired. For each island a competent teacher, a convenient and well-warmed school-room, and a supply of school-books, etc., have been provided every year from the first of October until the first of June, but the difficulty has been to induce the parents to send their chidren, as they do not think them able to learn both English and Russian, and as the latter is the language of their church they consider it the most important. The average attendance at the school on St. George has been but five or six, while there are from thirty to forty children, and on St. Paul but four or five, with from forty to fifty children. Last year on the latter island there was a better attendance, and the children made considerable progress. The prejudice of the older people seems likely to wear away, as they learn a little English themselves from constantly hearing it, and will doubtless disappear after a time.

TERMS OF THE SEAL-ISLAND LEASE FROM THE GOVERNMENT.—This indenture in duplicate, made this 3d day of August, A. D. 1870, by and between William A. Richardson, Acting Secretary of the Treasury, in pursuance of an act of Congress approved July 1, 1870, entitled "An act to prevent the extermination of fur-bearing animals in Alaska," and the Alaska Commercial Company, a corporation duly established under the laws of the state of California, acting by John F. Miller, its president and agent, in accordance with a resolution at a meeting of its board of trustees, held January 31, 1870, witnesseth:

That said secretary hereby leases to the said Alaska Commercial Company, without power of transfer, for the term of twenty years from the 1st day of May, 1870, the right to engage in the business of taking fur-seals on the islands of St. George and St. Paul within the territory of Alaska, and to send a vessel or vessels to said island for the skins of such seals.

And the said Alaska Commercial Company, in consideration of their right under this lease, hereby covenant and agree to pay, for each year during said term and in proportion during any part thereof, the sum of $55,000 into the Treasury of the United States in accordance with the regulations of the secretary to be made for this purpose under said act, which payment shall be secured by deposit of United States bonds to that amount, and also covenant and agree to pay annually into the Treasury of the United States, under said rules and regulations, an internal-revenue tax or duty of $2 for each seal-skin taken and shipped by them in accordance with the provisions of the act aforesaid, and also the sum of 60½ cents for each fur-seal skin taken and shipped, and 55 cents per gallon for each gallon of oil obtained from said seals, for sale in said islands or elsewhere, and sold by said company; and also covenant and agree, in accordance with said rules and regulations, to furnish, free of charge, the inhabitants of the islands of St. Paul and St. George annually during said term 25,000 dried salmon, 60 cords fire-wood, and a sufficient quantity of salt and a sufficient quantity of barrels for preserving the necessary supply of meat.

And the said lessees also hereby covenant and agree during the term aforesaid to maintain a school on each island, in accordance with said rules and regulations and suitable for the education of the natives of said islands, for a period of not less than eight months in each year.

And the said lessees further covenant and agree not kill upon said island of St. Paul more than seventy-five thousand fur-seals, and upon the island of St. George not more than twenty-five thousand fur-seals per annum; not to kill any fur-seal upon the islands aforesaid in any other month except the months of June, July, September, and October of each year; not to kill said seals at any time by the use of fire-arms or means tending to drive said seals from said islands; not to kill any female seals or seals under one year old; not to kill any seal in waters adjacent to said islands, or on the beach, cliffs, or rocks, where they haul up from the sea to remain.

And the said lessees further covenant and agree to abide by any restriction or limitation upon the right to kill seals under this lease that the act prescribes, or that the Secretary of the Treasury shall judge necessary for the preservation of such seals.

And the said lessees hereby agree that they will not in any way sell, transfer, or assign this lease, and that any transfer, sale, or assignment of the same shall be void and of no effect.

And the said lessees further agree to furnish to the several masters of the vessels employed by them certified copies of this lease, to be presented to the government revenue officers for the time being in charge of said islands, as the authority of said lessees for the landing and taking of said skins.

And the said lessees further covenant and agree that they or their agents shall not keep, sell, furnish, give, or dispose of any distilled spirituous liquors on either of said islands to any of the natives thereof, such person not being a physician and furnishing the same for use as medicine.

And the said lessees further covenant and agree that this lease is accepted, subject to all needful rules and regulations which shall at any time or times hereafter be made by the Secretary of the Treasury for the collection and payment of the rental herein agreed to be paid by said lessees for the comfort, maintenance, education, and protection of the natives of said islands, and for carrying into effect all the provisions of the act aforesaid, and will abide by and conform to said rules and regulations.

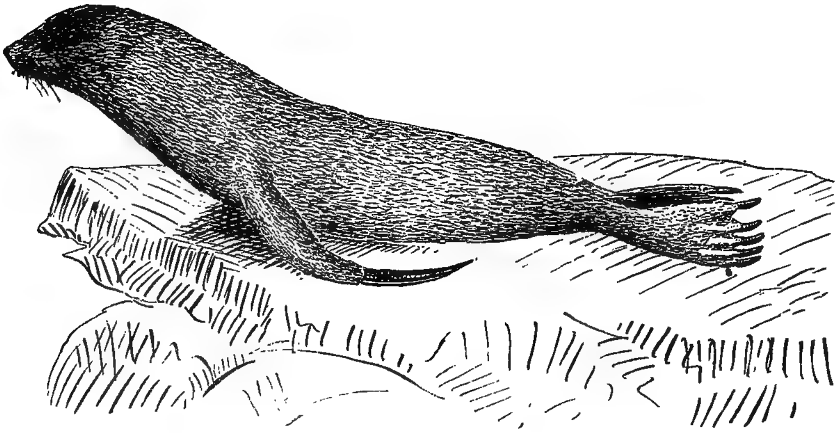
And the said lessees, accepting this lease with a full knowledge of the provisions of the aforesaid act of Congress, farther covenant and agree that they will fullfil all the provisions, requirements, and limitations of said act, whether herein specifically set out or not.

In witness whereof the parties aforesaid have hereunto set their hands and seals the day and year above written.

WILLIAM A. RICHARDSON, [SEAL.]
*Acting Secretary of the Treasury.*

Executed in presence of—
J. H. SAVILLE.

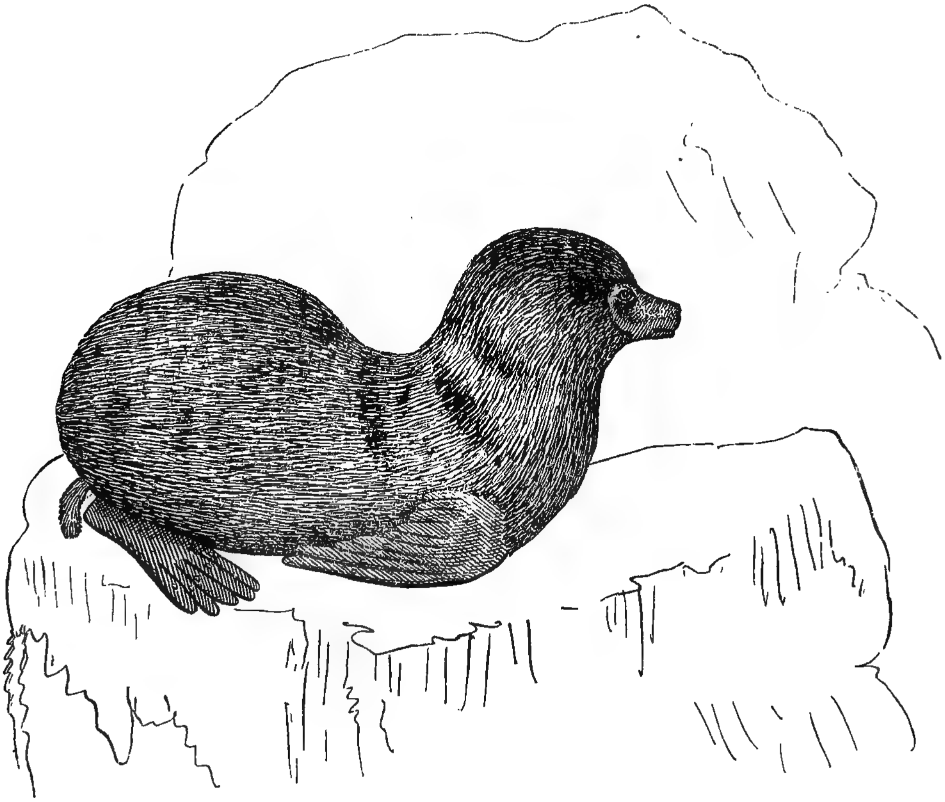
ALASKA COMMERCIAL COMPANY,
By JOHN F. MILLER, *President.* [SEAL.]



**A FUR-SEAL, as drawn by C. Landseer, 1848.**

"O. nigra—Black Otary." [Encyclo. Metropolitana, London, 1848, Fig. 2, pl. ix, p. 109 ]

[Evidently drawn from an alcoholic or air-dried specimen of an *Arctocephalus* pup, in its black natal coat.—H. W. E.]



**THE FUR-SEAL.**

(Callorhinus ursinus.)

[Fac-simile of a figure engraved on steel from a drawing by Sidney Edwards based upon Steller's description, published as "Phoca ursina" in the Book of Nature, vol. i, pl. 53, Phila., 1834. This is, in its aggregate, one of the best figures of the Fur-seal given to the world prior to my life-studies on the Pribylov Islands, 1872–'76, inclusive.—H. W. E.]

### 21.—EPITOME OF SPECIAL REPORTS UPON THE SEAL-ISLANDS IN THE ARCHIVES OF THE TREASURY DEPARTMENT.

THE OFFICIAL FILES OF THE TREASURY DEPARTMENT.—The first direct reports received by the government from its agents were those of Charles Bryant and H. H. McIntyre, each dated November 30, 1869, and addressed to the Secretary of the Treasury; they were published by order of Congress January 26, 1870. (See Ex. Doc. No. 32, 41st Congress, 2d session.) The references made to the seal-life in these documents are very brief and general.

On the 30th December, 1870, the next communication from the seal-islands touching the condition of the animals, etc., was received by the Treasury Department from its agent, Mr. S. N. Büynitsky; it is a very brief review of the whole state of affairs. (See Ex. Doc. No. 83, 44th Congress, 1st session, pp. 41 and 44 inclusive.) This is followed on November 10, 1871, by another report upon the same subject by Charles Bryant, still brief and general. (Ex. Doc. No. 83, 44th Congress, 1st session, pp. 59 and 66 inclusive.) It is a mere synopsis of the success of the sealing season, and is followed by another routine report by the same author, dated August 15, 1872, of the same vague and general tenor.

A series of brief annual reports of this character by the agents of the Treasury Department have been annually received by the government from Messrs. Bryant, Morton, and Otis, respectively, up to date, being all restricted to short business recapitulations of the season's work in sealing, condition of the natives, etc.; they are supplemented and illustrated by the reports made by the assistant special agents of the Treasury Department, who address their communications to the treasury agent in charge, or chief special officer of the government.

The last two annual reports of Colonel Otis, special agent Treasury Department, are elaborated in regard to the details of sealing-labor and figures of the progress of the work itself. He gives no special attention to the life and habits of the fur-seal in his communication to the Secretary.

## I. ILLUSTRATIVE AND SUPPLEMENTAL NOTES.

### 22. THE RUSSIAN SEAL-ISLANDS, BERING AND COPPER, OR THE COMMANDER GROUP.

EXTRACTED FROM PROFESSOR NORDENSKIÖLD'S REPORT IN REFERENCE TO BERING ISLAND

[Translated by Capt. G. Niebaum.]

ARRIVAL OF NORDENSKIÖLD: LOCATION OF BERING ISLAND.—The Vega anchored on the 14th August, 1879, in a rather poor, open harbor on the northwest coast of the island. Bering island is the most westerly of the Aleutian islands, and is situated nearest Kamtchatka; it does not belong, nor does the neighboring Copper island, to America, but to Asia, and is controlled by Russia; nevertheless, the American Alaska Company have obtained the hunting privilege, and maintain here a not inconsiderable trading-station, which consists of about 300 inhabitants, supplying them with provisions and manufactured goods, and from them in turn receiving their labor, principally rendered in taking skins of the eared-seal, or sea-bear (*Otaria ursina*); between 40,000 and 100,000[*] of

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[*] These figures are in error; the table given at the close of this translation will show it. It is well known that the fur-seal, as it bred, was first seen and described by Steller, who wrote his description on this island, when shipwrecked there with Bering, in 1741–'42. Steller's account and the stories of the survivors drew a large concourse of rapacious hunters to the Commander islands; they appear, as near as I can arrive at truths, from the scanty record, to have quickly exterminated the sea-otters, and to have killed many and harrassed the other fur-seals entirely away from the island; so that there was an interregnum between 1760 and 1786, during which time the Russian promyshleniks took no fur-seals, and were utterly at loss to know whither these creatures had fled from the islands of Bering and Copper. When they (the seals) began to revisit their haunts on the Commander islands, I can find no specific date; but I am inclined to believe that they did not reappear on Bering and Copper islands to anything like the number seen by Steller, until 1837–'38; perhaps have not done so until quite recently. At least, in 1867, the Russians did not think more than 20,000 skins could be secured there annually, while they declared 100,000 could be taken readily at the Pribylovs; again, since 1867 the capacity of the Commander group has gradually increased from 15,000 to 20,000, then to 40,000 and 50,000 "holluschickie" per annum. Now, this striking improvement is due, doubtless, to the superior treatment of the whole business by the Alaska Commercial Company, which had also leased these interests from the Russian government in 1871 for a term of 20 years. I think, therefore, that when the fur-seals on the Commander islands became so ruthlessly hunted and harrassed shortly after Steller's observations in 1742, then they soon repaired, or rather most of the survivors did, to the shelter and isolation of the Pribylov group, which was wholly unknown to man; and it remained so until 1786–'87. Then succeeded a period between, up to 1842–'45, when the unhappy seals had but little rest or choice between the Commander and the Pribylov islands, and must have sadly diminished, as the record shows, in numbers.

The unfortunate overland journey of Steller, which alternately starved and froze him into a low fever that ended his young and promising life in a yourt on the Siberian steppes, November 12, 1745, six years prior to the first publication of his celebrated notes on the these animals are killed yearly on this and the neighboring Copper island; those are the animals from which is obtained the brown, silky, soft seal-skin, which of late has become so fashionable. In order to watch over the interest of the Russian government and to maintain order, there are also a few Russian officers stationed here.

SKETCH OF THE VILLAGE.—A half dozen convenient wooden houses are here erected, used for warehouses and stores, also for the use of servants of the Russian government and of the company. The natives live partly in adobe houses, quite roomy and not unpleasant inside; partly in small wooden houses which the company are gradually endeavoring to introduce, instead of turf houses, by yearly importing and giving away a few such houses to the most deserving ones of the inhabitants. A church for Greek-Catholic service is also there, and a roomy school-house intended for children of the Aleutians. Unfortunately, the school was now closed, but to judge from the copy-books which were lying around in the school-room, the teaching here is not to be despised. At least the writing proofs were conspicuous for their cleanliness, absence of school blots, and an exceedingly even and beautiful handwriting. At the "colony" the houses are collected in one place in a village, which, from the sea, has the appearance somewhat of a small Norwegian fisherman village. Beside these, a few scattered houses are to be found here and there on other parts of the island, as, for instance, on the northeast side, where cultivation of potatoes is carried on on a small scale, at the hunting-place on the north side, where a couple of large warehouses and a number of very small underground houses are to be found, and are used only during the killing-season.

DISCOVERY OF THE ISLAND.—Geographically, as well as in regard to natural history, Bering island is one of the most curious islands in the northern part of the Pacific ocean. It was here where Bering, after his last disastrous voyage in this sea, which now bears his name, on the 19th of December, 1741, finished his long career as a discoverer, shortly after his ship, during a storm, crushed against the cliffs on the north coast of the island. Many of his fellow-travelers survived him, among them the learned naturalist Steller, who left a masterly description, seldom equaled, of the natural history of this island, where he involuntarily spent his time from the middle of November, 1741, to the end of August, 1742.

As far as is known, Bering island had never before been visited by man. It was the desire to obtain for our museums the skins and skeletons of the many curious mammiferous animals existing here, as also to compare the present condition of the island, since it has nearly a century and a half been mercilessly exposed to hunting and the cupidity of mankind, with the vivacious and striking description left by Steller, which prompted me to put down on our traveling plan a visit to the island. The news I gathered on Bering island from American papers, about the uneasiness which our wintering in the Arctic had created in Europe, really prevented me from remaining here as long as I should have wished; but, nevertheless, our collections and observations are exceedingly valuable.

CHANGES SINCE STELLER'S TIME.—Since the time of Steller, the animal life has undergone a considerable change on the island. Foxes (or, more correctly, "fjellrackor", Swedish) existed then in unusual numbers. Not alone did they eat up everything that could be eaten at all which was left outside, but they forced themselves in the houses during the day as well as night, and carried away anything they could, even articles that could be of no use to them, such as knives, sticks, sacks, shoes, and socks. It became necessary, when doing certain things out of doors, to drive them away with sticks, and at last they became—through the slyness and cunning with which they managed to consummate their thieving, and the cleverness with which they combined their efforts to attain objects which they alone could not accomplish—really dangerous, mischief-making animals for the castaways. Since then thousands upon thousands have been taken here by fur-hunters. Now they are so rare that during our stay here we did not see a single animal. The remaining ones are said not to have the formerly so commonly-seen black-blue coat, but the white, which is not very costly. On the neighboring Copper island there are still considerable numbers of black-blue foxes.

Steller and his fellow-travelers killed here in 1741-'42, seven hundred sea-otters. This animal, known for its very costly and fine fur, is now entirely driven from Bering island.

Of sea-lions, *Otaria Stelleri*, which were formerly very numerous, but few now visit this place; also sea-bears, *Otaria ursina*, and finally, the most curious of all the former mammalia on Bering island, the great sea-cow, is now altogether extinct.

MARINE "NEAT CATTLE".—Steller's sea-cow, *Rhytina Stelleri*, took the place, in a certain way, of the hoofed animal among the sea-mammalia. It was of a nut-brown color and covered with hair which had grown together into an outer hide, much like the bark of an old oak tree. Its length was, according to Steller, even to 35 feet, and its weight almost five hundred hundred weight. The head was large, neck short, hardly distinguishable, forepart of body very thick, but suddenly narrowing backward. It had two short fore-legs, which terminated abruptly without any fingers or nails, but with close-gathered bristle hair; hind-legs were missing altogether and replaced by a tail-fin, something like the whale. Teats, which were very rich in milk with the females, had their places between the forelegs. The flesh and milk resembled very much that of neat-cattle; it was even better than the latter, according to Steller.

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"sea-bears" of Bering island, often occurs sadly to my mind in this connection; for, undoubtedly, had he lived then to have reached St. Petersburg, whither he was bound, he would have enlarged and polished these items, which now appear in the *Proceedings of the Imperial Academy*, 1751, just as he had roughly drafted them in the field, May and June, 1742. This revision of his field jottings would have undoubtedly supplied many links now missing to the disconnected history of the seal-life on the Commander islands, as it presents itself to us at this late day.—H. W. E.

The sea-cows were almost constantly occupied in feeding on those sea-weeds found in abundance along the coast, in doing which they moved neck and head as an ox. They showed great gluttony, and were not disturbed in the least by the presence of people. It was possible to go up to and even to touch them without their being scared or seeming to mind it. Toward each other they showed great affection, and when one was harpooned the others made unusual efforts to save it.

When Steller was there these animals collected in great herds as neat-cattle, grazing everywhere along the shores. A great number were killed by Steller and his companions. Later the hunt for these animals was an important food-item for those Russians who sailed from Kamtchatka to the Aleutian islands. Hundreds were killed yearly, and it was soon exterminated, as it existed, if we except a few animals gone astray, at that time only on Bering island. According to what Middendorf quotes from the very careful researches which the celebrated academicians v. Baer and v. Brandt had made, the sea-cow had not been seen before Steller's time, 1741, and the last was said to have been killed in 1768. During the many investigations I made among the natives, I obtained reliable information that the sea-cow had been killed much later. A "creole" (*i. e.*, a mixture of Russian and Aleut), who is now sixty-seven years old, of clever appearance and perfect mental condition, said that his father died in 1847, aged eighty-eight. The father was from Wolhynien, and came to Bering island when eighteen years of age, that is, in 1777. The first two or three years (that is, 1779 or 1780) after his arrival, they used to kill sea-cows as they grazed at low-water mark. Only the heart was eaten; the hide was used for badarrahs. In consequence of its thickness it was split in two parts. Two such split hides were sufficient to cover a badarrah of 20 feet length, 7½ feet width, and 3 feet depth. After that time none of these animals had been killed.

LAST SIGHT OF SEA-COW HERE.—It is surmised that a sea-cow had shown itself much later around the island. Two "creoles", Teodor Merchenin and Stepnoff, saw, about twenty-five years ago, at Tolstoi Mees, on the east of the island, an animal which they did not know; it was very thick forward and tapered backward, had small fore-feet, and showed itself about 15 feet above the water, rising and again sinking. It blew, not through a blow-hole, but through its mouth, which was somewhat elongated. Its color was brown, with large light spots. It had no fin on the back, but when it raised itself it was possible to see the vertebræ lumps, in consequence of its very lean condition. I made a very thorough examination of the two tales-men. Their story agreed fully, and appeared as if entitled to be given credence.

One of the Alaska company's hide-examiners, Mr. Ohsche, a native of Lifland and for the present living on Copper island, told me that bones of the sea-cow could be found on the west side of Copper island, in the center. Again, it is said that no bones exist on the little islet, opposite the colony, although bones are plenty on the neighboring beach on the main island. This is the meager information I could gather from the natives and other people residing here about the animal. But I was very fortunate in being able to collect a very large and beautiful assortment of skeleton parts.

NORDENSKIÖLD'S SUCCESS IN GETTING ITS BONES.—When I first made the acquaintance of the Europeans living on the island, I was told that there was a very poor show for making any large collections. The company had in vain offered 150 rubles for a skeleton. But after I had been ashore a few hours I already found out that larger and smaller collections of bones were to be found here and there in the huts of the natives. Those I bought, paying purposely for them in such a way that the seller was more than satisfied, and his neighbor a little envious. A large portion of the male population now commenced very zealously to hunt for bones, and in this manner I got together twenty-one casks, large boxes, and barrels full of *Rhytina* bones, among them many very extensive bone-collections from the same animal, two whole, very pretty, and several more or less damaged skulls, etc.

BONES OF THE EXTINCT SEA-COW OF STELLER.—*Rhytina* bones are not lying near the water-edge, but on a beach-shelf, 6 to 10 feet high, thickly covered with grass. They are usually covered with a layer of earth *débris* of 1 to 1½ feet thickness, and in order to find them we had to explore the ground with a bayonet or a sharp iron, as it would have been too laborious to dig up the whole grass layer. A person very soon gets accustomed to distinguish, by the sound or the feeling of the bayonet, whether he has struck against a stone, a piece of wood, or a piece of bone.

In consequence of their hard ivory-like condition, the *Rhytina* bones are used by the natives for sleigh-runners and for carvings. They are, therefore, already to a great extent used up and rarer than other bones. The bones from the finger seem in most cases to be entirely destroyed, and the same is the case with the extreme tail-parts.

FUR-SEALS ON BERING ISLAND.—The only large animal which still exists on the island, in perhaps as large numbers as at the time of Steller, is the sea-bear, *Otaria ursina*. Even that had decreased so that the yearly catch was a very inconsiderable one, when the Alaska Company obtained the exclusive privilege for hunting, by a payment to the Russian government of, if I remember right, two rubles for each animal killed. The hunting was then organized on a more advantageous basis. At certain periods of the year the animals are now altogether unmolested. The number of animals to be killed is settled beforehand, just the same as the farmer in the fall of the year (slaughtering-time, Swedish custom) is in the habit of doing with his cattle. After that is done, the animals condemned to death are selected as well as can be done in a hurry, but animals with poor skin, old females and pups, are liberated. Those numerous flocks of sea-bears, which are found on the shores of Bering and Copper islands, are consequently handled nearly the same as a herd of tame animals. This can only be done in that manner, because the animals are in the habit of spending several months of the year, almost without interruption* and without eating any food, on certain long, rocky spits running out into the sea from those islands. They congregate here in hundreds of thousands, in closely packed flocks on the beach. On those places it is strictly prohibited to hunt the animal or to disturb it during its rest, without special permission from the village foreman, who is selected by the Aleuts living in the place. When a number of sea-bears are to be killed, a flock is surrounded by a sufficient number of hunters and are driven with sticks up on the grass a short distance from the beach. Then females and young ones, and those males whose fur-coat is not desirable, are driven away. The remaining ones are stunned first with a blow on the nose, and then stabbed with a knife.

INSPECTION OF A ROOKERY.—Accompanied by the village foreman, a black-haired stuttering Aleut, and the "Cossac", a young, neat, and polite man, who on special occasions carries a saber of nearly his own length, but who otherwise not in the least answered to the Cossac type accepted by writers of novels and dramas, a few of us visited a spit sticking out in the sea from the north side of the island, which is a favorite resting-place for sea-bears. Just at that time there were, in accordance with surely overestimated statements which we received, 200,000 animals congregated at the spit and neighboring beaches. Accompanied by our guides we received permission to crawl close on to a flock lying a little separate. The older animals were a little uneasy at first, when they noticed that we crawled near them, but they very soon settled down again, and we now had the pleasure of a peculiar spectacle. We were the only spectators. The scene consisted of a stone-covered beach wreathed with foaming breakers, the background of the unmeasurable sea, and the actors thousands of curiously-formed animals.

A number of old males were lying still and immovable, unconcerned about what went on around them. Others crawled on their short, small legs clumsily among the rocks on the beach, or swam with incredible suppleness among the breakers, playing, cooing with each other, and quarreling. In one place two older animals fought with a peculiar wheezing noise, in a manner as if the fighting had taken place with studied positions for attack and defense. In another, a sham fight between an old animal and a pup. It appeared as if that one was receiving lessons in the art of fencing. Everywhere the little black pups were crawling friskily to and fro between the others, now and then bleating like lambs calling their mothers. Often the pups are crushed by the old, when scared by some untoward circumstance they rush out in the sea. Hundreds of dead pups are found after such an alarm on the beach.

"Only" 13,000 animals had been killed this year. Their skinned carcasses were lying heaped in the grass on the beach, spreading a disagreeable smell far and wide, which after all did not scare the comrades lying on neighboring points, because among them a similar smell prevailed on account of the many dead animals remaining on the beach, either crushed or dead from natural causes. Among this large herd of sea-bears a single sea-lion was enthroned on top of a high rock, the only one of those animals which we had seen during our travel.

Against payment of 40 rubles I prevailed on the village chief to prepare for me four skeletons of those half rotten carcasses lying in the grass, and afterward I received, through the kindness of the Russian authorities and without any compensation, for stuffing, six animals, among them two live pups. Even those we had to kill, after in vain having tried to make them take food. One of them will be brought home, in alcohol, for anatomical investigation.

CHARACTER OF BERING ISLAND.—That part of Bering island which we saw is composed of a plateau resting on volcanic mountains,† which in many places is broken by deep cañons. In their bottoms are usually found lakes, which through smaller or larger streams connect with the sea.

The border of the lakes and the mountain slopes are covered with a rich vegetation of long grass and beautiful flowers, among which a sword lily, that is cultivated in our gardens, the useful dark-red brown Savannah lily, several orchids, two kinds of rhododendrons, large flowers, umbellifers the height of a man, sunflowers like synanthaus, etc.

An entirely different kind of flora prevailed on the islet which lies outside the harbor.

Toporkoff islet consists of an eruptive rock, which everywhere toward the shores, a few score yards from high-water mark, rises up in the form of abrupt, low, cracked walls from 5 to 10 meters in height, differing in different places. Above those abrupt mountain walls the surface of the island is formed of an even plane; what lies below, forms a gradually sloping beach.

The gradually sloping beach consists of two well-defined belts, an outer one without any vegetation, an inner one overgrown with *Ammadenia peploides*, *Elymus mollis*, and two kinds of umbellates, *Heracleum sibiricum* and *Angelica archangelica*, of which the two last named form an almost impenetrable brush, about 50 meters wide, man high, along the shelf.

The abrupt mountain walls are in some places yellow-colored from the *Caloplacmus murorum* and *C. cremulata*, in other places quite closely clothed with *Cochlearia fenestrata*.

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[*] During a long continued heavy rain many of the animals are said to seek shelter in the sea, but return as soon as the rain ceases.

[†] According to Mr. Greboritsky, tertiary petrifactions and seams of coal are found on Bering, the former north of the colony in the interior of the island, the latter at the water's edge south of Bering's grave. Also, near the colony, the underlayer below trachyte beds is composed of immense sand layers.

The uppermost even plateau is covered by a luxuriant close grass-carpet, over which a few stalks of the two above-named umbellates raise themselves here and there.

Vegetation on this little islet combines an unusual poverty of various species with a high degree of luxuriance.

Of higher order of animals we saw only four species of birds, namely, *Fratercula cirrhata*, *Uria grylle*, one species of *Phalacrocorax* (Swedish skafvar), and one kind of the gull (*Larus*) species, which live here by the millions. They occupied the upper plateau, where they had everywhere dug out short, deep, and unusually broad passages, with two openings, in which they slept. From there they flew, on our arrival, in large flocks to and from the sea. Their numbers were almost comparable with the auks on the Arctic bird cliffs. The other ducks nestled along the shore cliffs.

The number of the non-vertebrate land-animals foots up perhaps to thirty species. The most numerous are Machelis, Vitrina, Lithobias, Talitrus, a few two-winged beetles (bugs). They all lived on the inner belt of the shore, where the ground is unusually damp.

Much milder climate than that of the Pribylov group.—Bering island could, without difficulty, feed large herds of cattle, perhaps as numerous as the herds of sea-cows which formerly grazed along its shores. The sea-cow had, as it were, chosen its grazing place with discrimination, because the sea about here, according to Dr. Kjelman, is one of the richest kelp-places in the world. The bottom of the sea is covered, in favorable places, with kelp forests, from 60 to 100 feet high, which are so dense that the scraper with difficulty penetrates down in them, a circumstance which made the dredging exceedingly difficult. Certain kind of kelp is used by the inhabitants for food.

Salmon on the island.—That spit, where the sea-bears have their rookeries, is about 20 kilometers distant from the village. We went there each on his sleigh drawn by about ten dogs. During this trip, at a resting-place half-way between the village and the rookeries, we had occasion to take part in a very peculiar fishing. Our halting-place was on an even grass meadow, cut through by innumerable brooks. Those were full of various kinds of fishes, among them a kind of siik (gwiniad, Swedish), a small trout (forell), a medium-sized salmon, with almost white meat, but with purple-red skin, and another of about the same length, but very broad and with a hump on the back. These were easily taken. They were taken by hand, harpooned with an ordinary blunt stick or any piece of wood, cut with knives, or taken with a bug-scoop. Other kinds of salmon, with very highly colored red flesh, are found in the larger streams on the island. We received here, for a mere nothing, a welcome change from the preserved food with which we had long ago become thoroughly disgusted.

Courtesy of the Alaska Commercial Company.—Beside that, the expedition received, as a gift from the Alaska Company, fat and splendid beeves, milk, and other refreshments, and I cannot sufficiently praise the good-will we experienced, as well from the Russian official, Mr. Greboritsky, an energetic and skillful student of natural history, as from the employés of the Alaska Company, and all other persons living on the island with whom we came in contact. [*Translation closes.*]

Table submitted by the author, showing the "catch" on the Commander islands.—In order to show the relative importance of the seal business on these Russian islands as compared with that of our own, I append the following exhibit of what has been done there since 1862. Professor Nordenskiöld does not seem to have gathered the information; he has, however, in his forthcoming *Vegás-färden*, embodied my figures:

*Fur-seal skins taken for shipment from the Commander islands.*

| Years. | Number of seals taken. | Years. | Number of seals taken. | Years. | Number of seals taken. |
|---|---|---|---|---|---|
| 1862 | 4,000 | 1869 | 24,000 | 1876 | 26,960 |
| 1863 | 4,500 | 1870 | 24,000 | 1877 | 21,532 |
| 1864 | 5,000 | 1871 | 3,614 | 1878 | 31,340 |
| 1865 | 4,000 | 1872 | 29,318 | 1879 | 42,752 |
| 1866 | 4,000 | 1873 | 30,396 | 1880 | 48,504 |
| 1867 | 4,000 | 1874 | 31,272 | | |
| 1868 | 12,000 | 1875 | 36,274 | Total, 1862 to 1880 | 387,462 |

Bering's disaster.—The miserable ending to Bering's voyage of discovery in 1741–'42 had one redeeming clause—the shipwreck of the commander's vessel gave Steller his opportunity of making the fur-seal rookeries known to man for the first time, in either history or legend. As the prime factor of this entertaining addition to our knowledge, I think a short recital of the misfortunes of the Russian expedition interesting in the relation which it bears to the subject of my discussion.

Homeward voyage and shipwreck.—In 1741, June 4, Bering and Tschericov set sail from Petropavlovsky, in two small vessels, the "St. Peter" and the "St. Paul"; they proceeded as low as the 50° latitude, then decided to steer eastward for the reported American continent. On the 20th the rude ships were separated by a storm, and the two commanders never met in life again. Sunday, 18th July, Bering, while waiting for the other vessel, drifted on our northwest coast. He passed some six weeks in the new waters of his discovery, when by the 3d of September a violent storm occurred and lasted seven days, driving them back to 48° 18′ north latitude, and into the lonely wastes of the vast Pacific. The scurvy began to appear on board; hardly a day passed without the death of one of the crew, and men enough in health were scarcely left to manage the ship. A return to Kamtchatka was resolved upon. Bering became morose and seldom appeared on deck, and the second in command, Stoörman Vachtel, directed the dreary cruise. After regaining the land, and burying a sailor named Shumagin on one of the group of Alaskan islets that bear this title to-day, and discovering and naming several Aleutian capes and islands, they saw two, which by an unfortunate blunder, they took for the Kuriles and adjacent to Kamtchatka; thus they erred sadly in their reckoning and sailed out on a point of false departure. In vain they craned their necks for the land—the shore of Kamtchatka refused to rise, and soon there was no hope of making a port in that goal so late in the year. The wonderful discipline of the Russian sailors was strikingly exhibited at this stage of the luckless voyage; notwithstanding their fearfully debilitated condition, and suffering from cold and wet, they obeyed orders and attended to their duties. We are told by Steller that the scurvy had already so far advanced that the steersman was conducted to the helm by two other invalids who happened to have the use of their legs, and who supported him under the arms; when he could no longer steer from suffering, he was succeeded by another no better able to execute the labor than himself; thus did the unhappy crew waste away into death; they were obliged to carry few sails, for they had not hands to reef them, and such as they had were nearly worn out, and in this case they could not be replaced from the stores, since there were no seamen strong enough on the ship to bend new ones to the yards and booms.

Soon rain was followed by snow, the nights grew longer and darker, and now they lived in dreadful anticipation of shipwreck; the fresh water diminished, and the labor of working the vessel became too severe for the few who were able to be about. From the 1st to the 4th November the ship had lain as a log on the ocean, helpless, and drifting at the sport of the wind and the waves. Then, again, they managed to control her, and set her course anew to the westward, without knowing absolutely anything as to where they were. In a few hours after, the joy of the distressed crew can be better imagined than described, for they saw the tops of high hills, still at a great distance ahead, covered with snow. As they drew nearer, night came upon them, and they judged best, therefore, to keep out, "off and on," until daybreak, so as to avoid the risk of wrecking themselves in the dark. In the morning they found that the rigging on the starboard side of the vessel was giving way, and the craft could not be managed much longer; that the water was very low, and the sickness increasing frightfully. The humidity of the climate was now succeeded by intense cold; life was well-nigh insupportable on ship then, and they determined to make for the land to save their lives, and, if possible, safely beach the "St. Peter".

The small sails were alone set; the wind was north; the depth of water 36 fathoms, sand bottom; two hours after they decreased it to 12; they now contrived to get over an anchor and run it at three-quarters of a cable's length; at 6 p. m. the hawser parted, and tremendous waves bore the helpless boat through the darkness and the storm, in to the coast, where soon she struck twice upon a rocky reef. Yet, in a moment after, they had 5 fathoms of water; a second anchor was thrown out and again the tackle parted; and, while in the energy of wild despair, they were preparing a third bower, a huge combing wave lifted that ark of misery, of superlative human suffering, safely and sheer over the reef, where in an instant she lay in calm water; the last anchor was put out, and the voyage of Bering came to an end, in 4 fathoms of water, over a sandy bottom, and only 300 fathoms from the beach. In the morning they found that they had drifted in here at the only spot where they possibly could have been carried over a ridge of rocks—that 20 fathoms distance right or left of their course, high basaltic bowlders and jagged pinnacles arose from the sea, against which they must have perished, had they struck during the fury of the gale and the darkness of the night.

THE EXHAUSTED RUSSIANS LAND.—Winter was now at hand; the crew, worn down with excitement, fatigue, and disease, reposed until midday, then lowered the boat; on the 6th November, Vachtel landed. They found the country barren and covered with snow. A clear stream of excellent water, not frozen, ran down from the hills to the shore; no trees or even shrubs were visible; firewood was driftwood on the beaches, so it had to be dug from under snow and icy fetters; shelter there was none, but they found near the open mouth of the little creek some sand walls, and deep wind-scraped hollows therein; these they cleared out and covered over with the ship's sails, to serve as a temporary shelter until they could build a wooden cabin; on the 8th November, the sand caves were prepared and the sick taken from the "St. Peter" and placed in them. Steller, the undaunted surgeon and naturalist, tells us that some of them died on being brought up from the ward-room below, others in the boat, and others soon after landing—the violent change of air snapped the slender threads remaining that bound them to this life; the bodies of the dead were instantly attacked by foxes, *Vulpes lagopus*, which came down suddenly to their strange prey without fear, apparently never having seen man; and were so bold that they actually mangled the feet and heads of the dead Russians ere the living could bury them.

MELANCHOLY INCIDENTS OF BERING'S DEATH.—On the 9th November, Bering himself was brought ashore, well shielded from the atmosphere and put into a sand hollow all by himself; of the officers, he, alone, died; his age and temperament inclined him to inactivity; he became delirious and cunning, taking his friends to be his enemies, some of whom, including Steller, could not come into his presence during his last illness; he used to amuse himself by detaching the sand from the sides of the place where he lay, so that he soon covered his lower limbs entirely with it; those who attended him cleared it away at first, but finally he would not suffer them to do so, and showed impotent anger while they made the attempt; when he died at last, just 30 days after being brought ashore, he was almost buried by his own hands in the sandy bed of his death; they interred him near the spot, and the island is his monument, and also the imperishable record of his singular end.

Steller says that those who survived were those who resisted the desire to take to their beds, and whose natural flow of humor kept them sanguine and cheerful; the officers who had to be on deck and up at all hours looking after everything, were never taken down seriously, though they all were attacked by scurvy. Not long after Bering died, the "St. Peter" was wrecked by a fearful southeaster; her cable parted, and she came ashore near by the Russian encampment, during the night of December 29; in the morning she was found buried 8 or 10 feet in the sand, completely shattered; this was a crushing blow to the survivors—they had counted alone on getting back to Petropavlovsky by her instrumentality.

ESCAPE OF THE SURVIVORS.—The survivors, 45 souls, lived through the winter on the flesh of sea-lions, the *Rhytina* or Manatee, and thus saved their flour, etc.; they managed to build a little shallop out of the remains of the "St. Peter", in which they left this scene of the most extraordinary shipwreck and deliverance in our annals, on the 16th of August, 1742, and reached Petropavlovsky in safety on the 27th.

THE NERVE AND COURAGE OF STELLER.—Steller here saw the fur-seal breeding, first of all civilized men, in the waters north of the equator; and here he made the earliest record of its existence as an animal in the naturanst's lexicon; the rookery to and from which he used to journey in observation was nearly nine miles from the camp; and, considering his physical condition—he was never a robust man—the fatigue that his excursions must have engendered would have deterred most men from making a second trip to the "laasbustchie" of Bering island.

As our intelligence and appreciation of these valuable interests of natural science, and of commerce peculiar to the Pribylov group of Alaska and the Commander islands of Russia, increases, so does our regard and esteem for Steller advance; since he was the surgeon of that ill-fated expedition, his duties in this direction must have consumed nearly all of his time in the most imperative manner; what he did do, therefore, in the line of natural history, is still the more to be commended.

## 23. ST. MATTHEW ISLAND, AND ITS RELATION TO ST. PAUL.

POLAR BEARS ON THE PRIBYLOV GROUP.—When the fur-seals first took possession of the Pribylov group, they undoubtedly found polar bears thereon; at least, I firmly believe that if the bears were not about when they first arrived, it was not due to the inability of these creatures to get there in limited numbers, but rather to the fact that nothing on the islands invited them, or was as attractive as the field to the north; for this animal cannot endure with comfort a temperature which even the fur-seal will submit to.

Provided with more walrus meat than he knew what to do with, the polar bear, in my opinion, has never cared much for the seal-islands; but the natives have seen them here on St. Paul, and old men have their bear stories, which they tell to the rising generation. The last "medvait" killed on St. Paul island was shot at Boga Slov, in 1848; none have ever come down since, and very few were there before, but those few evidently originated at and made St. Matthew island their point of departure. Hence, I desire to notice this hitherto unexplored spot, standing, as it does, 200 miles to the northward of St. Paul; and which, until Lieutenant Maynard and myself, in 1874, surveyed and walked over its entire coast-line, had not been trodden by white men or by natives, since that dismal record made by a party of five Russians and seven Aleuts, who passed the winter of 1810–'11 on it; and who were so stricken down with scurvy as to cause the death of all the Russians save one, while the rest barely recovered, and left early the following year. We found the ruins of the huts, which had been occupied by this unfortunate and discomfited party of fur-hunters, who were landed there to secure polar bears in the depth of winter, when such ursine coats should be the finest.

TOPOGRAPHY OF ST. MATTHEW ISLAND.—St. Matthew island is a queer, jagged, straggling reach of bluffs and headlands, connected by bars and low-land spits; the former, seen at a little distance out at sea, resemble half a dozen distinct islands; the extreme length is twenty-two miles, and it is exceedingly narrow in proportion. Hall island is a small one that lies west from it, separated from it by a strait (Sarichev) less than three miles in width; while the only other outlying land is a sharp, jagged pinnacle rock, rearing itself over 1,000 feet abruptly from the sea, standing five miles south of Sugar-Loaf cone, on the main island. From the cleft and blackened fissure near the summit of this serrated pinnacle rock, volcanic fire and puffs of black smoke have been recorded as issuing.

Our first landing, early in the morning of August 5, was at the slope of Cub hill, near cape Upright, the easternmost point of the island. The air coming out from the northwest was cold and chilly, and snow and ice were on the hill-sides and in the gullies; the sloping sides and summits of the hills were of a grayish, russet tinge, with deep green swale flats running down into the low lands, which are there more intensely green and warmer in tone. The pebble bar, formed by the sea between cape Upright and Waterfall head, is covered with a deep stratum of glacial drift, carried down from the flanks of Polar and Cub hills, and extending over two miles of this water-front to the westward, where it is met by a similar washing from that quarter. Back and in the center of this neck are several small lakes and lagoons without fish; but, emptying into them are a number of clear, lively brooks, in which were salmon parr of fine quality. The little lakes undoubtedly receive them; hence, they were land-locked salmon. A luxuriant growth of thick moss and grass, interspersed, existed almost everywhere on the lowest ground, and occasionally strange dome-like piles of peat were lifted four or five feet above the marshy swale, and appeared so remarkably like abandoned barrabaras that we repeatedly turned from our course personally to satisfy ourselves to the contrary.

CHANGING VEGETATION.—As these low lands ascend to the tops of the hills, the vegetation changes rapidly to a simple coat of cryptogamic gray and light russet, with a slippery slide for the foot wherever a steep flight or climbing was made; water oozes and trickles everywhere under foot, since an exhalation of frost is in progress all the time. Sometimes the swales rise and cross the hill-summits to the valleys again, without any interruption in their wet, swampy character.

LAIRS OF THE POLAR BEAR.—Here, on the highest points, where no moss ever grows, and nothing but a fine porphyritic shingle slides and rattles beneath our tread, are bear-roads leading from nest to nest, or lairs, which they have scooped out of frost-splintered rocks on the hill-sides, and where the she-bears undoubtedly bring forth their young; but it is not plain, because we saw them only sleeping, at this season of the year, on the lower ground, seemingly to delight in stretching themselves and rolling over the rankest vegetation.

GLACIAL EXHIBITS.—The action of ice in rounding down and grinding hills, chipping bluffs, and chiseling everywhere, carrying the soil and *débris* into depressions and valleys, is most beautifully exhibited on St. Matthew. The hills at the foot of Sugar Loaf cone are bare and literally polished by ice-sheets and slides of melting snow; the rocks and soil from the summits and slopes are carried down and "dumped", as it were, in numberless little heaps at the base, so that the foot of the hill, and out on the plain around, strongly put us in mind of those refuse piles which are dropped over the commons or dumping-grounds of a city. Nowhere can the work of ice be seen to better advantage than here, aided and abetted as it undoubtedly is by the power of wind, especially with regard to the chiseling action of frost on the faces of the ringing metallic porphyry cliffs.

EXTENSIVE FLORA.—The flora here is as extensive as on the seal-islands, 200 miles to the southward, but the species of *grammæ* are not near so varied; indeed, there is very little grass around about. Wherever there is soil it seems to be converted by the abundant moisture into a swale or swamp, over which we traveled as on a quaking water-bed; but on the rounded hill-tops and ridge summits the wind-rubbed and frost-splintered shingle makes good walking; both of these climatic agencies evidently have an annual iron grip on the island.

FANTASTIC CLEAVAGE OF THE ROCKS.—The west end of St. Matthew differs materially from the east; the fantastic weathering of the rocks at Cathedral point, Hall island, will strike the eye of a most casual observer as the ship enters the straits going south. This eastern wall of that point looms up from the water like a row of immense cedar-tree trunks; the scaling off of the basaltic porphyry and growth of yellowish-green and red mossy lichens made the effect most real, while a vast bank of fog lying just overhead seemed to shut out from our vision the foliage and branches that should be above. This north cape of Hall island changes when approached, with every mile's distance, to a new and altogether characteristic profile.

Our visit at the west end of the island of St. Matthew was, geologically speaking, the most interesting experience I have ever had in Alaska. The geologist who may desire to study the greatest variety of igneous forms *in situ*, within a short and easy radius, can do no better than make his survey here; the rocks are not only varied by mineral colors, together with a fantastic arrangement of basalt and porphyry, but are rich and elegant in their tinting by the profuse growth of lichens, brown, yellow, green, and bronze.

HUNDREDS OF POLAR BEARS.—An old Russian record prepared us, in landing, to find bears here; but it did not cause us to be equal to the sight we saw, for we met bears—yea hundreds of them. I was going to say that I saw bears here as I had seen seals to the south, but that, of course, will not do, unless as a mere figure of speech. During the nine days that we were surveying this island, we never were one moment, while on land, out of sight of a bear or bears; their white forms in the distance always answered to our search, though they ran from our immediate presence with the greatest celerity, traveling in a swift, shambling gallop, or trotting off like elephants. Whether due to the fact that they were gorged with food, or that the warmer weather of summer subdued their temper, we never could coax one of these animals to show fight. Its first impulse and its last one, while within our influence, was flight—males, females, and cubs, all, when surprised by us, rushing with one accord right, left, and in every direction, over the hills and away.

After shooting half a dozen, we destroyed no more, for we speedily found that we had made their acquaintance at the height of their shedding season; and, their snowy and highly prized winter-dress was a very different article from the dingy, saffron-colored, grayish fur that was flying like downy feathers in the wind, whenever rubbed or pulled by our hands. They never roared, or uttered any sound whatever, even when shot or wounded.

EXCELLENCE OF THE FLESH.—Let me testify at this moment to the excellent quality of polar-bear steak; we gave it a fair trial, and it conquered all our prejudices—mine in especial, because I had been victimized with black-bear meat many years before, in British Columbia.

IMMENSE SIZE OF THE POLAR BEAR.—These bears impressed me greatly by their enormous size. One, shot by Lieutenant Maynard, measured exactly 8 feet from the tip of its nose to its excessively short tail, and could not have weighed less than 1,000 or 1,200 pounds; it had a girth of 24 inches around the muscles of the forearm alone, at the place where the skin was removed and the foot cut off just back of the carpal joint, that corresponds to our wrist. This animal was very fat, and its head was scarred all over with wounds, evidently received in fighting with its kind. No worms were found in the intestines and stomach; the liver was speckled with light grayish-green dots, and normal. Many of them were seen grazing and rooting like hogs on a common.

FITFUL SLEEP OF BEARS.—They sleep soundly, but fitfully, rolling their heavy arms and legs about as they doze; for naps they seem to prefer little grassy depressions on the sunny hill-sides and along the numerous water-courses; and their paths were broad and well beaten all over the island. We could not have observed less than 250 or 300 of these animals while we were there; at one landing on Hall island there were 16, scampering up and off from the approach of the ship's boat, at one sweep of our eyes.

FUR-SEALS CANNOT LAND HERE.—The chief attraction to these bears, undoubtedly, at St. Matthew, is the walrus herds; and the island's special adaptation by its position to a possibility of its ever being resorted to by the fur-seal, was the reason of my visit; and, the result of my careful examination shows conclusively that the character of the gravel spits and necks which are the only landing-grounds offered, is such as not to be fit for the reception of breeding-seals, as they would be speedily converted by them into a sheet of mud and slime; and there is no other ground presented save at the base of cliffs everywhere rising up from the sea. Seals, also, if they could land here independent of this polar-bear scourge, which owns and controls St. Matthew, would find a climate that keeps snow and ice on the beaches until late in June, and still later; hence, I am well satisfied that the fur-seals have never visited this desolate land, nor will they ever rest upon it.*

## 24. DIGEST OF THE DATA IN REGARD TO THE FUR-SEAL ROOKERIES OF THE SOUTH ATLANTIC AND PACIFIC, AND NUMBER OF SKINS TAKEN THEREFROM.

DIFFICULTY OF FINDING CREDIBLE RECORDS.—Before I introduce the reader to this subject, I desire to call his attention to the source from which nearly all the information which we have touching it is derived. It comes from the verbal and written statements of whalers and other sea-faring men. The great difficulty which faces me as I attempt to make up this digest from such authority, is the fact that I know the failing of sailors too well—am too conversant with their habits of loose and positively erroneous narration. For instance, as an illustration of this trouble: suppose A had taken a large cargo of fur-seal skins from the Crozette islands some time in 1820–'25, and when on the homeward stretch had been met at sea by B, another whaler or sealer; A would invariably tell B, in answer to queries as to where he got his catch, that he secured the seals at any other island far away from the real source of supply, in order that he might turn B aside, and have a clear field, and a full ship at the Crozettes again, when he should discharge at home and return. The story, however, would probably get into circulation, and into print, perhaps; and to-day is misleading us, just as it did B long ago.

SCANTY RECORDS.—If anybody doubts the correctness of my statement, made in the prefatory words of this monograph, to wit, that, though a sealing fleet of hundreds of vessels and thousands of men had repaired to the rookeries of the southern oceans, and had annually returned laden with the skins of the *Arctocephalus*, still not a definite line as to the true result, *i. e.*, the number of skins taken from those great Antarctic breeding-grounds, can be found in any writing, let him turn to the laborious work of Allen, who, for eight or nine long years, has ransacked the writings and the musty records of a century back; and see in his history of the North American pinnipeds the pitiful sum of knowledge which he has gathered in regard to the subject.† Prior to the tedious research and publication just referred to, in looking toward the same end, I gathered substantially as much information in the *Encyclopædia Britannica*, and in Hamilton's *Amphibious Mammalia.*‡ But the amount of this information is so abortive and faulty that I hesitate to reprint it here; yet, perhaps, its republication, together with the equally brief and indefinite compilation of Allen, may draw out from some unexpected quarter further knowledge. Hence, I submit the following:

DESTRUCTION OF THE FUR-SEALS FOR THEIR PELTRIES.

The value of the peltries of the fur-seal has led to wholesale destruction, amounting, at some localities, almost to extermination. The traffic in their skins appears to have begun toward the end of the last century. Captain Fanning, of the ship Betsey, of New York, obtained a full cargo of choice fur-seal skins at the island of Masafuera, on the coast of Chili, in 1798, which he took to the Canton market. Captain Fanning states that on leaving the island, after procuring his cargo, he estimated there were still left on the island between 500,000 and 700,000 fur-seals, and adds that subsequently little less than a million of fur-seal skins were taken at the island of Masafuera alone,§ a small islet of not over twenty-five miles in circumference, and shipped to Canton.‖ Captain Scammon states that the sealing-fleet off the coast of Chili, in 1801, amounted to thirty vessels, many of which were ships of the larger class, and nearly all carried the American flag. Notwithstanding this great slaughter, it appears that fur-seals continued to exist there as late as 1815, when Captain Fanning again obtained them at this island.¶

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*This survey made by Lieutenant Maynard and myself is the first careful exploration of the island; the only work hitherto done was the approximate charting of its coast from the decks of Cook's and Billings' and Bering's vessels. Maynard and myself made a detailed plotting of the island, and gave a copy to the United States Coast Survey in August, 1874.

†Allen: *History North American Pinnipeds*, 1880, pp. 229, 230.

‡Edinburgh, 1839.

§Fanning: *Voyages to the South Sea*, etc., pp. 117, 118. Allen: *North American Pinnipeds*

‖*Ib.*, p. 364.

¶*Ib.*, p. 299.

In the year 1800 the fur-seal business appears to have been at its height at the Georgian islands, where, in the single season, 112,000 fur-seals are reported to have been taken, of which 57,000 were secured by a single American vessel (the Aspasia, under Captain Fanning). Vancouver, at about this date, reported the existence of large numbers of fur-seals on the southwest coast of New Holland. Attention was at once turned to this new field, and in 1804 the brig Union, of New York, Capt. Isaac Pendleton, visited this part of the Australian coast, but not finding these animals there in satisfactory numbers, repaired to Border's island, where he secured only part of a cargo (14,000 skins), owing to the lateness of the season. Later 60,000 were obtained at Antipodes island. About 1806 the American ship Catharine, of New York (Capt. H. Fanning), visited the Crozette islands, where they landed, and found vast numbers of fur-seals, but obtained their cargo from Prince Edward island, situated a few hundred miles southeast of the cape of Good Hope, where other vessels the same year obtained full cargoes.

In 1830 the supply of fur-seals in the southern seas had so greatly decreased, that the vessels engaged in this enterprise "generally made losing voyages, from the fact that those places which were the resort of seals", says Capt. Benjamin Pendleton, "had been abandoned by them, or cut off from them", so that the discovery of new sealing-grounds was needed. Undiscovered resorts were believed to exist, from the fact that large numbers of fur-seals were seen while cruising far out at sea, which must repair once a year to some favorite breeding-station.*

Captain Weddell states, that during the years 1820 and 1821 over 300,000 fur-seals were taken at the South Shetland islands alone, and that at the end of the second year the species had there become almost exterminated. In addition to the number killed for their furs, he estimates that not less than 100,000 newly-born young died in consequence of the destruction of their mothers.

So indiscriminate was the slaughter, that whenever a seal reached the beach, of whatever denomination, it was immediately killed. Mr. Scott states, on the authority of Mr. Morris, an experienced sealer, that a like indiscriminate killing was carried on at Antipodes island, off the coast of New South Wales, from which island alone not less than 400,000 skins were obtained during the years 1814 and 1815. A single ship is said to have taken home 100,000 in bulk, which, through lack of care in curing, spoiled on the way, and on the arrival of the ship in London the skins were dug out of the hold and sold as manure! At about the same time there was a similar wasteful and indiscriminate slaughter of fur-seals at the Aleutian islands, where for some years they were killed at the rate of 200,000 a year, glutting the market to such an extent that the skins did not bring enough to defray the expenses of transportation. Later, the destruction of fur-seals at these islands was placed under rigid restrictions (see *infra* the general history of the northern fur-seal), in consequence of which undue decrease has been wisely prevented. But nowhere else has there been a systematic protection of the fur-seals, or any measures taken to prevent wasteful or undue destruction.

THE SUBJECT IN 1873.—The above embodies Allen's gleaning of all that he could learn touching the subject. In 1873 I published the following:

The government of Buenos Ayres has, from the first, protected and cared for a small rookery of fur-seals under the bluffs at Cabo Corrientes, on its coast, where some 5,000 to 8,000 are annually taken, but the seals here have no hauling-grounds like those on St. Paul; they are taken with much labor under the high cliffs of this portion of the coast. This is the only government aid and care that the seals have ever received outside of Bering sea. The following extract shows the way in which the fur-seals of the South came into notice:

"Soon after Captain Cook's voyage in the Resolution, performed in 1771, he presented an official report concerning New Georgia, in which he gave an account of the great number of elephant-seals and fur-seals which he had found on the shores of that island. This induced several enterprising merchants to fit out vessels to take them; the former for their oil, the latter for their skins. Captain Weddell states that he had been credibly informed, that during a period of about fifty years, not less than 20,000 tons of oil were procured annually from this spot alone for the London market, which, at a moderate price, would yield about £1,000,000 a year.

"Seal-skins are very much used in their raw state as articles of apparel by the natives of the polar zones; when tanned, they are used extensively in making shoes; and the Eskimo have a process by which they make them water-proof (?), so that, according to Scoresby, the jackets and trousers made of them by these people are in great request among the whale-fishers for preserving them from oil and wet. But the skins are not only used in this raw and tanned state as leather; on account of their silky and downy covering they constitute still more important articles connected with the fur-trade. Thus considered, seal-skins are of two kinds, which may be distinguished as *hair*-skins and *fur*-skins. The former are used as clothing and ornament by the Russians, Chinese, and other nations, and the latter yield a fur which we believe exceeds in value all others which have been brought into the market. Many seals supply nothing but hair, while others in different proportions produce both the hair and, underneath it, soft and downy fur. The majority, we believe, are to be considered merely as hair-skins, similar to the bear or sable, and of these some are excellent of their kind, and much prized."—(Hamilton: *Amphibious Mammalia*, Edinburgh, 1839.)

It may be considered superfluous to read a lecture to the trader upon a matter so nearly touching his own interest, and yet there is one point, at the same time, which forms so essential a part of my subject, that I cannot withhold a word or two. These valuable creatures (fur-seals) have often been found frequenting some sterile islands in innumerable multitudes. By way of illustration, I shall refer only to the fur-seal as occurring in South Shetland. On this barren spot their numbers were such that it has been estimated that it could have continued permanently to furnish a return of 100,000 furs a year; which, to say nothing of the public benefit, would have yielded annually a very handsome sum to the adventurers. But what do these men do? In two short years, 1821 and 1822, so great is the rush that they destroy 320,000. They killed all, and spared none. The moment an animal landed, though big with young, it was destroyed. Those on shore were likewise immediately dispatched, though the cubs were but a day old. These, of course, all died, their number, at the lowest calculation, exceeding 100,000. No wonder, then, at the end of the second year, the animals in this locality were nearly extinct. So is it in other localities, and so with other seals, and so with the oil-seals, and so with the whale itself, every addition only making bad worse. All this might easily be prevented by a little less barbarous and revolting cruelty, and by a little more *enlightened* selfishness.

With regard to this seal-fishery of the south, the English and Americans have exclusively divided it between them, and with very great profits. It has lately been stated (1839) that they together employ not fewer than sixty vessels in the trade, of from 250 to 300 tons burden. These vessels are strongly built, and have each six boats, like those of the whalers, together with a small vessel of 40 tons, which is put in requisition when they reach the scene of their operations. The crew consists of about 24 hands, their object being to select a fixed locality from which to make their various *bateaux*. Thus it is very common for the ship to be moored in some secure bay and be partially unrigged, while at the same time the furnaces, try-pots, etc., required for making the oil are placed on shore. The little cutter is then rigged and manned with about half the crew, who sail about the neighboring islands and send a few men here and there on shore, where they may see seals or wish to watch for them. The campaign frequently lasts for three years, and in the midst of unheard-of privations and dangers. Some of the crew are sometimes left on distant, barren spots, the others being driven off by storms. They are left to perish or drag out for years a most precarious and wretched existence.†

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*Fanning: *Voyages*, p. 487.

†Robert Hamilton: *Amphibious Mammalia*, Edinburgh, 1839.

With regard to the manner in which fur-sealing was carried on then, we find in the *Encyclopædia Britannica* the following facts:

> From about the year 1806 till 1823 an extensive trade was carried on in the South seas in procuring seal-skins. These were obtained in vast abundance by the first traders, and yielded a very large profit. The time was when cargoes of those skins yielded $5 or $6 a piece in China, and the present price in the English market averages from 30 to 50 shillings per skin. The number of skins brought off from Georgia cannot be estimated at fewer than 1,200,000; the island of Desolation has been equally productive, and, in addition to the vast sums of money which these creatures have yielded, it is calculated that several thousand tons of shipping have annually been employed in the traffic.*

EXTERMINATION, THE RESULT.—This gives a very fair idea of the manner in which the business was conducted in the South Pacific. How long would our sealing interests in Bering sea withstand the attacks of such a fleet of sixty vessels, carrying from twenty to thirty men each? Not over two seasons. The fact that these great southern rookeries withstood and paid for attacks of this extensive character during a period of more than twenty years, speaks eloquently of the millions upon millions that must have existed in the waters now almost deserted by them.

EARLY AUTHORITIES ON THE APPEARANCE OF THE FUR-SEAL.—Whenever I have followed the records made by navigators of any one of these several islands in the Antarctic, from whence hundreds of thousands of fur-seals are said to have been annually taken, I have never found anything in the line of circumstantial evidence of the fact. For instance, had any vast rookery, such as is the one at Northeast point, St. Paul island, been in existence at Masafuera or Juan Fernandez, when they were visited by William Dampier in 1683—by Wood-Rogers in 1709—in 1740 and 1767 by Anson and Carteret, surely the extraordinary spectacle must have provoked their attention and description. So far from hinting at any such congregation of massed seal-life on the land, they, on the contrary, have more to say in regard to the wild goats which they found there, with the single exception of Dampier. Those were the progeny of the original stock left on the islands by Spanish pirates, long before (1563–'66). I select these two islands for especial reference in this connection, because they had been well known to seamen before the hunting of the fur-seal was a recognized business, and described by them. According to the accounts of the sealers, they were the source of several of the largest cargoes of fur-seal skins that were ever taken from any one or two places south of the equator.

ANSON'S VOYAGE, 1740–'41.—The best description of Juan Fernandez written prior to the ravages of the seal-hunting fleet (1800–'13), is the personal account made of it by Richard Walter, the chaplain to Lord Anson's flagship, the "Centurion", who lived ashore there for three months, June to September, 1741. Anson's fleet of seven "caravels" was dispersed by a fearful storm in rounding the Horn, and the crews well-nigh exterminated by scurvy. Only four of the vessels succeeded in joining him here, which was the preordained rendezvous; and the ninety days in camp at Juan Fernandez were passed in recuperation of the men and refitting the shattered ships.

REMARKABLE PHYSICAL CONTRAST BETWEEN ARCTIC AND ANTARCTIC ROOKERIES.—I offer this description, by Chaplain Walter, of these celebrated southern sealing-grounds, as an interesting statement for comparison with that which I have given of the Pribylov group. Certainly the ultra difference in natural character between St. Paul and St. George at the north, and Crusoe's isle and Masafuera on the south, is strongly defined and remarkable. The ground-trailing, or creeping willow (*Salix reticulata*) of Bering sea is the only tree or shrub that the fur-seal can rub against on the Pribylov islands; but his southern brother is acquainted with the shadow of the cabbage palm. The following is a copy of Walter's picture, drawn from life, and it is a very graphic one:

> DESCRIPTION OF JUAN FERNANDEZ.—However, on the 10th of June, in the afternoon, we got under the lee of the island, and kept ranging along it at about two miles' distance, in order to look out for the proper anchorage, which was described to be in a bay on the north side. Being now nearer in with the shore, we could discover that the broken, craggy precipices, which had appeared so unpromising at a distance, were far from barren, being in most places covered with woods, and that between them there were everywhere interspersed the finest valleys, covered with a most beautiful verdure, and watered with numerous streams and cascades, no valley of any kind being unprovided with its proper rill. * * * * At four in the morning our cutter was dispatched with our third lieutenant to find out the bay we were in search of, who returned again at noon with the boat laden with seals and grass, for although the island abounded with better vegetables, yet the boat's crew in their short stay had not met with them, and they well knew that even grass would prove a dainty, as, indeed, it was all soon eagerly devoured. [They were ill with scurvy.—H. W. E.] The seals, too, were considered as fresh provision, but as yet were not much admired, though they grew afterward into more repute, for what rendered them less valuable at this juncture was the prodigious quantity of excellent fish which the people aboard had taken during the absence of the boat.
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> The island of Juan Fernandez lies in the latitude of 33° 40′ south, and it is a hundred and ten leagues distant from the continent of Chili. It is said to have received its name from a Spaniard who formerly procured a grant of it, and resided there some time with a view of settling on it, but afterward abandoned it. * * * The island is of an irregular figure. * * * Its greatest extent is between four and five leagues, and its greatest breadth somewhere short of two leagues; the only safe anchorage at this island is at the north side.
>
> The northern part of this island is composed of high, craggy hills, many of them inaccessible, though generally covered with trees; the soil of this part is loose and shallow, so that very large trees on the hills soon perish for want of root, and are then easily overturned. * * * The southern, or rather the southwestern part of the island, as distinguished in the plan, is widely different from the rest, being dry, stony, and destitute of trees, and very flat and low compared with the hills on the northern part. This part of the island is never frequented by ships, being surrounded by a steep shore, and having little or no fresh water, and besides it is exposed to the southerly wind, which generally blows here the whole year round, and on the winter solstice very hard.

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* Elliott: *Condition of Affairs in Alaska*, p. 261.

Vegetation of Juan Fernandez.—The trees, of which the woods on the northern side of the island are composed, are most of them aromatics, and of many different sorts. There are none of them of a size to yield any considerable timber, except the myrtle trees, which are the largest on the island, and supplied us with all the timber we made use of; but even these would not work to a greater length than forty feet. The top of the myrtle tree is circular and appears as if it had been clipped by art; it bears on its bark an excrescence like moss, which in taste and smell resembles garlic, and was used by our people instead of it. We found here, too, the the plemento (palmetto ?) tree, and likewise the cabbage tree, though in no great plenty; and, beside, a great number of plants of various kinds which we were not botanists enough either to describe or attend to.

To the vegetables I have already mentioned, of which we made perpetual use, I must add that we found many acres of ground covered with oats and clover; there were also some few cabbage trees upon the island, as was observed before; but as they generally grew upon the precipices and in dangerous situations, and as it was necessary to cut a large tree for every single cabbage, this was a dainty that we were rarely enabled to indulge in.

The excellence of the climate and the looseness of the soil render this place extremely proper for all kinds of vegetation; for if the ground be anywhere accidentally turned up it was immediately overgrown with turnips and Sicilian radishes.

This may in general suffice as to the soil and vegetable productions of this place, but the face of the country, at least the north part of the island, is so extremely singular that I cannot avoid giving it a particular consideration. I have already taken notice of the wild, inhospitable air with which it first appeared to us, and the gradual improvement of this uncouth landscape as we drew nearer, till we were at last captivated by the numerous beauties we discovered on the shore. And I must now add that the inland parts of the island did in no way fall short of the sanguine prepossessions which we first entertained in their favor. For the woods which covered most of the steepest hills were free from all bushes and underwood, and afforded an easy passage through every part of them; and the irregularities of the hills and precipices in the northern part of the island necessarily traced out by their various combinations a great number of romantic valleys, most of which had a stream of the clearest water running through them, that tumbled in cascades at the bottom of the valley by the course of the neighboring hills, was at any time broken into a sharp, sudden descent; some particular spots occurred in those valleys where the shaded fragrance of the contiguous woods, the loftiness of the overhanging trees, and the transparency and frequent falls of the neighboring streams, presented scenes of such elegance and dignity as would be with difficulty rivaled by any other part of the globe. It is in this place, perhaps, that the simple productions of unassisted nature may be said to excel all the fictitious descriptions of the most animated imagination.

Animals of Juan Fernandez.—It remains now only that we speak of the animals and the provisions which we met with at this place. Former writers have related that this island abounded with vast numbers of goats; and their accounts are not to be questioned, this place being the usual haunt of the buccaneers and privateers who formerly frequented these seas. And there are two instances, one of a Mosquito Indian and the other of Alexander Selkirk, a Scotchman, who were left here by their respective ships, and lived alone upon this island for some years, and consequently were no strangers to its produce. Selkirk, who was the last, after a stay of between four and five years, was taken off the place (in 1708) by the Duke and Dutchess privateers of Bristol, as may be seen at large in the journal of their voyage. His manner of life, during his solitude, was in most particulars very remarkable; but there is one circumstance which he relates, which was so strangely verified by our own observations, that I cannot help reciting it. He tells us, among other things, that he often caught more goats than he wanted; he sometimes marked their ears and let them go. This was about thirty-two years before our arrival on this island. Now, it happened that the first goat killed by our people at their landing had its ears slit, whence we concluded that he had doubtless been formerly under the power of Selkirk. This was indeed an animal of most venerable aspect, dignified with an exceeding majestic beard, and with many other symptoms of antiquity. During our stay on the islands we met with others marked in the same manner, all the males being distinguished by an exuberance of beard and every other characteristic of extreme age.

But the great number of goats, which former writers describe to have been found upon this island, are at present very much diminished; as the Spaniards, being informed of the advantages which the buccaneers and privateers drew from the provisions which goats' flesh here furnished them with, have endeavored to extirpate the breed, thereby to deprive their enemies of this relief. For this purpose they have put on shore great numbers of large dogs who have increased apace and have destroyed all the goats in the accessible part of the country; so that there now remain only a few amongst the crags and precipices, where the dogs cannot follow them. These are divided into separate herds of twenty or thirty each, which inhabit distinct fastnesses, and never mingle with each other. By this means we found it extremely difficult to kill them; and yet we were so desirous of their flesh, which we all agreed much resembled venison, that we got knowledge, I believe, of all their herds, and it was conceived, by comparing their number together, that they scarcely exceeded two hundred upon the whole island. * * * These dogs, who are masters of all the accessible parts of the island, are of various kinds, some of them very large, and are multiplied to a prodigious degree. They sometimes came down to our habitations at night, and stole our provisions, and once or twice they set upon single persons; but, assistance being at hand, they were driven off without doing any mischief. As at present it is rare for goats to fall in their way, we conceived that they lived principally upon young seals; and, instead, some of our people had the curiosity to kill dogs, sometimes, and dress them, and it seemed to be agreed upon that they had a fishy taste.

Seals at Juan Fernandez.—Goats' flesh, as I have mentioned, being scarce, we rarely being able to kill above one a day, and our people growing tired of fish (which as I shall hereafter observe abound at this place), they at last condescended to eat seals, which by degrees they came to relish and called it lamb. The seal, numbers of which haunt this island, hath been so often mentioned by former writers, that it is unnecessary to say anything particular about them in this place. But there is another amphibious creature to be met with here, called a sea-lion, that bears some resemblance to a seal, though it is much larger. This, too, we eat under the denomination of beef; and as it is so extraordinary an animal, I conceive it well merits a particular description. [This is the southern sea-elephant, *Macrorhinus leoninus;* not the sea-lion, *Otaria jubata.*—H. W. E.] They are in size, when arrived at their full growth, from twelve to twenty feet in length, and from eight to fifteen in circumference. They are extremely fat, so that after having cut through the skin, which is about an inch in thickness, there is at least a foot of fat, before you can come at either lean or bones; and we experienced more than once that the fat of some of the largest afforded us a butt of oil. They are likewise very full of blood; for if they are deeply wounded in a dozen places, there will instantly gush out as many fountains of blood; spouting to a considerable distance; and to try what quantity of blood they contained, we shot one first and then cut its throat, and measuring the blood that came from him, we found that beside what remained in the vessels, which, to be sure, was considerable, we got at least two hogsheads (!). Their skins are covered with a short hair, of a light dun color, but their tails and their fins, which serve them for feet on shore, are almost black; their fins, or feet, are divided at the ends like fingers, and the web which joins them not reaching to the extremities, and each of these fingers is furnished with a nail. They have a distant resemblance to an overgrown seal, though in some particulars there is a manifest difference between them, especially in the males; these have a large trunk, or snout, hanging down five or six inches below the end of the upper jaw, which the females have not, and this renders the countenance of the male and the female easy to be distinguished from each other, beside the males are of a much larger size. The form and the appearance of both the male and the female are very exactly represented in the nineteenth plate, only the disproportion of their size is not usually so great as is there exhibited; for the male is drawn from life after the largest of these animals, which was found upon the island; he was the master of the flock, and from his driving off the other males and keeping a great number of females to himself, he was by the seamen ludicrously styled the bashaw. These animals divide their time equally between the land and sea, continuing at sea all the summer, and coming on shore at the setting in of the winter, where they reside during that whole season. In this interval they engender and bring forth their young, and have generally two at a birth, which they suckle with their milk, they being at first about the size of a full-grown seal. During the time these sea-lions continue on shore they feed upon the grass and verdure which grows near the banks of the fresh-water streams; and when not employed in feeding, sleep in herds in the most miry places they can find out. As they seem to be of a very lethargic disposition, and are not easily awakened, each herd was observed to place some of their males at a distance, in the nature of sentinels, who never failed to alarm them whenever any one attempted to molest, or even to approach them; and they were very capable of alarming, even at a considerable distance; for the noise they make is very loud and of different kinds, sometimes grunting like hogs, and at other times snorting like horses in full vigor. They often, especially the males, have furious battles with each other, principally about their females; and we were one day extremely surprised at the sight of two animals, which at first appeared different from any of all we had observed, but on a nearer approach they proved to be two sea-lions, who had been goring each other with their teeth, and were covered over with blood; and the bashaw, above mentioned, who generally lay surrounded with a seraglio of females, which no other male dared to approach, had not acquired that envied pre-eminence without many bloody contests, of which the marks still remained in the numerous scars which were visible in every part of his body. We killed many of them for food, especially for their hearts and tongues, which we esteemed good eating, and preferable even to those of bullocks. In general shape there was no difficulty in killing them, for they were incapable either of escaping or of resisting, as their motion is the most unwieldy that can be conceived, their blubber, all the time they are moving, being agitated in huge waves under their skins. However, a sailor one day being carelessly employed in skinning a young sea-lion, the female from whence he had taken it came upon him unperceived, and getting his head in her mouth, she with her teeth scored his skull in notches in many places, and thereby wounded him so desperately that though all possible care was taken of him he died in a few days.

Few birds.—These are the principal animals which we found upon the island, for we saw but few birds, and those chiefly hawks, blackbirds, owls, and humming-birds. We saw not the pendella, which burrows in the ground, and which former writers have mentioned to be found here; but as we often met with their holes, we supposed that the dogs had destroyed them, as they have almost done the cats; for these were very numerous in Selkirk's time, but we saw not above one or two during our whole stay. However, the rats still keep their ground, and continue here in great numbers, and were very troublesome to us by infesting our tents nightly.

Abundance of fish.—But that which furnished us with the most delicious repasts at this island remains still to be described—this was the fish, with which the whole bay was most plentifully stored, and with the greatest variety, for we found here cod of a prodigious size, and by the report of some of our crew, who had been formerly employed in the Newfoundland fishery, not in less plenty than is to be met with on the banks of that island. We caught also cavallies, gropers, large breams, maids, silver fish, congers of a peculiar kind—above all, a black-fish, which we most esteemed, called by some, a chimney-sweeper, in shape resembling a carp. The beach, indeed, is everywhere so full of rocks and loose stones that there is no possibility of hauling the seine; but with hooks and lines we caught what numbers we pleased, so that a boat with two or three lines would return loaded with fish in about two or three hours' time. The only interruption we ever met with arose from the great quantities of dog-fish and large sharks which sometimes attended our boats and prevented our sport. Beside the fish we have already mentioned, we found here one delicacy in greater perfection, both as to size and flaver and quantity, than is, perhaps, to be met with in any other part of the world; this was sea cray-fish; they generally weighed eight or nine pounds apiece, were of a most excellent taste, and lay in such abundance near the water's edge that the boat-hooks often struck into them in putting the boat to and from the shore.

Strange contrast in sealing-grounds.—Thus ends Chaplain Walter's description of the plants, and the animals, and the fish of Juan Fernandez; and I quote him in full, because I wish to emphasize the decided difference in the temperament and constitution of the northern, or Alaskan, fur-seal from that of its southern relative, which seems to have repaired to Juan Fernandez and Masafuera in countless thousands, "millions," Dampier said, in 1683, to breed in a tropical climate, on an island infested by bands of wild dogs, and the waters surrounding alive with "large sharks"! Then, too, that the good prelate should have found fish so abundant where such multitudes of seals were aggregated, seems strange; and it also occurs rather odd to me that he should have rested content with Dampier's brief description of the fur-seal here, and passed the matter by, in the abrupt reference which he makes, declaring it superfluous to add more than "other writers" have spoken of.

The rookery of Masafuera: a description of the islet.—The island of Masafuera lies off the coast of Chili, in south latitude 33° 45′, west longitude 80° 46′, just west of Juan Fernandez, 93 miles; the surprising number of over 480,000 fur-seal skins are said to have been taken from it in a single season, some fifty years or so ago. Whether this immense aggregate was slain there or not, it is certain that no one rookery in all the South seas was of more importance. It is a high and mountainous volcanic islet, triangularly formed, and about 7 or 8 leagues in coast circuit. The general character of the island seems to be very much as I have indicated as characteristic of St. George, only that a luxuriant growth of exotic shrubbery is found thereon. On the north side of the island is a low point of land upon which the noted fur-seal rookery used to exist. "The seals," Carteret, in 1767, says, "were so numerous that I verily think if many thousands of them were killed in a night, they would not be missed in the morning; we were obliged to kill a noted number of them, as, when we walked the shore, they were continually running against us, making at the same time a most terrible noise. These animals yield excellent train-oil, and their hearts and plucks were very good eating, being in taste something like those of a hog, and their skins were covered with the finest fur I ever saw of the kind."

Anson's visit to Masafuera.—Lord Anson sent one of his vessels over to Masafuera for the purpose of surveying it thoroughly, while he was lying at Juan Fernandez, refitting, June to September, 1740. Captain Saunders submitted substantially the following report, which Chaplain Walter indorses as valuable, inasmuch "as upon this occasion the island of Masafuera was more particularly examined than, I dare say, it ever had been before, or, perhaps, ever will be again". He gives, in the succeeding language, the sum of the Anson survey:

> The Spaniards have generally mentioned two islands under the name of Juan Fernandez, styling them the greater and the less; the greater being that island where we anchored, and the less being the island we are now describing, which, because it is more distant from the continent, they have distinguished by the name of Masa-Fuera. The Tryal sloop found that it bore from the greater Juan Fernandez W. by S., and was about twenty-two leagues distant. It is a much larger and better spot than has been generally reported; for former writers have represented it as a small barren rock, destitute of wood and water, and altogether inaccessible; whereas, our people found it was covered with trees, and that there were several fine falls of water pouring down its sides into the sea; they found, too, that there was a place where a ship might come to anchor on the north side of it; though, indeed, the anchorage is inconvenient, for the bank extends but a little way, is steep, too, and has very deep water upon it, so that you must come to an anchor very near the shore, and there lie exposed to all the winds but a southerly one; and, beside the inconvenience of the anchorage, there is, also, a reef of rocks running off from the eastern point of the island, about two miles in length, though there is little danger to be feared from them, because they are always to be seen by the seas breaking over them. This place has, at present, one advantage beyond the island of Juan Fernandez; for it abounds with goats, who, not being accustomed to be disturbed, were nowise shy or apprehensive till they had been frequently fired at. These animals reside here in great tranquillity, the Spaniards not having thought the island considerable enough to be frequented by their enemies, and have not, therefore, been solicitous to destroy the provisions upon it; so that no dogs have been hitherto set on shore there. Beside the goats, our people found there vast numbers of seals and sea-lions. And upon the whole they seemed to imagine that, though it was not the most eligible place for a ship to refresh at, yet, in case of necessity, it might afford some sort of shelter, and prove of considerable use, especially to a single ship, etc.

NEGLECT OF CHILI.—Chili has suffered these famous breeding-grounds of *Arctocephalus* to be ravaged and utterly eliminated; here she had perpetual interests worth many hundreds of thousands of dollars to her annually in the way of revenue, had they only been looked after and shielded from that wanton and mercenary destruction which has been visited upon them by sealers of all nations between 1806–1840. In 1717 the Spanish government revived and re-established the colony of Juan Fernandez on that island; but it was in the lapse of a few decades almost entirely ruined by an earthquake. During 1810 the Chilians gained their independence, and these two islands formed part of their possessions; in 1819 they established a sort of a Botany Bay on Juan Fernandez, and have had as many as 500 prisoners there at a time; it was found, however, to be too expensive, and when a mutiny, in 1835, placed the island in the hands of the convicts for a brief period, then the prisoners were all removed shortly afterward, and the island deserted, and remained so for forty-five or fifty years. At the present time the two islands, Fernandez and Masafuera, are leased by a Chilian merchant, who employs all the settlers in cutting wood, tending cattle, and, during the season, in sealing; the average catch is about 2,000 fur-seals annually.

VALUE OF THE ANSONIAN ACCOUNT JUST QUOTED.—The Ansonian description, thus quoted in much detail, is one that cannot fail to cause decided comment upon the marked physical differences under which the fur-seal thrives in the north on the islets of Bering sea, as *Callorhinus ursinus*, or in the south, as *Arctocephalus australis*, on Masafuera and Juan Fernandez. According to Walter, the size of these two subtropical islands is nearly in accord with the area which I found belonging to the Pribylov group; St. Paul being about the same superficial area of Juan Fernandez, with outlying rocks and islets alike peculiar to each; while St. George is a trifle larger, only, than the smaller Masafuera, with water bold and abrupt all around about them.

THE SUBTROPICAL ROOKERIES MERE ROCKY BREEDING BELTS.—The rookery sites of the fur-seal are not located by any writer on either island. I should judge from Walter's account that the entire desolate south shore of Juan Fernandez was a belt of cliff-bound breeding-grounds, where these animals laid as they do to-day under the bluffs on the Great Eastern rookery at St. George; and to which spot none of the Dampier or Anson voyagers resorted. Indeed, from all that I can learn of the physical structure of the islands to which the southern fur-seal repaired, the whole area presented suitable for these creatures to breed upon was of this character, save that of the Falkland islands; no such ground in general topography as St. Paul being known to the Antarctic, nor is it found elsewhere in the Arctic; but St. George is the common type of the southern seal-islands, as it is also typical of the entire Aleutian chain and Alaska generally.

STRANGE OMISSION OF CHAPLAIN WALTER.—The one queer thought in my mind relative to this lengthy visit of Anson to Juan Fernandez, is that the historian, from whom I have quoted so liberally, should not speak of the fur-seal; for, thirty-two years prior to his landing Captain Wood-Rogers, of the "Duke", a privateer, touched here to recruit, and found "Robinson Crusoe" Selkirk in lonely possession; that sailor left with Rogers, February 12, 1709, and he gave quite a story of his discovery of the seals, which is related by the captain. Curiously enough, according to Selkirk, the time when the fur-seal hauls out to breed on Juan Fernandez is that season of the year when Anson was there. Wood-Rogers reports him as saying, "Toward the end of the month of June these animals come on shore to bring forth their young and remain to the end of September, without stirring from the spot and without taking any kind of nourishment." (Kerr: *Collection of Voyages:* vol. xi.)

NUMBERS OF DEADLY ENEMIES THERE: SHARKS.—The time of breeding, therefore, is about the same as in Bering sea. Also, in this connection, Commodore Byron, who came, in his voyage round the world, to Masafuera in 1765, seeking wood and water, says:

> Sunday, April 28, 1765; * * * there was, however, another species of danger here to which our cork (surf) jackets afforded us no defense, for the sea abounded with sharks of an enormous size, which, when they saw a man in the water, would dart into the very surf

> to seize him. Our people, however, happily escaped them, though they were many times very near; one of them, which was upward of 20 feet long, came close to one of the boats that was watering, and having seized a large seal instantly devoured it at a mouthful, and I, myself, saw another of about the same size do the same thing under the ship's stern. (Hawksworth: *Voyages:* London, 1773; vol. i, pp. 87–88.)

No other mention of seals is made by him here at Masafuera.

THE VOYAGE OF DAMPIER.—Fifty-seven years prior to Chaplain Walter's inspection and description of Juan Ferdandez, Capt. William Dampier stopped here, also, to wood and to water, and to rally his crew from scurvy; he was making a "New Voyage Round the World", sailing from England; he passed two weeks there in these exercises of recuperation and refitting. The justly celebrated buccaneer delivers himself in this terse strain:

> These [seals] at *John Fernandos* have fine thick short Furre; the like I have not taken notice of any where but in these Seas. Here are always thousands, I might possibly say millions of them, either sitting on the Bays, or going and coming in the sea round the Island, which is full of them (as they lie at the top of the Water playing and sunning themselves) for a mile or two from the shore. When they come out from the Sea they bleat like Sheep for their young; and though they pass through hundreds of other's young ones before they come to their own, yet they will not suffer any of them to suck. The young ones are like Puppies and lie much ashore, but when beaten by any of us, they as well as the old ones will make toward the Sea, and swim very swift and nimble; though on shore they lie very sluggishly, and will not go out of our way unless we beat them, but snap at us. A blow on the Nose soon kills them. Large Ships might here load themselves with Seal Skins and Trane oyl; for they are extraordinary fat. (Dampier: *A New Voyage Round the World,* 1683; vth edition, revised, 1703; vol. i, pp. 88, 90.)

DAMPIER, NOT COOK, FIRST TO NOTE THE FUR-SEAL.—This account of Dampier will be instantly recognized, as far as he speaks of their habits, as an exact portrait of a breeding-rookery of the fur-seal. It is painfully brief, however; but it antedates Steller's contribution to the life and habits of the *Callorhinus* some 60 years; and is a hundred years nearly in advance of Captain Cook's mention of the same subject on the South Georgian (1771) and the Falkland islands (1774). He, therefore, and not Cook, deserves the credit of being the first man to call the attention of the civilized world to the value and the numbers of the fur-seal as it existed in southern waters, while Steller enjoys the same reputation with respect to those of the north.*

But, after searching through scores of antique traveler's volumes, and reading the musty records through and through—after extended personal intercourse with several of the very men who were active in fur-sealing throughout the Antarctic forty years ago, I have nothing but a mass of disjointed and conflicting data to show as to the real number of fur-seals slain in the waters south of the equator; while the record made by these men of the life and habit of *Arctocephalus australis* is that odd medley of fact and fiction, which destroys the value of the one and the romance of the other.

THE FALKLAND ISLANDS: THEIR DISCOVERY.—Captain John Davies, an Englishman, and a companion of Sir Thomas Cavendish, who made a privateersman's voyage to the South seas in 1592, was the first person who saw the Falkland islands. In 1594, Sir Richard Hawkins landed upon them and called them in honor of his queen and himself, "Hawkins' Maiden-land"; he said nothing about seals. In 1598 they were seen by a Dutch squadron, Verhagen, and Sebald de Wert commanding; they touched, and, ignorant of prior discovery, named them "Sebald's islands". Captain William Dampier, an Englishman, nearly 100 years after, in 1686, visited them and styled them "Sibbet de Wards"; he does not speak of seals there. They were finally called the Falkland islands by Strong, an English navigator in 1689; the manuscript journal of Strong yet remains unpublished and filed away in the archives of the British Museum. Captain Cook's emphatic mention of the fur-seal at South Georgia in 1771 gradually drew the attention of fur-sealers to a focus, when, from 1801 to 1840, inclusive, the whole Antarctic sealing-ground was ravaged by them, and the Falkland islands were the head center of all their operations. Great Britain took immediate jurisdiction, for the first time, over the Falkland islands in 1833.

EXTRAORDINARY ABSENCE OF SEALING DATA.—Such, in brief, are the circumstances that attended the early discovery of these celebrated Falkland islands, which were the rendezvous of a large sealing-fleet for a period of nearly 30 years—1800 to 1826, inclusive; yet, in spite of it, I can find little or no evidence of the extent of the catch thereon, or of the general location of the vast rookeries known to be slaughtered here during that extended interval. If these islands had been far beyond the track of commerce, as are all the other Antarctic sealing-grounds, save Juan Fernandez, then the remarkable, surprising want of data in this respect would not be so marked a feature to the history of the subject. The Falkland islands have not only been a common port of entry and departure for vessels of all nations since their discovery, in 1594, but as far back as 1770 they were a bone of contention and long-sustained diplomatic overtures between Spain and Great Britain, which came very near to plunging both countries into war on their sole account. I will recite the history of this disturbance, because its solution was the direct result of our losing possession of Vancouver's island and all that British Columbian territory to-day south of 54° 40′ north latitude—a fur-sealing quarrel at the outset originated the whole difficulty.

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*William Dampier was the boldest and clearest-headed navigator, of all who then sailed into unknown seas. He discovered Australia a century before Cook saw it, cruising at that time as a buccaneer; his narrative gave Defoe the idea and supplied the incidents of "Robinson Crusoe", on Juan Fernandez; and there is no question in my mind that he possessed those qualities which distinguished Captain Cook, to the fullest extent; he only lacked the power of the government behind him, to have made a much earlier record, and entirely as meritorious as is the one which Cook left for posterity.

Although Dampier gives the first sensible and positive description of the fur-seal that I can find, yet there is one reference to this animal much earlier; but it requires the reading of an expert to notice that it arose from the sight of a fur-seal. It is found in the account of Henry Braüer, or Brewer, who, in behalf of the Dutch West India Company, landed on the coast of Staten Land, 9th March, 1642, en route to Chili. Here, at Valentine's bay, he "saw among the rocks several sea-lions and sea-dogs, about the bigness of a good *European* calf; some of a grayish, some of a brownish color, making a noise not unlike our sheep, and at the approach of our men they betook themselves to the sea." [Churchill: *Voyages:* London, 1700: vol. i, p. 456.] As the fur-seal is the only one of its family that makes a "noise not unlike our sheep", there is no question that Henry Brewer saw a number of female *Arctocephalus australis,* in especial; though males were along, they being so much larger, he deemed different, and termed them sea-lions

Juan Fernandez, the Spanish navigator and adventurer, who, in 1563–'67, discovered, pre-empted, and colonized the island of his name, died there in 1575, or thereabouts; with his decease, the settlement was abandoned. He, probably, was the first of all civilized men to really know what a fur-seal was; but he has left no record, to my knowledge, of the fact.

TROUBLES HERE WHICH CAUSED US THE LOSS OF VANCOUVER'S ISLAND.—The piratical cruise of Sir Francis Drake in 1577, followed by that of Thomas Candish, or Cavendish, and John Davies, in 1592, whereby the Spanish settlements and galleons on the west coasts of the American continent were literally ravished, aroused the Castilians to a sense of their future danger, and they began rather slowly to provide means of shelter and future support. In prosecution of this plan for protecting the Spanish settlements and commerce of America, Francisco Bucareli, the governor of Buenos Ayres, on the 10th of June, 1770, forcibly expelled the handful of British "sealers" from their little establishment, Port Egmont, on the Falkland islands. As soon as the news of this expulsion reached London, the English secretary of state, lord Weymouth, addressed, September 12, a demand to the court at Madrid for the immediate disavowal, on its part, of the acts of Bucareli, and called for the prompt and unconditional restitution of the islands in the condition which they were before the writs of removal were executed. War was imminent, but Louis XV, of France, tendered his good offices as a mediator between the two disputants. The Spanish government acceded to this and placed the entire settlement of the controversy in the hands of the king of France, for his disposition as he should consider proper for the honor and rights of Spain. On the 22d of January, 1771, the offers of the king of France were accepted by the court of St. James. On this day the Spanish ambassador at London, Prince Masserano, presented to lord Rochford a declaration in the name of the king of Spain, saying that his Catholic majesty, solely desirous of maintaining peace with England, disavowed the acts of violence committed by the governor of Buenos Ayres, and engaged to restore to his Britannic majesty and his subjects "the port and fort at Egmont, in the Falkland islands, with all the artillery, stores, and effects, precisely" as they were before the 10th of June, 1770; at the same time, however, this offer of restitution contained the following significant clause: "this contract cannot, nor will it in any way, affect the question of prior right of sovereignty to the Falkland islands."

THE TREATY OF NOOTKA INFLUENCED HERE.—The expelled Falkland islanders were then replaced at port Egmont; but, in 1774, they were abruptly withdrawn by order of their own government, and these islands were again taken possession of by the Spaniards, who retained their hold until South America became independent. This abandonment of Great Britain provoked the bitterest political debates in Parliament, and feeling ran high all over that country; deeply imbued with this sentiment, Vancouver went out, in 1791, specially charged by the English government to take possession of the British territory on the northwest coast, according to the articles of the treaty of 1790 between Spain and England, and came to that region in the following year. The Spaniards claimed Vancouver's island then, in their own right, and in behalf of the Americans, captains Gray and Kendrick; their agent, Señor Juan Francisco de la Bodega y Quadra, was stationed at Nootka sound; and immediately after Vancouver's arrival, August 12, 1792, the negotiations were commenced, but Quadra could do nothing in behalf of their rights and those of American discovery. Vancouver peremptorily refused to entertain the subject. Quadra therefore surrendered "Quadra and Vancouver's island" to him, under protest, and withdrew every sign of Spanish authority from these waters of the North Pacific.

Thus the disturbances which arose over the abandonment of the Falkland islands in 1774, worked the loss of that northwest territory to us, through Spain, in 1792. My only regret (after an extended personal residence on Vancouver's island), concerning this whole subject, is that, out of all the uproar at the Falklands, nothing definite has been placed on record relative to the numbers and disposition of the fur-seal thereon.

## 25. CATALOGUE OF THE MAMMALS OF THE PRIBYLOV GROUP.

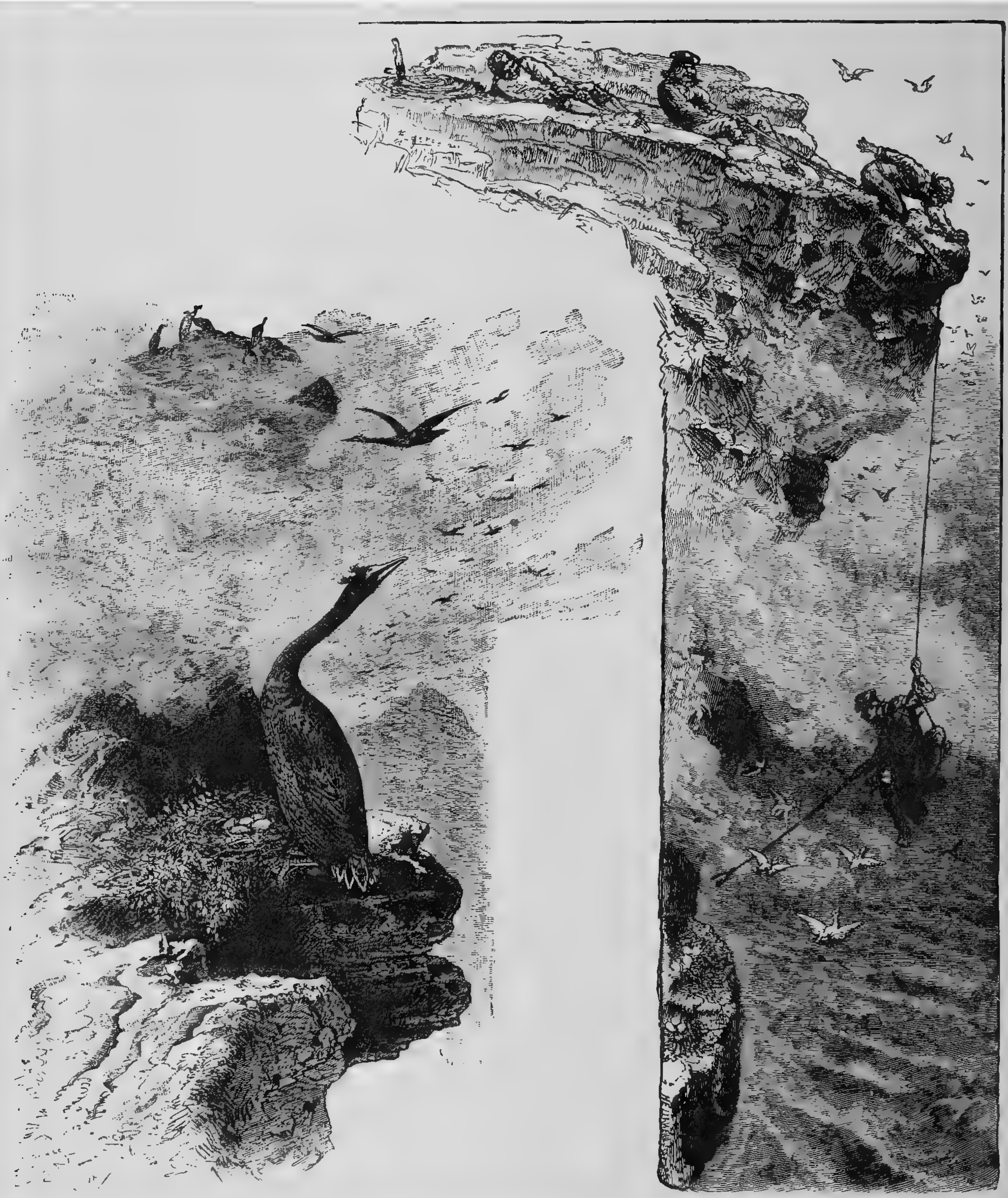
[Memoranda of collections made by Henry W. Elliott: Pribylov Islands: 1872 to 1876, inclusive.]

### CANIDÆ:

**Vulpes lagopus.** BLUE OR ARCTIC FOX. Common.

Blue foxes were also, and are, natives of the Commander islands. Steller describes their fearlessness when the shipwrecked crew of the St. Peter landed there, 6th November, 1741. I saw them also at St. Matthew island.

In regard to these foxes the Pribylov natives declare that when the islands were first occupied by their ancestors, 1786–'87, the fur was invariably *blue;* that the present smoky blue, or ashy indigo color, is due to the coming of white foxes across on the ice from the mainland to the eastward. The white-furred *vulpes* is quite numerous on the islands to-day. I should judge that perhaps one-fifth of the whole number were of this color; they do not live apart from the blue ones, but evidently breed "in and in". I notice that Veniaminov, also,



THE CURIOUS SHAG.

NATIVES OVER THE CLIFFS.

OÖLOGICAL SKETCHES ON ST. GEORGE, BY THE AUTHOR.

Herewith presented through the courtesy of Harper Brothers.

makes substantially the same statement; only differing by charging this deterioration of the blue foxes' fur to the deportation from outside of red ones, on ice-floes; and adds that the natives always hunted down these "krassnie peeschee" as soon as their presence was known; hence my inability, perhaps, to see any sign of their posterity in 1872–'76.

The presence of these animals on the Pribylov islands is a real source of happiness to the natives, especially so to the younger ones. The little pup-foxes make pets and playfellows for the children, while hunting the adults during the winter gives wholesome employment to the mind and body of the native who does so. They are trapped in common dead-falls, steel spring-clips, or beaver traps, and shot. A very large portion of the gossip on the island is in relation to this business.

### PINNIPEDIA:

**Callorhinus ursinus.** Fur-seal. Abundant.
**Eumetopias Stelleri.** Sea-lion. Common.
**Phoca vitulina.** Hair-seal. A few only.

While the *Phocidæ* are so scant as to number and variety in the waters of the North Pacific and Bering sea, yet they fairly rival the myriads of the fur-seal here by their presence in the waters of the North Atlantic; and, also, their surprising aggregate in the Caspian sea. So great is the volume of hair-seal life in the circumboreal region of the Orient, that the astonishing sum of from 850,000 to 900,000 *Phocidæ* are annually taken there! and from the Caspian sea an additional count of a yearly average of 130,000, making a round million of these animals slaughtered every season. At least, such are the data which we find in the writings of the only credible authorities known, viz, Bonnycastle, *Newfoundland*, in 1842, vol. 1, p. 159; Carroll, *Seal and Herring Fisheries of Newfoundland*, 1873, p. 9; Lindeman, *Pet. Geogr. Mitth.*, pp. vi, 118; *Die Arktische Fischerei der Deutschen Seestädte*, 1620–1868; Brown, *Man. Nat. Hist. Geol., etc., of Greenland*, 1868–1875; Melsom, *Pet. Geogr. Mitth.*, 1869, p. 81; Petersen, *Pet. Geogr. Mitth.*, 1870, pp. 194 *et seq.*, 1871, pp. 35 *et seq.;* Lovenskiöld, *Land and Water* (newspaper), 1875, p. 160; Schultz, *Rep. U. S. Com. Fish and Fisheries*, pt. iii, for 1873–'74 and 1874–'75 (a translation of the original published at St. Petersburg in 1873). Allen, in his *History N. A. Pinnipeds*, has so liberally compiled and quoted from these authors that it would be simply superfluous service to reprint those records here.

**Odobænus obesus.** Walrus. A few only.

### CETACEA:

**Orca gladiator, var. rectipennis.** Killer-whales. A few only.
**Megaptera versabilis.** Humpback whales. A few only.

### RODENTIA:

**Myodes obensis.** Lemming. Abundant on St. George only.
**Mus musculus.** House mouse. Common in the villages (imported by man).

## 26. CATALOGUE OF THE BIRDS OF THE PRIBYLOV GROUP.

Vast numbers of water-fowl.—In the seasons of 1872–'73, respectively, throughout the ornithological breeding terms on St. Paul and St. George, I neglected no opportunities, as they occurred, to secure everything that was peculiar to the feathered life upon these islands. The dreary expanse and lonely solitudes of the North owe their chief enlivenment, and their principal attractiveness for man, to the presence of the vast flocks of circumboreal water-fowl, which repair thither annually. It is true that the mammalian life of the Pribylov group renders its immense aggregate of avifauna insignificant by comparison; but to the naturalist and many who are not technically versed, the following check-list of those species which I found there, together with a brief biography accompanying each title, may be of more than passing interest.

While a few species of water-fowl come to these islands in myriads for the purpose of breeding, it will be noticed that the list of names met with here is a brief one; still it is of much value to the naturalist, inasmuch as it comprises so many desiderata scarcely to be obtained elsewhere.

The immense rookeries of St. George.—Over fifteen miles of the bold, basaltic, bluff line of St. George island is fairly covered with nesting gulls, *Rissa*, and "arries", *Uria*, while down in the countless chinks and holes over the entire surface of the north side of this island millions of "choochkies", *Simorhyncus pusillus*, breed, filling the air and darkening the light of day with their cries and fluttering forms. On Walrus islet the nests of the great white gull of the north, *Larus glaucus*, can be visited and inspected, as well as those of the sea-parrot or puffin, *Fratercula*, sp., shags or cormorants, *Graculus* sp., and the red-legged kittiwake, *Larus brevirostris*. These birds are accessible on every side, can be reached, and afford the observer an unequaled opportunity of taking due notice of them through their breeding-season, as it begins in May and continues until the end of September.

Economic value to inhabitants.—Not one of the water-birds found on and around the islands is exempted from a place in the native's larder; even the delectable "oreelie" are unhesitatingly eaten by the people, and indeed these birds furnish, during the winter season in especial, an almost certain source of supply for fresh meat. But the heart of the Aleut swells to its greatest gastronomic happiness when he can repair, in the months of June and July, to the basaltic cliffs of St. George, or the lava table-bed of Walrus islet, and put his grimy hands on the gaily colored eggs of the "arrie", *Lomvia arra;* and if he were not the most improvident of men, instead of taking only enough for the day, he would lay up a great store for the morrow, but he never does. On the occasion of one visit, and my first one there, July 5, 1872, six men loaded a badarrah at Walrus islet, capable of carrying four tons exclusive of our crew, down to the water's edge with eggs, in less than three working hours.

DISAPPEARANCE OF BIRDS IN WINTER.—During the winter months the birds are almost wholly absent, especially if the ice shall have closed in around about the islands; then there is nothing of the feathered kind save the stupid shag, *Graculus bicristatus*, as it clings to the leeward cliffs, or the great burgomaster gull, which sweeps in circling flight high overhead; but, early in May they begin to make their appearance; and they come up from the sea overnight, as it were, their chattering and their harsh caroling wakes the natives from their slothful. sleeping, which, however, they gladly break, to seize their nets and live life anew, as far as eating is concerned, The stress of severe weather in the winter months, the driving of the snow "boorgas", and the floating ice-floes closing in to shut out the open water, are cause enough for the disappearance of the water-fowl during the hyemal season.*

CASTAWAY BIRDS ON THE PRIBYLOV ISLANDS.—The position of the islands is such as to be somewhat outside of the migratory path pursued by the birds on the mainland; and, owing to this reason, they are only visited by a few stragglers from that quarter, a few from the Asiatic side, and by the millions of their own home-bred and indigenous stock. One of these migratory species, *Strepsilas interpres*, however, comes here every summer for three or four weeks' stay, in great numbers, and actually get so fat, in feeding upon the larvæ which abound in the decaying carcasses over the killing-grounds, that it usually bursts open when it falls, shot on the wing. A heavy easterly gale often brings a strange bird to the islands from the mainland; a grebe, *Podiceps griseigena*, was stranded on St. George in 1873, whereupon the natives declared the like of which they had never seen before; when I found a robin one cool morning in October, the 15th, the natives told me that it was an accident—brought over by some storm or gale of wind that took it up and off from its path across the tundra of Bristol bay. The next fair wind sweeping from the north or the west could be so improved by this robin, *Tusdus migratorius*, that it would spread its wings and as abruptly return. Thus hawks, owls, and a number of foreign water-fowls visit the islands, but never remain there long.

FAILURE TO INTRODUCE RAVENS.—The Russians tried the experiment of bringing up from Sitka and Oonalashka a number of ravens as scavengers, a number of years ago, and when they were very uncleanly in the village, in contrast with the practice of the present hour; they reasoned that they would—these ill-omened birds—be invaluable as health officers; but the *Corvidæ* invariably, sooner or later, and within a very short time, took the first wind-train back to the mainland or the Aleutian islands; yet the natives say that if the birds had been young ones instead of old fellows, they would have remained. I saw a great many, however, at St. Matthew island, in August, 1874; also, their slowly-marked flight overhead was a common sight on St. Lawrence.

POULTRY KEPT BY NATIVES.—The natives keep a small number of chickens, and often they take their poultry into their living rooms and coop them up in the corners; they get return in eggs; but of all the forlorn, wretched, bedraggled specimens of domestic fowls, those that have to shiver and shake themselves outside when viewed on the seal-islands are the most miserable. They do not exactly freeze, but the raw, damp, incessant violence of the weather keeps them inactive and cowering for such long, unbroken periods that their feathers seem to fall out, and disease marks them for its own.

OÖLOGICAL WEALTH OF WALRUS ISLAND.—I am much divided in my admiration of the two great bird-rookeries of the Pribylov group, the one on the face of the high bluffs at St. George, and the other on the table-top of Walrus islet; but, perhaps, the latter place gives, within the smallest area, the greatest variety of nesting and

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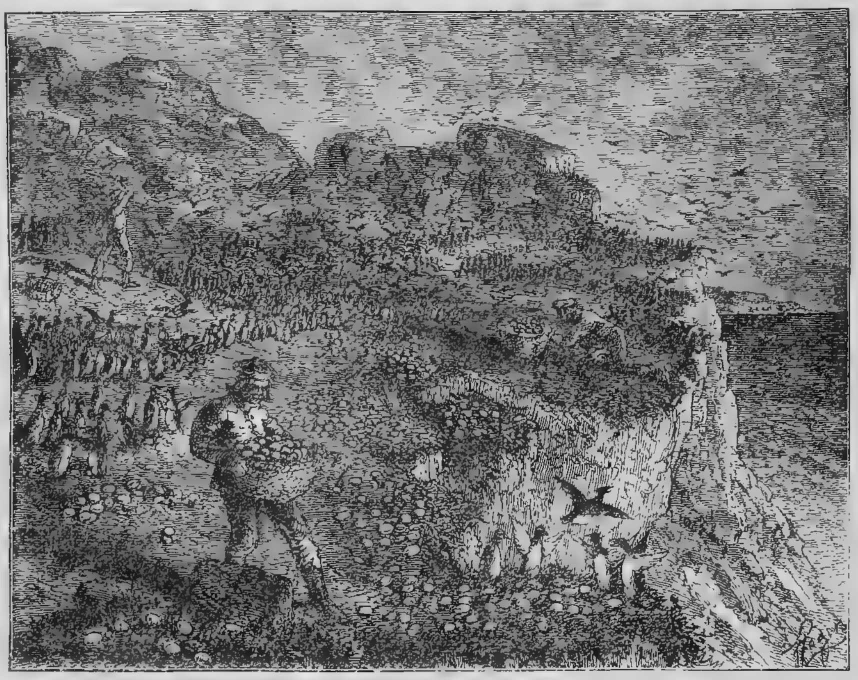
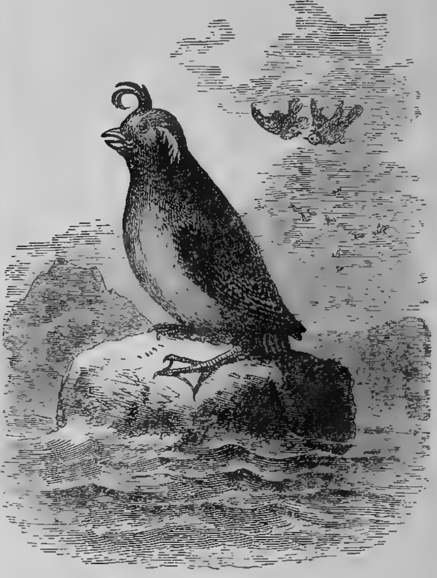
* While daily served on St. George, during June and July, with eggs of indigenous sea-fowl, I recorded my gastronomic comparisons which occurred then as I ate them. Here follows a recapitulation:

| | |
|---|---|
| Fresh-laid eggs of "lupus," or *F. glacialis* | Best eggs known to the islands; can be soft-boiled or fried, and are as good as our own hens' eggs; the yolk is light and clear; the size thereof is in shape and bulk like a duck's egg; it has a white shell. SEASON: June 1 to 15, inclusive; scarce on St. Paul and not abundant on St. George. |
| Fresh-laid eggs of "arrie," or *L. arra* | Very good; can be soft-boiled or fried; are best scrambled; yolks are dark; no strange taste whatever to them; pyriform in shape; large as a goose egg; shell gaily colored; they are exceedingly abundant on Walrus island and St. George; tons of them. SEASON: June 25 to July 10, inclusive. |
| Fresh-laid eggs of gulls; *Laridæ* | Perceptibly strong; cannot be relished unless in omelettes; yolks very dark; size and shape of our hen's egg; shell dark, clay-colored ground, mottled. SEASON: June 5 to July 20, inclusive; they are in moderate supply only. |

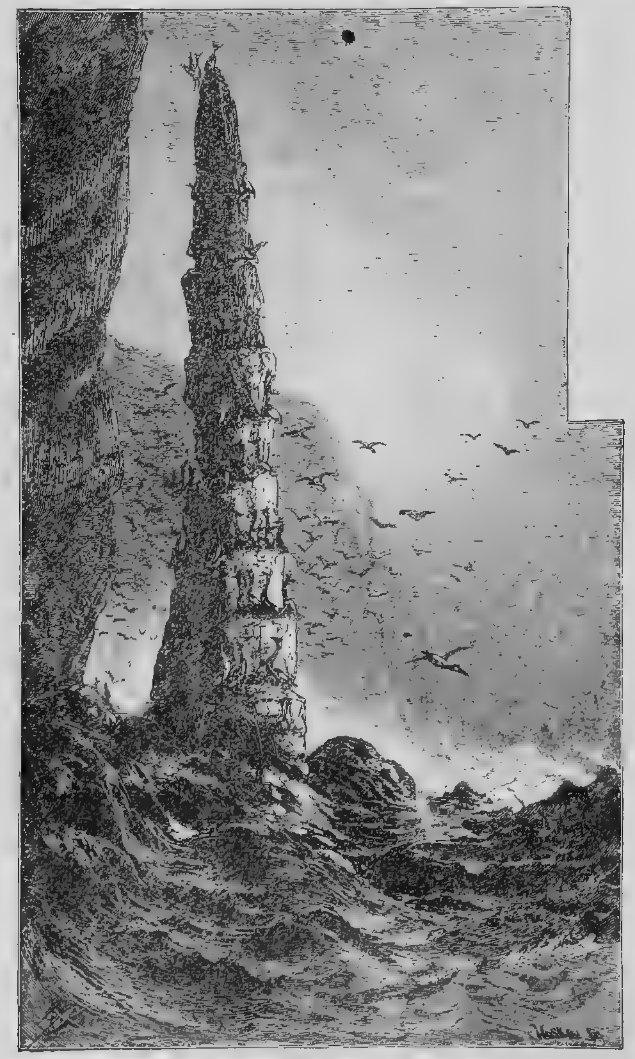
The other eggs in the list, such as those of the "choochkie", the "shag", and the several varieties of water-fowl which breed here, are never secured in sufficient quantity to be of any consideration as articles of diet. It is, perhaps, better that the scarcity of their kind continue, judging from the strong smack of the choochkie's, the repulsive taint of the shag's, and the "twang" of the sea-parrot's, all of which I tasted as a matter of investigation



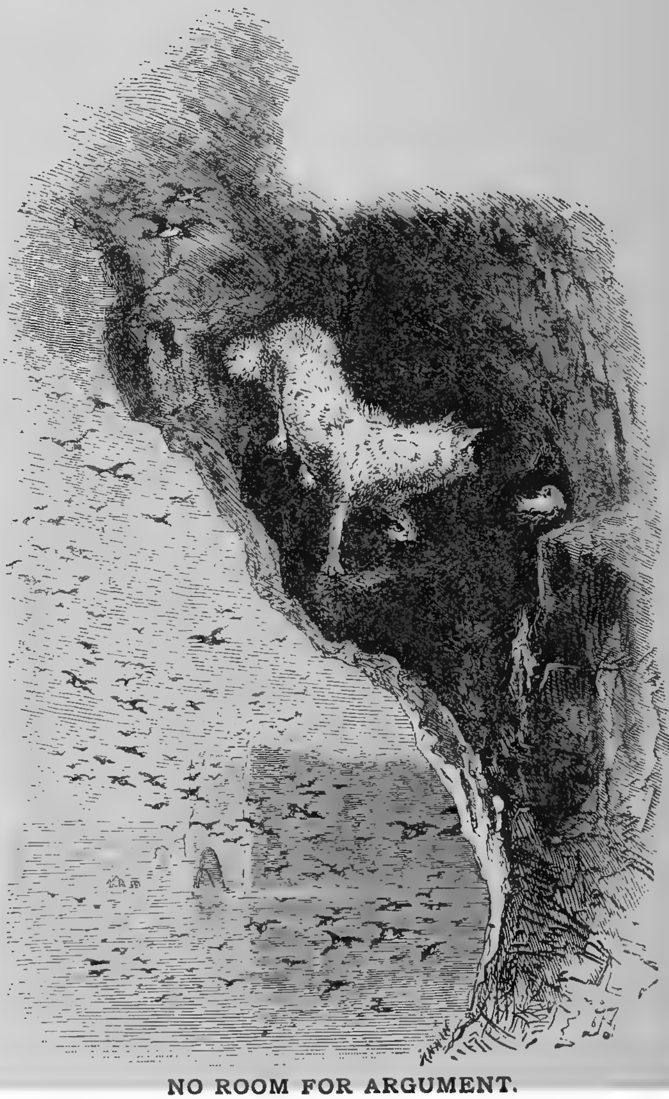
GATHERING EGGS ON WALRUS ISLAND.



THE "KANOOSKA."



CLEOPATRA'S NEEDLE.
(ST. LAWRENCE ISLAND.)



NO ROOM FOR ARGUMENT.

ORNITHOLOGICAL SKETCHES ON THE SEAL-ISLANDS, BY THE AUTHOR.

Herewith presented through the courtesy of Harper Brothers.

breeding birds; for here the "arrie" and many gulls, cormorants, sea-parrots, and auks come to lay their eggs in countless numbers. The foot and brow of the low, cliff-like sea fronts to this island are occupied almost exclusively by the "arries", *Lomvia arra*, which lay a single egg, each, on the surface of the bare rock, and stand, just like so many champagne bottles, straddling over them while hatching; only leaving at irregular intervals to feed, and then not until their mates relieve them. Hundreds of thousands of these birds, alone, are thus engaged about the 29th of every June, on this little rocky island, standing stacked up together as tight as so many sardines in a box—as thickly as they can be stowed—each of them uttering an incessant, deep, low, hoarse, grunting noise. How fiercely they quarrel among themselves—everlastingly; and in this way thousands of eggs are rolled off into the sea, or into crevices, or into fissures, where they are lost and broken.

TOUGHNESS OF ARRIE EGG-SHELLS.—The "arrie" lays but one egg. If it is removed or broken she will soon lay another; but, if undisturbed after depositing the first, she undertakes its hatching at once. The size, shape, and coloration of this egg, among the thousands which came under my observation, are exceedingly variable. A large proportion of the eggs become so dirty, by rolling here and there in the guano while the birds tread and fight over them, as to be almost unrecognizable. I was struck by the happy adaptation of nature to their rough nesting; it is found in the toughness of the shell of the egg—so tough that the natives, when gathering them, throw them as farmers do apples into their tubs and baskets, on the cliffs, and then carry them down to the general heap of collection near the boats' landing, where they pour them out upon the rocks with a single flip of the hand, just as a sack of potatoes would be emptied; and then again, after this, they are quite as carelessly handled when loaded into the "bidarrah", sustaining through it all a very trifling loss from crushed or broken ones.

BIRD ZONES ON WALRUS ISLET.—Those "arries" seem to occupy a ribbon in width, and draw around the outward edges of the flat table-top to Walrus island a regular belt, keeping all to themselves; while the small grassy interior from which they are thus excluded is the only place, I believe, in Bering sea where the great white gull, *Larus glaucus*, breeds. Here I found among the little mossy tussocks the burgomaster building a nest of dry grass, sea ferns, *Sertularidæ*, etc., very nicely laid up and rounded, and in which it laid usually three eggs, sometimes only a couple; occasionally I would look into a nest with four. These big birds could not breed on either of the other islands in this manner, for the glaucous gull is too large to settle on the narrow shelf ledges of the cliffs, as the smaller *Laridæ* and other water-fowls do; and those places which would receive it might also be a hunting-ground and footing to the foxes.

The red-legged kittiwake, *Larus brevirostris*, and its cousin, *Larus tridactylus*, build in the most amicable manner together on the faces of the cliffs, for they are little gulls, and they associate with the cormorants, sea-parrots, and auks, all together; and, with the exception of the latter, the nests are very easy of access. All birds, especially the "arries", have an exceedingly happy time of it on this Walrus islet—nothing to disturb them, in my opinion—free from the ravenous maw of the foxes over at St. Paul, and from the piratical and death-dealing sweep of owls and hawks, which infest the Aleutian chain and the mainland.

SYSTEMATIC LIST OF THE AVIFAUNA.—I will now offer, in natural sequence, a list of the names which are to be seen every year upon the ornithological register of the Pribylov islands, and the transient ones, also:

1. **Turdus migratorius.** ROBIN; "RAP-O-LOOF."

Casual, and rarely seen; never resident. Specimen secured October, 1872.

2. **Anorthura troglodytes** var. **alascensis.** ALASKAN WINTER WREN; "LIMMER-SHIN."

This wee bird is not migratory, but remains permanently upon St. George; its nest is built in small, deep holes and crevices of the cliffs. I have not myself seen it, but the natives say that it lays from eight to ten eggs in a nest made of dry grass and feathers, roofed over, with an entrance at the side to the nest-chamber, being thus elaborately constructed.

The male is exceedingly gay during the period of mating and incubation, flying incessantly from plant to plant, or from rock to rock, and singing a rather loud song for a small bird. I shot the young, fully fledged, on the 28th of July; it differed only from the parent in having a much shorter bill, and a darker and more diffuse coloration. Although St. Paul island is but twenty-seven miles to the northwest, as the crow flies, from St. George, not a single specimen of this little wren has been seen there. I made, during the whole season of 1872, unavailing search for it.

The natives' name, "limmer-shin," signifies a chew of tobacco; and, as the bird is not as large as some quids which I have seen, the name is quite appropriate, for the dull brown and black plumage of the bird suggests it also.

3. **Leucosticte tephrocotis** var. **griseinucha.** GRAY-EARED FINCH; "PAHTOSHKIE."

This agreeable little bird, always cheerful and self-possessed, is a regular and permanent settler on the islands, which it never leaves. In the depth of dismal winter, as well as in the halo of a summer's day, the pahtoshkie greets you with the same pleasant chirrup, wearing the same neat dress, as if determined to make the best of everything. It is particularly abundant on St. George, where its habit may be studied to great advantage. The pahtoshkie nests in a chink or crevice of the cliffs, building a warm, snug home for its little ones, of dried grasses and moss, very neatly put together, and then lined with a few superfluous feathers. The eggs vary in number from three to six; there generally is four. They are pure white with a delicate rosy blush, when fresh, and measure 0.97 by 0.67 of an inch. The young break the shell at the expiration of twenty or twenty-two days' incubation, the labor of which is not shared by the male; he, however, brings food to his mate, singing as most birds do of his kind, highly elated by the prospects of paternity. The chicks, at first, are sparsely covered with a sprinkling of dark-gray down, and in two or three weeks gain their feathers, fitting them for flight, though they do not acquire the ash and black of the head, while the chocolate-brown on the back is rich, and the rosy tints of their feather-tips turn to crimson. These bright hues of adolescence do not appear until they are one year old; between the old birds, however, there is no outward dissimilarity in size or coloration, the male and female being exactly alike. They feed upon various seeds and insects, as well as the larvæ which swarm on the killing-grounds. They are fearless and confiding, fluttering in the most familiar manner around the village huts. In the summer of 1873 a pair built their nest and reared a brood under the eaves of the old Greek church, that tottered on its rotten foundations, at St. George. It has no song, but utters a low, mellow chirp, sounding this note both flying and sitting, in the same cadence. It seems to pair off altogether and never reassembles in flocks. I secured a large number of beautiful specimens of the adults of both sexes in neat breeding attire, and others illustrating the earliest plumage of the young.

**4. Plectrophanes nivalis.** SNOW BUNTING; "SNAGUISKIE."

The snow-bird is another permanent resident of these islands, but one which, unlike the pahtoshkie, you will notice, is very shy and retiring, nesting high on the rocky, broken uplands, never coming down to the village, except during unusually severe or protracted cold weather. This bird builds an elegant and elaborate nest of soft, dry moss and grass, and lines it warmly again with a thick bed of feathers. It is placed on the ground beneath some heavy lava-shelf or at the foot of an enormous bowlder. Five eggs are usually laid, about the 1st of June; they are an inch long by two-thirds broad, of a grayish or greenish white, spotted sometimes all over, sometimes at or around the larger end only, with various shades of rich dark-brown, purplish-brown, and paler neutral tints. Sometimes the whole surface is quite closely clouded with diffuse reddish-brown markings. Upon the female the entire labor of the three weeks' incubation required for the hatching of her brood devolves. During this period the male is assiduous in bringing food; and at frequent intervals sings his simple but sweet song, rising, as he begins it, high up in the air, as the skylark does, and at the end of the strain drops suddenly to the ground again. The young are early provided with a gray, downy coating, which is speedily replaced by one resembling that of the adult female; and, in less than four weeks from the date of hatching, the little "snaguiskie" is as big as its parents and weighs more. The food of this species consists of the various seeds and insects peculiar to the rough, higher grounds it frequents, being especially fond of the small coleopterous beetles found on the island. It never flies about the rocks here, and cannot be called at any season of the year gregarious, like its immediate relative, the Lapland longspur, with which it is associated on these sea-girt islets.

**5. Plectrophanes lapponicus.** LAPLAND LONGSPUR; "KARESCH-NAVIE SNÁGUISKIE."

This bird is the vocalist *par excellence* of the Pribylov group, singing all through the month of June in the most exquisite manner, rising high in the air and hovering on fluttering wings over its sitting mate. The song is so sweet that it is always too short, though it lasts a few moments, with brief intervals only. This songster is much more shy and reserved than the common snow-bunting; and it rarely enters the village. It is most abundant on St. Paul island, where, unlike the snowflake, it seeks the low, grassy grounds, both for food and resting, being never found among the rough bowlders chosen for a home by the other *Plectrophanes.* The two nests, which I found, were built in tussocks of grass on the low, hummocky flat between the village and the main ridge of St. George, sheltered and half concealed beneath a drapery of withered grass. In each case the mother-bird did not fly away till I almost stepped upon her nest, when she quickly fluttered off and disappeared in perfect silence. Those nests and females in breeding dress were the first of their kind to arrive at the Smithsonian collection. One nest contained four and the other five eggs, rather smaller than the snow-bunting, and of a rich, gray-brown color, with deep shades of brown running over them in spots and suffused lines. These examples were not discovered until the 7th of July, at which date the eggs in both were perfectly fresh. They were, probably, not laid until about the end of June. The young appear in the same manner as those of *P. nivalis.* The males do not assume the distinctive coloration of their sex until the next season. The natives say that very severe weather sometimes drives the longspur away, although the other relative, the snow-bunting, is never forced to leave.

**6. Corvus corax.** RAVEN; "VAR-RONE."

As I have remarked in my general introduction, the experiment of introducing ravens was unsuccessfully tried by the Russians, but the natives still claim that if a number of young birds were brought here and raised, they could be induced to remain upon the islands during the whole season. They say that the failure to keep those birds brought up from Oonalashka, on several occasions prior, was due to the fact of their being old birds.

**7. Falco sacer.** GYRFALCON.

The specimen of this bird, in my collection, was evidently stranded and forced out of its usual flight when I secured it on the Reef point at St. Paul island, March, 1873. It was the only one that I saw while there.

**8. Charadrius fulvus.** GOLDEN PLOVER.

The appearance of this specimen in my collection, was another new item added to the list of North American birds, since it is the first American specimen of the true Asiatic *fulvus*, and not the North American var. *Virginicus.* It came to St. Paul as a wanderer on the 2d of May, 1873, and the natives told me that it was a frequent visitor in that manner; a few stragglers landing in April, or the first days of May, and passing on their way north, never remaining long. They return in greater number, however, by the close of September, and grow fat upon the larvæ generated over the killing-grounds, leaving for the south by the end of October.

**9. Strepsilas interpres.** TURNSTONE; "KRASS-NIE KO-LIT-SKIE," or "KRASSNIE NOGIE."

This is a very handsome bird when in full plumage, and arrives in flocks of thousands about the third week in July, taking its departure from the islands along by the 10th of September. It does not breed here, and it comes, undoubtedly, to feed upon the larvæ and maggots of the killing-grounds. It is certainly one of the most attractive of plovers, as it struts and marches with bright-red legs and intense black-banded breast, and a back shaded with brown and green reflections. I am at a loss to fix its breeding place; I have met with it at sea 700 miles from the nearest land, flying northwest toward the Aleutian islands, my ship being 800 miles west from the straits of Fuca.

**10. Lobipes hyperboreus.** NORTHERN PHALAROPE.

A few couples breed on the islands, nesting around the margins of the lakelets. The egg I was unable to find, but I secured several newly-hatched young ones, which were very interesting little creatures. They are only two or three inches long, with bill about a third of an inch in length, and no thicker than an ordinary dressing-pin. The down of the head, neck, and upper parts is a rich brownish yellow, variegated with black, the crown being of this color mixed with yellow, and a long stripe extends down the back, flanked with one over each hip, and another across the rump, and a shoulder spot on each side. The under parts are a grayish, silvery white. The old bird, when startled or solicitous for the safety of its young, utters a sonorous "tweet" call, quickly repeated, with long intervals of silence between them.

**11. Phalaropus fulicarius.** RED PHALAROPE.

Though I found this bird very much more abundant than the preceding species at certain times, yet I am satisfied that it does not breed here. It is found, like the other, by the marshy margins of the pools and ponds, usually solitary, though paired occasionally, but never in flocks. The earliest arrivals occur in June, but the birds reappear in greatest number about the 15th of August. They all leave by the 5th of October.

**12. Tringa ptilocnemis.** THICK-BILLED SAND-PIPER. "KO-LITS-KIE."

The most interesting result, in some respects, of my ornithological work, is the determination by my specimens of the occurrence of this species in abundance on the Pribylov islands, where it breeds. That discovery adds a species, previously unrecognized as North American, to our fauna. As a long, elaborate, and graphic description of the bird, based upon my collections, was made by Dr. Elliott Coues,[*] when he reviewed my labor on these islands, I shall not duplicate it here; but I wish to give him credit for his prompt recognition of the novelty; and in this connection let me add, that in 1874 I saw it just as abundantly on St. Matthew island. I should say, it is the only wader that incubates on the Pribylov islands, with the marked exception of a stray couple now and then of *Phalaropus hyperboreus.* It makes its appearance early in May, and repairs to the dry uplands and mossy hummocks, where it breeds. The nest is formed by the selection of a particular cryptogamic bunch, and there setting. It lays four darkly-blotched pyriform eggs, and hatches them within twenty days. The young come from the shell in a thick, yellowish down, with dark brown markings on the head and back, getting the plumage of their parents and taking to wing as early as the 10th of August; at this season old and young flock together for the first time, and confine themselves to the sand-beaches and surf-margins about the islands for a few weeks, when they take flight by the 1st or 5th of September, and disappear until the opening of the new season. It is a most devoted and fearless parent, and will flutter in feigned distress around by the hour, uttering a low, piping note, should one approach near to its nest. It makes a sound ridiculously like the cry of our tree-frogs, and I searched in consequence unavailingly for several weeks, deceived by the call of this bird, for the presence of such a reptile.[†]

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[*] *Condition of Affairs in Alaska:* H. W. Elliott: 1874, p. 182.

[†] When I was collecting this bird, I took it to be a well-defined *Tringa maritima;* and did not suppose for an instant, that it was an undescribed species to the avifauna of both the old world and the new. Had I thought seriously of it, however, I might have had my suspicions aroused then, and hence given it still more attention, so that my large series of specimens might have embraced the autumn or perfected fall plumage; and, I would also have secured many nests, rather than the single one which I did get. My old friend, Dr. Elliott Coues, was the first to discover the originality of this new sand-piper, though he was very closely followed by that excellent authority on Limicoline birds, J. E. Harting, F. L. S., etc., of London, to whom Professor Baird sent one of my specimens of 1872, also, thinking it to be *T. maritima.* A curious fact, however, is the remarkably restricted range which this strongly-built bird enjoys in Alaska; it has been seen nowhere except on these Pribylov islands and on St. Matthew, 200 miles to the north of them; where, in 1874, I saw large numbers, breeding as they do here. I did not see one on St. Lawrence, again to the northward, 180 miles from St. Matthew island, and it has never been detected on the mainland, or the islands of the Aleutian chain, the peninsula, or northwest coast, inclusive, although that country has been scoured over thoroughly by naturalists and collectors during the last fifteen years; therefore unless it is found and winters on the large islands of the Commander group, 700 miles to the westward of the Prilylovs, I believe that its restriction as above defined is only paralleled by the square mile limit of distribution peculiar to several species of South American humming birds.

13. **Limosa uropygialis.** WHITE-RUMPED GODWIT.

This wader is a mere chance visitor, never breeding here. It comes in a straggling manner, early in May, and passes northward over the islands, hardly stopping on the way. It reappears, toward the end of August, going south, in flocks of a dozen to fifty, making then, as before, scarcely an appreciable visit.

14. **Heteroscelus incanus.** WANDERING TATTLER.

This bird is also migratory, and does not breed here. It comes every year early in June, and subsequently reappears toward the end of July, when I again observed it. It may be obtained on the rocky beaches, where it flits at the surf-wash, shy and quiet.

15. **Numenius borealis.** ESKIMO CURLEW.

I never saw but the single specimen, which I shot and preserved, on the seal-islands while up there; but the natives assured me that some years, and quite often, it appears in large flocks during the fall. This one was procured by me in June, 1872, on St. Paul island.

16. **Philacte canagica.** EMPEROR GOOSE.

This goose of the great Yukon river gets over here by mistake, I fancy, for the flock of which I witnessed the capture, landed on St. Paul island so exhausted, that the natives ran the birds down in open chase over the grass. I found the flesh of *Philacta*, contrary to report, free from any unpleasant flavor, and in fact very good. The objectionable quality is only skin deep, and may be got rid of by the least care, when the cook prepares it for the table.

17. **Branta canadensis.** WHITE-COLLARED GOOSE; "CHORNIE GOOSE."

This species, like the former, seems to be a mere straggler and irregular visitor, evidently driven by high winds to rest here for a brief period, ere they resume their customary lines of migration along the mainland.

18. **Anas boschas.** MALLARD DUCK.

A pair of these fine birds bred on the island of St. Paul during the season of 1872, at Polavina lake, and several were observed later in the fall. The mallard I also noticed on St. George island, but the natives say it is not a regular visitor.

19. **Mareca penelope.** WIDGEON.

It is an interesting fact, that this widgeon, as my specimens attest, which visits the Pribylov islands, is not *M. americana*, as might be anticipated, but it is the true *M. penelope.* I saw only a few specimens, and saw them rarely. They were solitary examples, never in pairs, and it does not breed on the islands; apparently the few individuals, which I noted during two years of observation, were wind-bound or estray.

20. **Harelda glacialis.** LONG-TAILED DUCK; "SAAFKA."

This noisy, chattering example is common and resident. It appears everywhere on the pools, ponds, sloughs, and lakes of the two islands; in limited numbers, however. The *Saafka* is a very lively bird, particularly in the spring, when with the breaking up of the ice it flies into the open reaches of water, and raises its peculiar, sonorous, and reiterated cry of *ah-naah-naăh-yah*, which rings cheerfully upon the ear after the silence and desolate dearth of an ice-bound winter.

21. **Histrionicus torquatus.** HARLEQUIN DUCK.

My experience with this bird is radically different from another writer, he stating that it is an essentially solitary species, found alone or in pairs, only in the most retired spots, on the small rivers flowing into the Yukon, where it breeds.* It is the most gregarious of all the duck tribe known to these islands; flocks of a hundred, closely bunched together, may be found at every turn by the traveler on the coast; nor is it particularly wild or shy, for every morning at St. George, whenever I chose to walk to the water's edge beneath the village, and less than a quarter of a mile distant, I could have a shot at fifty or a hundred of these birds, just as I had enjoyed such an opportunity in the early dawning previously; but it is a remarkably silent bird, and from it I never heard any cry whatever during the whole year; for it is about the island, unless the ice drives it away, throughout that entire period. It is a very social duck, solitary pairs never being seen away from the flock. The females seem to outnumber the males two to one; but, the strangest thing about it was my total inability, and that of the natives, too—for I offered an inordinate reward—to find its eggs or nest. It must breed about here, but whether deep in the rock interstices of the beach shingle, or flying by night to the high ridges inland, I am ignorant.

22. **Somateria Stelleri.** STELLER'S EIDER.

From the village hill at St. Paul, in May, 1872, I shot two specimens of this duck, and then not knowing as much about the seal-island cats as I speedily learned thereafter, the fresh stuffed specimens were literally torn into a thousand fragments by these abominable felines. It is, as I did not see it afterward during my residence on the group, a straggler, and nothing more.

23. **Graculus bicristatus.** RED-FACED CORMORANT; "OREEL."

As this bird of Pallas is found about the islands during the whole winter as well as the summer, despite the weather, perched on the sheltered bluffs, the natives regard it with a species of affection, for it furnishes the only

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*Trans. Chicago Acad.*, i, 298.

supply they can draw upon for fresh meat, soups, and stews, always wanted by the sick; and, were these shags sought after throughout the year near as diligently as they are during the long spell of bitter temperature that occurs here in severe winters, driving other water-fowl away, they certainly would be speedily exterminated; yet, they are seldom shot, however, when anything else can be obtained. The terrible storms in February and March, when the wind "boorgas" blow as tornadoes, are unable to drive the shag away, but all other water-fowl, even the big northern gulls, depart for the open water south. It comes under the cliffs to make its nest and lay—the earliest of the birds in Bering sea. Two eggs were taken from a bed on the reef, St. Paul island, June 1, 1872, nearly hatched, which is more than three weeks in advance of the other water-fowls, almost without exception. The nest is large, carefully rounded up, and built upon some jutting point or narrow shelf along the face of a cliff or bluff; in its construction sea-ferns (*Sertularidæ*), grass, etc., are used, together with a cement made largely of their own excrement.

The eggs are usually three in number, sometimes four, and, compared with the size of the bird, are exceedingly small. They are oval, of a dirty, whitish gray, green, and blue color, but soon become soiled; for, although this bird's plumage is sleek and bright, yet it is very slovenly and filthy about the nest—the dirtiest bird of all the north when we regard its domestic economy. The young come from the shell at the expiration of three weeks' incubation, without feathers and almost bare, even of down; they grow, however, rapidly, fed by the old birds, who eject the contents of their stomachs, such as small fish, crabs, and shrimps, all over and around the nest. In about six weeks the young cormorant can take to its wings, and, strange as it may seem, it is then fully as large and heavy as the parents; but it is not until the beginning of its second year that it shimmers out in the bright plumage and metallic gloss of the adult, wearing, during the first year of probation, a dull, dingy, drab-brown coat, with the brilliant red colors at the base of the bill, and gular sac, subdued.

This cormorant is a stupid and very inquisitive bird. It utters no sound whatever, except when flying over, about, or around a boat or ship, which seems to possess a magnetic power of attraction for them. When they are thus hovering and circling aloft in this method, they utter a low, droning croak. It cannot be called a bird of graceful action at any place, either on the wing, in the sea, or perched. Its flight is a quick beating of the wings, which are usually more or less ragged at the edge, with the neck and head stretched out full length horizontal to the axis of the body. So curious is it, that in flying, around and around again to satisfy itself, it comes close enough for an observer, should he stand erect in the bow of a boat, almost to touch it with his hand. It is very dirty on the rocks, and does not keep its nest in tidy trim like the gulls; but, in regard to its plumage, I frankly confess that I have sat for long intervals near a shelf whereupon fifteen or twenty of these birds were resting, absorbed in true admiration of the brilliant gloss and glittering sheen of their feathers; their coats really scintillate when in the sunlight with a confused blending of rich brownish and deep purple reflections, as though clothed in steel armor beautifully damascened.

**24. Diomedea brachyura.** SHORT-TAILED ALBATROSS.

This bird was the only real suggestion which arose to my mind, during my sojourn on the Pribylovs, of the past epoch of noted activity in the whale fisheries of the North Pacific and the Arctic; for, as I first discerned the large bulk and spread of the albatross prior to shooting, the natives clapped their hands and said, "You should have been here twenty years ago when, instead of this solitary example, you would have seen thousands." They came with the whalers, and disappeared, as they had done; but, as if prompted by legends among their kind, now and then an adventurous one comes north again and looks in vain for its whale food, or the skinned carcasses rather, turned adrift by the whalemen; they were in sight of the island constantly, year in and year out, during that period of great whaling industry. The bird just cited, and this one only, was a solitary example of its kind observed by me. Two hundred miles to the southward, however, it is quite frequent about the Aleutian islands.

**25. Fulmarus glacialis.** RODGER'S FULMAR; "LUPUS."

This is the only representative of the *Procellarinæ* I have seen on or about the Pribylov islands. It repairs to the cliffs, especially on the south and east shores of St. George; comes very early in the season, and selects some rocky shelf, secure from all enemies save man, where, making no nest whatever, but squatting on the rock itself, it lays a single, large, white, oblong-oval egg, and immediately commences the duty and the labor of incubation. It is of all the water-fowl the most devoted to its charge, for it will not be scared from the egg by any demonstration that may be made in the way of throwing rocks or yelling, and it will even die as it sits rather than take flight, as I have frequently witnessed. The fulmar lays about the 1st to the 5th of June. The egg is very palatable, fully equal to that of our domestic duck; indeed, it is somewhat like it. The natives prize them highly, and hence they undertake at St. George to gather their eggs by a method and a suspension supremely hazardous, as they lower themselves over cliffs five to seven hundred feet above the water. The sensation experienced by myself, when dangled over these precipices attached to a slight thong of raw-hide, with the surf boiling and churning three or four hundred feet below, and loose rocks rattling down from above, any one of which was sufficient to destroy life should it have struck me, is not a sensation to be expressed adequately by language; and, after having passed through the ordeal, I came to the surface perfectly satisfied with what I had called the improvidence of the Aleuts. They have quite sufficient excuse in my mind to be content with as few fulmar eggs as possible.* The "Lupus", laying so early as the 1st of June, is the only rival that the cormorant has with reference to early incubation. It never flies in flocks; it pairs early, and is then exceedingly quiet. I have never heard it utter a sound, save a low, droning croak when disgorging food for its young. The chick comes out a perfect puff-ball of white down, and gains its first plumage in about six weeks. It is a dull, gray-black at first, but by the end of the season it becomes like the parents in coloration, only much darker on the back and scapularies. They are the least edible, with the exception of the cormorant, of all bird-food found about the islands; and, like others of their family, they vomit up the putrid contents of their stomachs at the slightest provocation.

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*On the head at Tolstoi Mees, St. George, the natives pointed out to me a basaltic egg-shelf which marked the death of one of their townsmen. It occurred in the following singular manner: he, the victim, had been very successful in securing a large basket of the first

**26. Stercorarius pomatorhinus.** POMARINE JÄGER; "RAZ-BOI-NIK."

This bird is a rare visitor, and is the only specimen which I procured, and was the sole representative seen on the islands of its class. I found it perched in a listless attitude on the high mossy uplands between Kamminista and Polavina Sopka.

**27. Stercorarius parasiticus.** PARASITIC JÄGER.

I have seen but a few of these birds, also; the four or five examples of this species, in my collection, were all that I sighted, therefore it may be rated as an infrequent visitor; it seems to be tired out, and is found upon the grassy uplands, where it will alight and stand dozing in an indolent attitude for hours. The natives say that it is fond of the berries of the *Empetrum*, and in confirmation of their statement I found the half-digested remains of this fruit therein. No one of the three species of *Stercorarius*, which I have in my hands, was observed to breed here.

**28. Stercorarius Buffoni.** LONG-TAILED JÄGER.

Also seldom seen, and the specimen in my collection is one of the only two I ever observed on the islands. When I discovered them, July 29, 1872, they were apparently feeding upon insects and the fruit of the *Empetrum nigrum*.

**29. Larus glaucus.** BURGOMASTER: "CHIKIE."

This large, handsome gull, the finest of its race, is restricted in its breeding to Walrus islet alone; although it comes sailing over and around all the islands, in easy, graceful flight, every hour of the day, and frequently late in the fall will settle down by hundreds upon the carcasses of the killing-grounds. But, at Walrus islet this bird is at home, and here lays its eggs in neat nests built of sea-ferns and dry grass, placed among the turfy tussocks on the center of the islet. No foxes are found there. It remains by the Pribylov islands during the whole season, though it is sometimes driven by the ice in search of open water, fifty to one hundred miles south; it invariably returns soon after the floe disappears.

The "chikie" lays as early as the 1st to the 4th of June, depositing three eggs only, within a week or ten days. These eggs are large, spherically oval, have a dark, grayish-brown ground, with irregular patches of darker brown-black. They vary somewhat in size, but the shape and pattern of coloring is more constant than in any other species up here.

The young *burgomaster* comes from the shell at the expiration of the regular three weeks' incubation, wearing a pure white thick coat of fluffy down, which is speedily supplanted by a brownish-black and gray plumage with which the bird takes flight, having nearly attained the size of the parent in less than six aggregate weeks. This dark coat changes during the next three months to one nearly white, with the lavender gray back of the adult; the legs change from a sickly, pale, grayish tone, to the rich yellow-gray of the mature condition, and the bill also passes from a dull brown color to a bright yellow, with a red spot at the top of the lower mandible. It has a loud, shrill, eagle-like scream, becoming more monotonous by its repetition; and it also utters a low, chattering croak while coasting. It is a very cleanly bird about its nest, and keeps its plumage in a condition of snowy purity. It is not very numerous; I do not think that there were more than five or six hundred nesting on Walrus islet at the time of my visit in 1872.

**30. Larus tridactylus var. Kotzebui.** PACIFIC KITTIWAKE; "CHORNIE-NAUSHKIE GOVEROOSKIE."

This gull breeds here, by tens of thousands, in company with its first cousin, *Larus brevirostris*, coming at the same time but laying a week or ten days earlier than its relative. In all other respects it corresponds in habit and is in just about the same number. It is a remarkably constant bird in plumage coloration when adult, for I have failed to observe the slightest variation among the great numbers here under my notice. In building its nest it uses more grass and less mud-cement than the *brevirostris* does. The eggs are more pointed at the small end and lighter in the ground color, with numerous splotches of dark brown. The chick is difficult to distinguish with certainty from the *brevirostris*, and it is not until two or three weeks have passed that any difference can be noted between them as to the length of bill and color of feet.

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eggs of the season, and, desiring to continue the day's work, dispatched his wife back to the village with the oölogical burden, so that the basket might be emptied; meanwhile, in her absence, he put his little tethering-stake down anew, and, tying the rope of walrus or sea-lion hide to it, dropped over the brow of the cliff on it. A gaunt fox, which had been watching the proceedings, now ran up and fell to gnawing the rope, so taut and tense with the weight of the suspended egg-hunter below; the sharp teeth of Reynard, under the circumstances, instantly severed it, and the unfortunate native was dashed to the rocky shingle some 400 feet below, where his lifeless body was soon discovered. The poor fellow lost his life by having, at some earlier hour of the day, rubbed his yolk-smeared hands upon the sinewy strands, for at that place only did the hungry fox attack them.

**31. Larus brevirostris.** RED-LEGGED KITTEIWAK; "GOVEROOSKIE."

This beautiful gull is one of the most elegant of all birds on the wing, and is, perhaps, as handsome as any known to the sight, when it rests; it seems to delight in favoring these islands with its presence, to the exclusion of other land, coming here by tens of thousands to breed. Certain it is that my specimens testify to its special abundance, and that it is by far the most attractive of all of its kind; the short, symmetrical bill, large hazel eye with crimson lids, and rich coral or vermilion-red legs and feet, contrast beautifully with the snowy-white plumage of its head, neck, lavender back, and under parts.

Like *Larus glaucus*, this bird remains about the islands during the whole season, coming on the cliffs for the purpose of nest-building, breeding by the 9th of May and deserting the bluffs when the birds are fully fledged and ready for flight, early in October. It is much more prudent and cautious than the auks and the murres, for its nests are always placed on nearly inaccessible shelves and points of mural walls, so that seldom can one be reached, unless a person is lowered down to it by a rope passed over the cliff.

Nest-building is commenced early in May, and completed, generally, not much before the 1st of July; it uses dry grass and moss cemented with mud, which it gathers at the fresh-water pools and ponds scattered over the islands. The nest is solidly and neatly put up; the parents work together in its construction most diligently and amiably. Two eggs are the usual number, although occasionally three will be found in the nest. If these eggs are removed the female will renew them like the "arrie", in the course of another week or ten days. They are of the size and shape of a common hen's egg, but covered with a dark gray ground spotted and blotched with sepia patches. Once in a while an egg will have on the smaller end a large number of suffused blood-red spots. Both parents assist in the labor of incubation, which lasts a trifle longer than the usual time—from twenty-four to twenty-six days. The chick comes out with a pure white downy coat, a pale whitish-gray bill and feet, and rests helplessly in the nest until its feathers grow. During this period it is a comical-looking object. The natives capture them, now and then, to make pets of, always having a number every year scattered through the village, usually tied by one leg to a stake at the doors of their houses, where they become very tame; and, it is not until fall, when cold weather sets in, that they become restless and willingly leave their captivity for the freedom of the air. This bird is remarkably constant in its specific characters. Among the thousands and tens of thousands of them, I have never observed any variation in the coloration of the bills, feet, or plumage of the mature birds, with one exception. This is a variety, seldom seen, however, in which the feet are nearly yellow, or much more yellow than red, and the edge of the eyelid is black instead of being normally scarlet; there is also a dark patch back of each eye in these odd specimens. The abnormal color of the feet is, probably, due to sheer accidental individual peculiarity, while the eye-patch and absence of bright color from the eyelids may depend upon the season.

**32. Colymbus arcticus.** BLACK-THROATED DIVER.

When surveying Zapadnie, July, 1873, in measuring my angles on the beach, I came across the form of this bird, thrown up, nearly dead, by the surf, under my feet. It is the only one I have seen upon the islands, and I called the attention of the old wiseacres of the village to it. Whereupon, after much deliberation and guttural Aleutian vocalization, they informed me that they had never noticed it before around the island, though one aged man declared to the contrary, and submitted his minority report with great emphasis and much gravity. At all events, it is seldom seen here. The bird in question was a fine adult specimen, and it is interesting to observe that it is the true *Colymbus arcticus* and not var. *pacificus*, which might naturally have been expected.

**33. Podiceps griseigena.** RED-NECKED GREBE.

As in the case of the diver above cited, the present specimen is a typical form rather than a North American variety. It was the only specimen seen during my residence on the island. It has, however, been observed by the natives heretofore, though they affirm that it is uncommon; also, a straggler, in my opinion.

**34. Fratercula corniculata.** HORNED PUFFIN; "EPATKA."

My first impression when I saw one of these odd-looking birds, with its large shovel-like, lemon-yellow and red bill, as it sat squatted in glum silence on the rocky cliff perches, was one of great amusement, and it stared back at me in stolid wonder as I laughed. Of all birds in these latitudes, it seems to have been fashioned with a special regard to the fantastic and ludicrous. This mormon, in common with one other species, *M. cirrhata*, comes up from the sea in the south to the cliffs of the islands about the 10th of May, always in pairs, never coming singly to, or going away from, the Pribylovs in flocks. It makes a nest of dried sea-ferns, grass, and moss, slovenly laid together, far back in some deep or rocky crevice, where, when the egg is laid, it is ninety-nine times out of a hundred cases, inaccessible; nothing but blasting-powder would open a passage to it for man. It has this peculiarity: it is the only bird on these islands which seems to quarrel forever and ever with its mate. The hollow reverberations of its anger, scolding, and vituperation from the nuptial chamber, are the most characteristic sounds, and indeed the only ones that come from the recesses of the rocks. No sympathy need be expended on the female. She is just as big and just as violent as her lord and master. The nest contains but a single egg, large, oblong, oval, pure white; and, contrary to the custom of the gulls, arries, and choochkies, when the egg is removed the sea-parrot does not renew it, but deserts the nest, perhaps locating elsewhere. The young chick I have not been able to get until it becomes fledged and ready for flight in August; then it does not differ materially from its parent. Only the absence of the auricular plumes can be noted. The *Epatka* leaves the island about the 10th of September, spending, I believe, the rest of the time at sea. Except when quarreling in the nesting caverns, this bird is very quiet and unobtrusive. It does not come in large numbers to the islands, for it breeds everywhere else in Bering sea, and along the northwest coast as far south as Cross sound. Its flight is performed with quick and rapid wing-beats, in a straight and steady course. There is no difference between the sexes as to shape, size, or plumage.

**35. Fratercula cirrhata.** TUFTED PUFFIN; "TAWPORKIE."

This bird comes to the island at about the same time as its cousin, just preceding, and resembles the "Epatkie" in its habits, generally, being quite as conspicuous a domestic scold. It lays a single large white egg of a rounded oval shape. I was not able to see a newly-hatched chick, owing to the retired and inaccessible breeding places; for, whenever I could find an egg I seized upon it instantly, not daring to wait for the culmination of hatching. I think that Walrus islet, if visited frequently during the close of the hatching-season, would afford an opportunity to study the young, because the nests, which were the only ones from which I could get eggs, are more easy of access. The young tawporkie, six weeks old, resembles the parents exactly, only the bill is lighter colored and the plumes on the head are incipient. Walrus islet is the only place where the birds can be daily seen and watched with satisfactory results. I took eggs from over 30 nests in July. The natives say that when it is mating, its cries sound like the growling of a bear, as they issue from far down under the rocks which cover its nest.

**36. Phaleris psittacula.** PARROQUET AUK; "BAILLIE BRÜSHKIE."

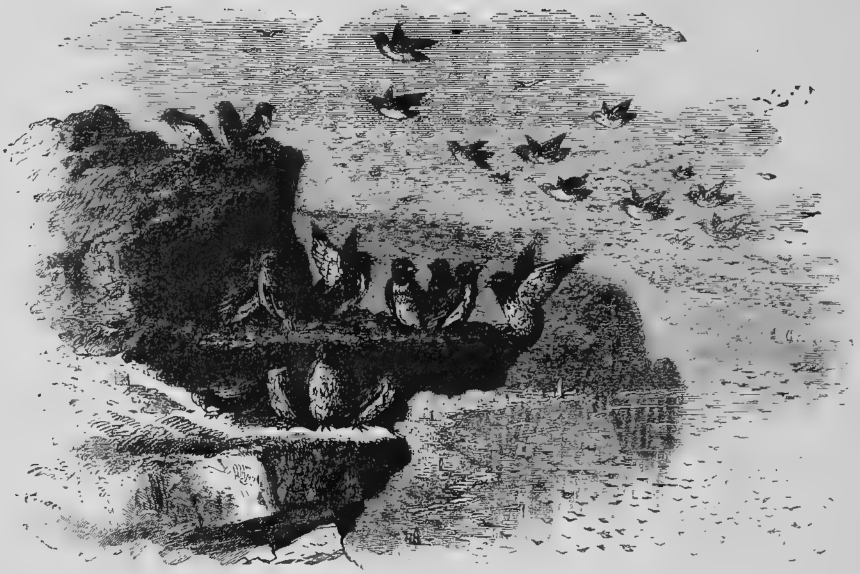
This quaintly-beaked bird is quite common on the Pribylov group, and can be obtained at St. George in large numbers. It comes to the islands early in May, mute and silent, locating its nest in a deep chink or crevice of some inaccessible cliff, where it lays a single egg and rears its young. It is very quiet and undemonstrative during the pairing season, its only note being a low, sonorous, vibrating whistle. Like *Simorhynchus cristatellus*, it will breed in company with the "choochkie", but will not follow that lively relative back upon the uplands, for the "baillie brüshkie" is always found on the shore line, and there only. The egg, which is laid upon the bare earth or rock, is pure white, oblong-ovate, measuring 1½ by 2½ inches. To obtain it is exceedingly difficult, owing to the bird's great caution in hiding and care in selecting some deep winding crevice in the face of a cliff. At the entrance to this nesting cavern, the parents will sometimes squat down and sit silently for hours at a time, if undisturbed. It does not fly about the islands in flocks, and seems to lead an unassuming, independent life by itself, caring nothing for the society of its kind. The young, when first hatched, I have not seen, but by the 10th or 15th of August they may be coming out for the first time from their secure retreats, and taking to wing as fully fledged as their parents. They leave the islands from the 20th of August to the 1st of September, and go out upon the North Pacific for the winter, where they find their food, which consists of *amphipoda* and fish-fry. I have never seen one among the thousands that were around me on the islands, opening bivalve-shells, such as mussels, as stated by a German author. It feeds at sea, flying out every morning and returning in the afternoon to its nest and mate. As in the case of the puffins nothing else than dynamite, or similar agency, could open the basaltic crevices in which the bird hides; and, of course, resort to this action would also destroy the egg; therefore, I was not able to gather much more than a baker's dozen of their eggs, though I could see at any time a thousand of the birds.

**37. Simorhynchus cristatellus.** CRESTED AUK; "CANOOSKIE."

This fantastic bird, the plumed knight of the Pribylov islands, is conspicuous by reason of its curling crest and bright crimson bill. It makes its appearance in early May, and repairs to chinks and holes in the rocky cliffs, or deep down below a huge bowlder and rough basaltic shingle, to deposit its egg upon the bare earth or rock, making no nest whatever; and, like the "brüshkie", so well do these birds succeed in secreting their charge, that although I was constantly upon the ground where several thousand pairs were laying, I was unable successfully to overturn the rocks under which they hide, and get more than four perfect eggs, the sum total of many hundred attempts. The note of the "canooskie", while mating, is a loud, clanging, *honk*-like sound; at all other seasons they are as silent as the grave. The crested auk lays but one egg, and the parents take turns, I am inclined to believe, in the labor of hatching and in that of feeding their young. The egg is rough, pure white, but with frequent discolorations, and, compared with the size and weight of the bird, is disproportionately large. It is an elongated oblong-oval, the smaller end being quite pointed. Length, 2.10; width, 1.40. I have not seen a chick, nor could I get any notes upon its appearance from the natives, but I have shot the young as they came out for the first time from their dark, secure, hiding places, full fledged, with the exception of their distinctive crest, being by this time, the 10th to 15th of August, as large as the old birds, and of the same color and feathering. The "canooskie", like its cousin, the "choochkie", has no sexual variation in size or plumage; males and females, to all external view, are precisely alike. The bright crimson bill varies, however, considerably in color, and in its strength and curve, the slenderer bill being confined, as far as I could see, to the young birds; some old ones had very pointed beaks also.

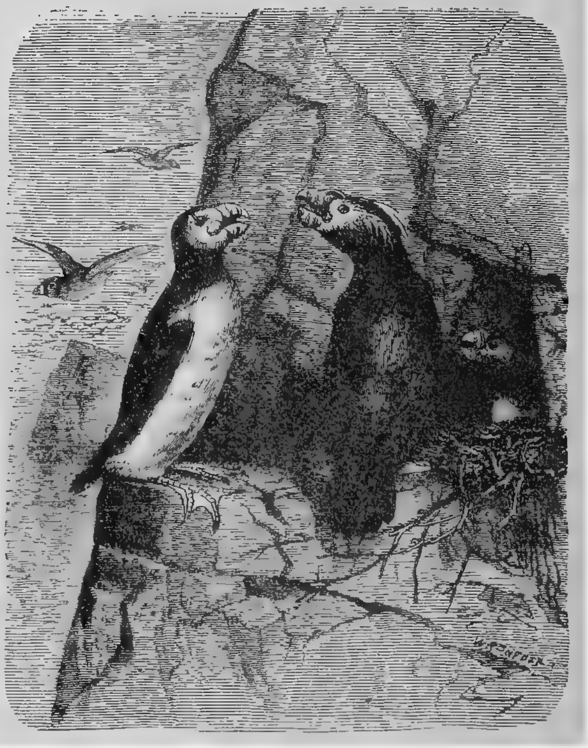
**38. Simorhynchus pusillus.** LEAST, OR KNOB-BILLED AUK; "CHOOCHKIE."

I take pleasure in writing the biography of this little bird, which is the most characteristic and the most



"CHOOCHKAMIE EDOOT!"

THE FULMAR'S NICHE.



"EPATKIE" AND "TAWPORKIE."

**ORNITHOLOGICAL SKETCHES ON THE PRIBYLOV ISLANDS, BY THE AUTHOR.**

Herewith presented through the courtesy of Harper Brothers.

interesting one of all the water-fowl frequenting the Pribylov islands, for it comes here every summer by millions to breed. It is comically indifferent to the proximity of man, and can be approached almost within an arm's length before taking flight, sitting squatted upright and eyeing you with its peculiar "watch-ring" optics, that wear an air of great wisdom combined with profound astonishment.

Usually, about the 1st or 4th of May, every year, the "choochkie" makes its first appearance around the islands for the season, in small flocks of a few hundred or thousand, hovering over and now and then alighting upon the water, sporting one with the other in apparent high glee, making an incessant, low, chattering sound; but they are only the van to flocks that by the 1st or 6th of June have swarmed in upon the islands, like those flights of locusts which staggered my credulity on the great plains of the west. They frequent the loose stony reefs and bowlder-bars on St. Paul, together with the cliffs on both islands; and what is most remarkable, they search out an area over five miles square of basaltic shingle on St. George island, which lies back and over, inland from the north shore-line. To the last position they come in greatest numbers; they make no nest, but lay a single egg far down below among the loose rocks, or they deposit it deep within the crevices or chinks in the faces of the bluffs.

Although, owing to their immense numbers, they seem to be in a state of great confusion, yet they pair off and conduct all of their billing and cooing down under the rocks, on the spot chosen for incubation; making, during this interesting period, a singular croaking sound more like a "devil's fiddle" than anything I have ever heard outside of a city's limits.

To walk over their breeding-grounds, at this season, is highly interesting and most amusing, as the noise of hundreds and thousands of these little birds, which are directly under your feet, gives rise to an endless variation of volume of sound, as it comes up from the stony holes and caverns below; while the birds come and go, in and out, whistling around your head, comically blinking and fluttering.

The male birds, and many of the females, regularly leave the breeding-grounds in the morning and go off to sea, where they feed on small water-shrimps and sea-fleas, returning to their nests and sitting partners, in the evening. It is one of the sights on St. George, this early morning departure and the early evening return of the myriads of choochkies to their nests. The *Simorhynchus* lays a single pure white egg, exceedingly variable in size and shape, usually oblong-oval with the smaller end pointed. I have several specimens almost spherical, and others drawn out into an elongated ellipse; but the oblong oval, with the pointed smaller end, is the prevailing type. Compared with the size and weight of the little bird, the egg is excessively large. Average length, 1.55; width, 1.12. The length of the bird, 3 inches; width, 2 inches. The general aspect of the egg is very much like that of the pigeon's, excepting the roughness of the shell. The chick is covered with a thick, uniform, dark, grayish-black down, which is speedily succeeded by feathers, all much darker than those of the parent, when it takes its flight from the island for the year, six weeks after hatching. Old birds feed their young by disgorging, never carrying anything up in their bills, and when the young leave, they are just as large and just as heavy as their parents. I am strongly inclined to think that the male bird feeds the female while incubating, but have not been able to verify this observation, as they are always hidden from sight at the time, and they cannot be told apart by size or color.

39. **Lomvia troile,** var. **californica**. MURRE; "GUILLEMOT."

Limited numbers of the Californian guillemot are found occasionally perched on the cliffs with the *arrie;* they can only be distinguished at a short distance by a practiced eye, for they resemble their allies so closely and conform so strictly to their habits, that it will be but repeating the description of the *L. arra*, given below, should I attempt it. The largest gathering in any one place, that I have seen on the islands, of these birds, was a squad of about fifty on the high bluffs at St. George, but they are generally scattered by ones, twos, and threes among thousands and tens of thousands of the *arra*.

40. **Lomvia arra.** THICK-BILLED GUILLEMOT; "ARRIE."

This is the only egg-bird that has the slightest economic value to man on the Pribylov islands. The bird itself is in bodily size a true counterpart of our ordinary barn-yard duck, only it cannot walk or even waddle as the domestic swimmer does. It lays a single egg, large and very fancifully colored; a bluish-green ground, shot with dark-brown mottlings and patches, but exceedingly variable as to definite size and color. The outline of the egg is pyriform, sometimes more acute, again more ovate. It is the most palatable of all the varieties found on the islands, except the fulmar; and when perfectly fresh I can testify to its practical equality with our deservedly prized hen's eggs; it never has any disagreeable flavor whatever, for the birds feed entirely upon marine crustacea. I have never found any fish in their craws.

This bird is the true *arra* of Pallas, a name derived undoubtedly from its striking similarity to the harsh sound uttered by the bird. It is present in immense multitudes, countless flocks, principally surrounding St. George island, although Walrus islet is fairly covered by them. They appear very early in the season, but are slow in laying, not beginning usually until the 18th or 25th of June. I feel quite well assured that these birds do not migrate far from Bering sea during the most severe winters, and in the milder hyemal seasons numbers of them are around the islands during the entire year. They lay their eggs upon the points and narrow shelves, on the faces of the cliff-fronts to the islands, straddling over the eggs, side by side, as thickly as they can crowd, making no nests They quarrel desperately, but not by scolding; it is spirited action, and so earnestly do they fight, that all along below the high bluffs of the north shore of St. George, when I passed thereunder during the breeding-season, I stepped over hundreds of dead birds which had fallen and dashed themselves to death upon the rocks while clinched in combat with their rivals; for they seize one another in mid-air and hang with their strong mandibles so savagely to each other's skin and feathers, that, with the swift whirring of their powerful wings they are blinded to their peril, and strike the earth beneath ere they realize their danger and immediate death. Their curious straddling, whereby the egg is warmed and hatched, lasts nearly twenty-eight days, and then the young comes out with a dark, thick coat of down, which is supplanted by the plumage and color of the old bird, in less than six weeks. They are fed by the disgorging parents, seemingly without a moment's intermission, uttering, all the while between their gulps, a hoarse, harsh, croak, lugubrious enough.

The males and females have no sexual distinction as to size, shape, and plumage; their snow-white breasts are vividly contrasted with their shiny, chocolate necks; backs and wing-coverts are always black, while beneath them is a continuation of the pure white of the abdomen. They fly with an energetic action of their short, pointed pinions, a nervous, quick, and well-sustained flight, never swerving or deviating from their straight course after they once rise. They plump into the water like stones; and, unless the sea is running, it is difficult for them to take to wing from a smooth surface; this gives them little concern, however, inasmuch as they dive so freely.

It is fitting, perhaps, that I should say in connection with the final discussion of this bird, which closes my list of the avifauna peculiar to these strange islands, that its singular habit of circling St. George as it flies in the morning and in the evening, during the mating season, produces a very extraordinary demonstration as to the exceeding number of their kind; for instance at St. George island, while the females begin to sit over their eggs toward the end of June and first of July, at regular hours in the morning and in the evening, the males go flying around and around the island, in great files and platoons, always circling against, or quartering on, the wind; and they make in this way, during a sustained period of hours at a time, a dark girdle of birds more than a quarter of a mile broad and thirty miles long, flying so thickly together that the wings of one fairly strike those of the other; and, as they go, they whirl in swift, revolving, endless succession, during the periods just mentioned. This is a dress-parade of ornithological power, which I challenge the world to rival; certainly the Pribylov islands possess distinctive exhibitions of mammalia and aves, which are unrivaled.[*]

CLOSING MEMORANDA.—The above list of birds found on the Pribylov islands by myself in the seasons of 1872–'76, inclusive, is perhaps not exhaustive in its application to the straggling visitors; indeed, I think it more than likely that several names will be added by those who may pay the subject further attention; I do not enumerate the *Aegiothii* which I shot there June 21, 1872, because the specimens were so badly damaged by my coarse ammunition as to defy proper skinning; therefore I made alcoholics of them, and those collections have been mislaid since my return. Also the natives say that a small brown owl in the summer breeds on St. George, and the large Arctic or Snowy *Nyctea* is occasionally taken at either island. I saw none while there.

## 27. CATALOGUE OF THE FISHES OF THE PRIBYLOV GROUP.

[A memorandum of the fishes collected at the Pribylov islands, 1872–'73, by Henry W. Elliott.]

**Anarrhichas lepturus.** Rare; seals drive them off.
**Gadus morrhua.** "TREESCA."[†] Rare; seals drive them off.
**Hippoglossus vulgaris.** "POLTOOS." Common; only large ones caught.
**Melletes papilio.**[‡] "KALOG." Common; a beach cottoid.

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[*] I have said, in my notes of introduction to this monograph, that I have been obliged to confine myself in its preparation entirely to my own observations and field-work; when, therefore, I speak as above of such immense myriads of water-fowl, I fear that some kindly critic may declare truly I remind him of worthy Master Gerard, who, in 1636, speaking of Irish birds, announced that the common barnacle goose, *Branta leucopsis*, was produced in a wonderful fashion, and proceeded to describe its growth from the mollusk, *Pentelasmis anatifera*, in the most circumstantial manner, prefacing this amazing story by a voucher couched in these words: "What our eyes have seen, and hands have touched, we shall declare;" also he gives a figure showing the metamorphosis going on from the shell into the goose! This cirrhipodous origin of the bird in question has not been agreed to, in spite of the weight of evidence, but strangely enough its generic name has been given and retained in accordance with the fable, and the barnacle itself is still called by conchologists "the five-pointed goose bearer"! or *Pentelasmis anatifera*.

[†] The St. George natives have caught codfish just off the Tolstoi head early in June, but it is a rare occurrence; by going out two or three miles from the village at either island, during July and August, the native fisherman usually captures large halibut; not in abundance, however. The St. Paul people, as well as their relatives on St. George, fish in small, "one hole" bidarkies; they venture together in squads of four to six; one man alone in the kyack is not able to secure a "bolshoi poltoos"; the method, when the halibut is hooked, is to call for your nearest neighbor in his bidarka, who paddles swiftly up; you extend your paddle to him, retaining your own hold, and he grasps it, then you seize his in turn, thus making it impossible to capsize, while the large and powerfully struggling fish is brought to the surface between the canoes, and knocked on the head; it is then towed ashore and carried, in triumph, to the lucky captor's house.

[‡] New genus and species determined by Dr. Tarleton H. Bean, based upon my type specimen.

**Cottus niger.*** "KALOG." Common; a beach cottoid.
**Muræonoides maxillaris.*** Rare; a beach fish.
**Liparis gibbus.*** Rare.
**Gasterosteus cataphractus.** Common; found in lagoon.
**Gasterosteus pungitius.** Common; found in lagoon.

## 28. NOTES ON THE INVERTEBRATES.

FIELD NOTES UPON THE ENTOMOLOGY, MALACOLOGY, BOTANY, ETC.—Touching a specific list of the insect life here, I regret exceedingly that my collections covering this head, as well as those which include the two following orders, have been unaccountably mislaid; consequently, I shall not reproduce the hastily and naturally imperfect memoranda which I made of them when they were packed on St. Paul island in 1872.

LIMITED NUMBER OF INSECTS ON THE PRIBYLOV ISLANDS.—The variety and abundance of entomological life here is not great, with the marked exception of a few species of beetles and flesh flies on the killing-grounds. The green and golden *carabus* is, however, found distributed in great numbers all over the islands.

SCANTY MOLLUSCAN REPRESENTATION ON THE SEAL-ISLANDS.—I qualify my statements made at the introduction to this memoir, by saying that the terrestrial and littoral forms of mollusca on and around the Pribylov group are scant in number; but I believe that the pelagic life in this respect will be found quite rich. For instance, I never saw any live specimens of the *Neptunianæ*. All the shells of this character collected had been cast up by the surf and were empty. The largest live gasteropod that came under my notice was a species of *Murex*. As the above sketch plainly shows, the conchologist has not a very extensive field here, though doubtless search bent directly to this end would develop a much better catalogue. If a dredge were patiently and energetically used around these islands, I am very sure that many new forms would be found, which give us tangible evidence of their being, by land and beach hunting for them. My time was so thoroughly engrossed on the rookeries that I had not a single day to spare during the only season of the year in which I could work with my dredge. The rough water and weather that prevail when the seals are not about, prevented my following up the mollusks in this manner.

SEA EGGS, OR SEA URCHINS: TOXOPNEUSTES.—Frequently the natives have brought a dish of sea-urchins' viscera for our table, offering it as a great delicacy. I do not think any of us did more that to taste it. The native women are the chief hunters for *Echinoidæ*, and during the whole spring and summer seasons they may be seen at both islands, wading in the pools at low water, with their scanty skirts high up, eagerly laying possessive hands upon every "bristling" egg that shows itself. They vary this search by poking, with a short-handled hook, into holes and rocky crevices for a small cottoid fish, which is also found here at low water in this manner. Specimens of this "kalog," which I brought down, declared themselves as representatives of a new departure from all other recognized forms in which the sculpin is known to sport; hence the name, generic and specific, *Melletes papilio*.

The "sand-cake", *Echinarachnius* sp., is also very common here.

FINE TABLE CRAB: CHIONOECETES.—By the 28th of May to the middle of June, a fine table crab, large, fat, and sweet, with a light, brittle shell, is taken while it is skurrying in and out of the lagoon as the tide ebbs and flows. It is the best-flavored crustacean known to Alaskan waters; they are taken nowhere else, at St. Paul; and when on St. George I failed to see one. I am not certain as to the accuracy of the season of running, viz, 28th May to 15th June, inasmuch as that one of my little note-books on which this date is recorded turns out missing at the present writing, and I am obliged to give it from memory. The only economic shell-fish which the islands afford is embodied in the *Chionœcetes opilio* (?). The natives affirm the existence of mussels here in abundance when the Pribylov group was first discovered, but now only a small supply of inferior size and quality is to be found.

MARINE SKELETON-MAKERS: BEAUTIFUL WORK OF SEA-FLEAS.—The service which swarms of *Amphidous crustaceans* rendered me in cleaning the bones of birds, fish, and even seals, cannot be too highly eulogized. Only in that small bight, however, known as the "Cove", near the village of St. Paul, could I get the work done; because at no other spot on the Pribylov islands was the sea-water quiet enough. By taking common hard-bread boxes, which the company's agent gave me from the store, and substituting a slatted cover, I would, by rock-ballasting, sink this with fifteen or twenty bird carcasses in the water here at low tide. When a single flow and ebb had taken place, I had the box taken promptly out, never failing to find every skeleton perfectly polished, yet entirely articulated; the most delicate bones in a fish's head or fins were intact. The strong food which the blubber of the seal carcasses afford acts so as to gorge and stupefy these little ghouls of the ocean, for I did not succeed well at all with such attempts. The bones of *Callorhinus* would have to lay submerged in the cove for weeks, sometimes, ere they were eaten free of flesh, fat, etc.; then, when taken out, they would be sadly discolored by the salt water, turned black and dingy in streaks and sections.

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*New species.

## 29. NOTES ON THE PLANTS.

THE PRINCIPAL VEGETATION OF THE PRIBYLOV GROUP: ABSENCE OF TREES.—That spruce trees can be made to live transplanted from indigenous localities to the barren slopes of the Aleutian islands has been demonstrated; but in living, these trees scarcely grow to any appreciable degree. Evergreens were transferred to Oonalashka, when Veniaminov was at work there in 1830–'35. They are still standing and keep green, yet the change which such a long lapse of time should produce by growth has been as difficult to determine as it is to find evidence of increased altitude to the mountains around them since these Sitkan trees were planted, with pious hope, at their feet fifty years ago. Though I can readily understand why the salmon berries of Oonalashka should not do well on the seal-islands (still I think they would at the Garden cove of St. George), nevertheless I believe that the whortleberries of that section would thrive at many places, if carefully transplanted to these localities, on the southern slopes of Cemetery ridge at Zapadnie, the southern slopes of Telegraph hill, and eastern fall of Tolstoi peninsula down to the shore of the lagoon. They might also do well set out at picked places about the Big lake and on Northeast point, around the little lake thereon. If these bushes really throve here, they would be the means of adding greatly to the comfort of the inhabitants; for the Oonalashka whortleberry is an exceeding pleasant, juicy fruit, large and well adapted for canning and preserving. Having less sunshine here than at Illoolook, it may not ripen up as well flavored, but would, I think, succeed. The roots of the plants when brought up from Oonalashka in April or early May, should be kept moist by wet moss wrappings, from the moment they are first taken up until they are reset, with the tops well pruned back, on the Pribylov islands. The experiment is surely worth all the trouble of making, and I hope it will be undertaken.

THE CHARACTERISTIC "TALNEEK": SALIX.—The only suggestion of a tree found growing on the Pribylov group is the hardy "talneek" or creeping willow; there are three species of the genus *Salix* found here, viz, *reticulata*, *polaris*, and *arctica;* the first named is the most common and of largest growth; it progresses exactly as a cucumber vine does in our gardens; as soon as it has made from the seed a sprout of six inches or a foot upright from the soil, then it droops over and crawls along prostrate upon the earth, rocks, and sphagnum; some of the largest talneek trunks will measure eight or ten feet in decumbent length along the ground, and are as large around the stump as an average wrist of man. The usual size, however, is very, very much less; while the stems of *polaris* and *arctica* scarcely ever reach the diameter of a pencil case, or the procumbent length of two feet.

Although *Rubus chamæmorus* is a tree shrub, and is found here very commonly distributed, yet it grows such a slender, diminutive bush, that it gives no thought whatever of its being anything of the sort. The herbs, grasses, and ferns tower above it on all sides.

FAMILIAR AND LOVELY FLOWERING PLANTS.—Perhaps no one plant that flowers on the seal-islands is more conspicuous or abundant than is the *Saxifraga oppositifolia;* it rises over all localities, rank and tall in rich locations, to stems scarcely one inch high on the thin, poor soil of hill summits and sides; densely cespitose, with leaves all imbricated in four rows; and flowers almost sessile. I think that at least ten well-defined species of this order, *Saxifragaceæ*, exist on the Pribylov group. The *Ranunculaceæ* are not so numerous; but, still, a buttercup growing in every low slope, where you may chance to wander, is always a pleasant reminder of pastures at home; and, also, a suggestion of the farm is constantly made by the luxuriant inflorescence of the wild mustard, *Cruciferæ.* The chickweed, *Caryophyllacæ*, is well represented, and also the familiar dandelion, *Taraxacum palustre.* The lichens, *Thallophytes*, and the mosses, *Musci*, are in their greatest exuberance, variety, and beauty here; and myriads of yellow poppies, *Papaveracæ*, are nodding their graceful heads in the sweeping of the wind—they are the first flowers to bloom, and the last to fade.

The chief economic value rendered by the botany of the Pribylov islands to the natives, is the abundance of the basket-making rushes, *Juncacæ*, which the old "barbies" gather in the margins of many of the lakes and pools.

MUSHROOMS AT ST. PAUL.—The fungoid growths on the Pribylov islands are abundant and varied, especially in and around the vicinity of the rookeries and the killing-grounds. On the west slope of the Black Bluffs at St. Paul, the mushroom, *Agaricus campestris*, was gathered in the season of 1872 by the natives, and eaten by one or two families in the village, who had learned from the Russians to cook them nicely. These seal-island mushrooms have deeper tones of pink and purple red in their gills than do those of my gathering in the states. I kicked over many large spherical "puff-balls", *Lycoperdons*, in my tundra walks; myriads of smaller ones, *Lycoperdon cinereum* (?), cover patches near the spots where carcasses have long since rotted, together with a pale-gray fungus, *Agaricus fimiputris*, exceedingly delicate and frosted exquisitely. Some ligneous fungi, *Clavariæ*, will be found attached to the decaying stems of *Salix reticulata* (creeping willows). The irregularity of the annual growing of the agarics, and their rapid growth when they do appear, make their determination excessively difficult; they are as unstable in their visits as are several of the *Lepidoptera.* The cool humidity of climate during the summer season on the Pribylov islands is especially adapted to the mysterious, but beautiful growth of these plants—the apotheosis of decay. The coloring of several varieties is very bright and attractive, shading from a purplish scarlet to a pallid white.

DIVERSE ELEGANCE AND SERVICES OF THE CRYPTOGAMS.—The range and diverse beauties of the numerous mosses and lichens on these Pribylov islands must serve as an agreeable and interesting study to any one who has the slightest love for nature. They undoubtedly formed the first covering to the naked rocks, after those basaltic foundations had been reared upon and above the bed of the sea—bare and naked cliffs and bowlders, which with calm intrepidity presented their callous fronts to the ice-wedging chisels of the Frost King; rain, wind, and thawing moods destroyed their iron-bound strongness; particles larger and finer washed down and away made a surface of soil which slowly became more and more capable of sustaining vegetable life. In this virgin earth, says an old author—

> The wind brings a small seed, which at first generates a diminutive moss, which, spreading by degrees, with its tender and minute texture, resists, however, the most intense cold, and extends over the whole a verdant velvet carpet. In fact, these mosses are the medicines and the nurses of the other inhabitants of the vegetable kingdom [in the North]. The bottom parts of the mosses, which perish and moulder away yearly, mingling with the dissolved but as yet crude parts of the earth, communicate to it organized particles, which contribute to the growth and nourishment of other plants; they likewise yield salts and unguinous phlogistic particles for the nourishment of future vegetable colonies. The seeds of other plants, which the sea and winds, or else the birds in their plumage, bring from distant shores, and scatter among the mosses.

Then the botanist needs no prompting when he observes the maternal care of those mosses that screen the tender new arrivals from the cold, and imbue them with the moisture which they have stored up, and—

> Nourish them with their own oily exhalations so that they grow, increase, and at length bear seeds, and afterward dying, add to the unguinous nutritive particles of the earth, and at the same time diffuse over this new earth and mosses more seeds, the earnest of a numerous posterity.

The following species of algæ were collected in 1872–'73, by the author:

### MELANOSPERMÆ.

(All called "Kapoosta"; natives.)

**Fucus vesiculosus.** Common; anchored in large beds.
**Nereocystis Lütkeanus.** ("SEA-OTTER RAFTS.") Common.
**Alaria esculenta.** Common. This has been used by the Pribylov natives as an article of food relish.
**Chordaria flagelliformis.** Common.
**Elachista fucicola.** Common.

### RHODOSPERMÆ.

**Polysiphonia.** Rare.
**Melobesia polymorpha.** Common.
**Melobesia lichenoides.** Common.
**Delesseria.** Rare.
**Peyssonnelia.** Common.
**Collishamnion.** Common.

### CHLOROSPERMÆ.

**Cladophora uncialis.** Common.
**Conferva capillaris.** Common (fresh-water lakes and pools).
**Nostochinea.** Common (fresh-water lakes and pools).
**Ulva latissima.** Common.

The above names do not pretend to specify the entire list that will be found here, but they simply indicate those varieties which are dominant.

LUXURIANCE AND VARIETY OF THE SEA-WEEDS.—The extent and luxuriance, variety and beauty of the algæ forests of these waters of Bering sea which lave the coasts of the Pribylov group, call for more detail of description than space in this memoir will allow, since anything like a fair presentation of the subject would require the reproduction of my water-colored drawings. After the heavier gales, especially the southeasters in October, if the naturalist will take the trouble to pace the sand-beach between Lukannon and Northeast point of St. Paul island, he will be rewarded by a memorable sight. He will find thrown up by the surf a vast windrow of kelp along the whole eight or ten miles of this walk, heaped, at some spots, nearly as high as his head; the large trunks of *Melanospermæ*, the small, but brilliant red and crimson fronds of *Rhodospermæ* interwoven with the emerald green leaves of the *Chlorospermæ*. The first-named group is by far the most abundant, and upon its decaying, fermenting brown and ocher heaps, he will see countless numbers of a buccinoid whelk, and a limnaca, feeding as they bore or suck out myriads of tiny holes in the leaf fronds of the strong growing species.

SEA-ANEMONES AND STAR-FISHES.—*Actinias* or sea-anemones occur, together with numerous starfishes; many jelly-fishes are also interwoven and heaped up with the "kapoosta" or sea-cabbages just referred to; also, a quantity of rosy "sea-squirts" and yellow "sea-cucumbers".

CONFERVOID RUGS AND CARPETS.—On the old killing-fields, on those spots where the sloughing carcasses of repeated seasons have so enriched the soil as to render it like fire to most vegetation, a silken green *Confervæ* grows luxuriantly. This terrestrial algoid covering appears here and there, on these grounds, like so many door-mats of pea-green wool. That confervoid flourishes only on those spots where nothing but pure decaying animal matter is found. An admixture of sand or earth will always supplant it by raising up instead those strong growing grasses which I have alluded to elsewhere, and which constitute the chief botanical life on the killing-grounds.

PRECAUTIONS NECESSARY TO SUCCESSFUL BOTANICAL WORK.—If the following hints will serve to save the next collection of botanical specimens that may be gathered on these islands, it is not superfluous to print them here. Let the collector take a large amount of bibulous paper, and a small room all to himself; in the center of this apartment place a little stove, with an "organ" pipe; then fit up a series of broad library shelves around the walls from the floor to the ceiling; upon these shelves he will be enabled, aided by a low, steady fire, to dry the intensely juicy leguminosæ, and several other exceedingly thick and watery stemmed plants so peculiar to the Pribylov islands, thus save their color, and prevent them from turning black; a little fire must be kept in the room all the time that the collection is in the process of curing, and also after it is ready for use, ere leaving the islands. When shipped it should be hung up, well boxed, in the fire-room of the steamer; or else, if the voyage happens to be unusually foggy and dilatory, it will sweat in the hold, or cabin even, and be entirely destroyed before San Francisco is reached. I give these remarks advisedly and feelingly, for I lost the result of a hard season's work in this line of collection. By not appreciating these desiderata, another naturalist may come here as I did, be charmed with the flora, as well as the fauna, and after gathering hundreds of specimens at the expense of weary weeks of constant tramping, lose them all.

COURTESIES EXTENDED TO NATURALISTS.—The Alaska Commercial Company afforded me every facility that I had the ingenuity to ask for—giving me the unrestricted use of their men, their buildings, and their experience. Had it been the direct labor of the company instead of that in which I was engaged, I could not have had more attention paid to me and my pursuits. They stand ready to do as much again for any other accredited naturalist who may follow in my path over the Pribylov islands while they have control; this they will possess for nearly another decade hence.

## 30. VENIAMINOV ON THE RUSSIAN SEAL-INDUSTRY AT THE PRIBYLOV ISLANDS.

[Translated by the author, from Veniaminov's *Zapieskie*, etc.; St. Petersburg, 1842; vol. ii, pp. 568.*]

INDISCRIMINATE SLAUGHTER BY THE FIRST DISCOVERERS.—From the time of the discovery of the Pribylov islands up to 1805 (or, that is, until the time of the arrival in America of General Resanov), the taking of fur-seals on both islands progressed without count or lists, and without responsible heads or chiefs, because then (1787 to 1805, inclusive) there were a number of companies, represented by as many agents or leaders, and all of them vied with each other in taking as many as they could before the killing was stopped. After this, in 1806 and 1807, there were no seals taken, and nearly all the people were removed to Oonalashka.

PARTIAL CHECK ORDERED.—In 1808 killing was again commenced; but the people in this year were allowed to kill only on St. George. On St. Paul hunters were not permitted this year or the next. It was not until the fourth year after this that as many as half the number previously taken were annually killed. From this time (St. George 1808, and St. Paul 1810) up to 1822, taking fur-seals progressed on both islands without economy and with slight circumspection, as if there was a race in killing for the most skins. Cows were taken in the drives and killed, and were also driven from the rookeries to places where they were slaughtered.

It was only in 1822 that G. Moorayvev (governor) ordered that young seals should be spared every year for breeding, and from that time there were taken from the Pribylov islands, instead of 40,000 to 50,000, which Moorayvev ordered to be spared in four successive years, no more than 8,000 to 10,000. Since this, G. Chestyahkov, chief ruler after Moorayvev, estimated that from the increase resulting from the legislation of Moorayvev, which was so honestly carried out on the Pribylov islands, that in these four years the seals on St. Paul had increased to double their previous number, (*that*) he could give an order which increased the number to be annually slain to 40,000; and this last order or course directed for these islands, demanded as many seals as could be got; but with all possible exertion hardly 28,000 were obtained.

POOR RESULTS.—After this, when it was most plainly seen that the seals were, on account of this wicked killing, steadily growing less and less in number, the directions were observed for greater caution in killing the grown seals and young females, which came in with the droves of killing-seals, and to endeavor to separate, if possible, these from those which should be slain.

PARTIAL CHECKS AGAIN ORDERED.—But all this hardly served to do more than keep the seals at one figure or number, and hence did not cause an increase. Finally, in 1834, the governor of the company, upon the clear (*or "handsome"*) argument of Baron Wrangel, which was placed before him, resolved to make new regulations respecting them, to take effect in the same year (1834), and, following this, on the island of St. Paul only 4,000 were killed, instead of 12,000.

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* The italics are mine, and my translation is nearly literal, as might be inferred by the idiom here and there.—H. W. E.

On the island of St. George the seals were allowed to rest in 1826 and 1827, and since that time greater caution and care have been observed, and headmen or foremen have kept a careful count of the killing.

From this it will be seen that no anxiety or care as to the preservation of the seal-life began until 1805 (*i. e.*, with the united companies).

It is further evident, that all half measures, seen or not seen, were useful no longer, as they only served to preserve a small portion of the seal-life, and only the last step (1834) with the present people or inhabitants has proved of benefit. And if such regulations of the company continue for fifteen years (*i. e.*, until 1849), it may be truly said that then the seal-life will be attracted quite rapidly, under the careful direction of headmen, so that in quite a short time a handsome yield may be taken every year. In connection with this subject, if the company are moderate and these regulations are carried out, the seal-life will serve them and be depended upon, as shown in this volume, Table No. 2.

IDEAS OF THE OLD NATIVES.—Nearly all the old men think and assert that the seals which are spared every year ("*zapooskat kotov*"), *i. e.*, those which have not been killed for several years, are truly of little use for breeding, lying about as if they were outcasts or disfranchised. About these seals, they show that after the seals were spared, they were always less than they should be, as, for instance, on the island of St. George, after two years of saving or sparing of 5,500 seals, in the first year they got, instead of 10,000, or 8,000 as expected, only 4,778.

WHY THE SEALS DIMINISHED.—But this diminution, which is shown in the most convincing manner, is due to wrong and injustice, because it would not have been otherwise with any kind of animals—even cattle would have been exterminated—because a great many here think and count that the seal-mother brings forth her young in her third year, *i.e.*, the next two years after her own birth. As it is well shown here, the spared seals ("*zapooskie*") were not more than three years old, and therefore it was not possible to discern the correct and true numbers as they really were. Taking the females killed by the people, together with all the seals which were purposely spared, it was seen that the seal-mothers did not begin to bear earlier than the fifth year of their lives. Illustrative of this is the following:

(*a*) On the island of St. George, after the first "zapooka", in 1828, the killing of five-year-old seals was continued gradually up to five times as many as at first. With those of five years old the killing stopped. Then next year twelve times as many six-year-olds were observed on the islands, as compared with their number of the last year, and with or in the seventh year came seven times as many. This shows that females born in 1828 did not begin to bear young until their fifth year, and become with young accordingly; that the large ones did not appear or come in six years (from 1828), as is evident, for in the fifth year all the females did not bring forth.

(*b*) It is known that the male seals cannot become "seecatchies" (*adult bulls*) earlier than their fifth or sixth year; following this, it may be said that the female bears earlier than the fourth year.

(*c*) If the male seal cannot become a bull ("seecatchie") earlier than the fifth year, then, as Buffon remarks, "animals can live seven times the length of the period required for their maturity"; therefore, a "seecatch" cannot live less than thirty years, and a female not less than twenty-eight.*

VENIAMINOV'S BELIEF THAT FEMALES CANNOT BEAR YOUNG UNTIL FOUR YEARS OLD.—Taking the opinion of Buffon for ground in saying, that animals do not come to their full maturity until one-seventh of their lives has passed, it goes also to prove that the female seal cannot bear young before her fourth year.

It is, without doubt, a fact that female seals do not begin to bear young before their fifth year, *i. e.*, the next four years after the one of their birth, and not in the third or fourth year. That, however, is not the rule, but the exception. To make it more apparent that females cannot bear young in their third year, consider two-year-old females, and compare them with "seecatchie" (*adult bulls*) and cows (*adult females*), and it will be evident to all that this is impossible.

Do the females bear young every year; and how often in their lives do they bring forth?

HIS DOUBTS ON THE SUBJECT.—To settle this question is very difficult, for it is impossible to make any observations upon their movements; but I think that the females, in their younger years (or prime), bring forth every year, and as they get older, every other year; thus, according to people accustomed to them, they may each bring forth in their whole lives from ten to fifteen young, and even more. This opinion is founded on the fact that never (except in one year, 1832) have an excessive number of females been seen without young; that cows not pregnant hardly ever come to the Pribylov islands; that such females cannot be seen every year. As to how large a number of females do not bear, according to the opinions and personal observations of the old people, the following may be depended upon with confidence: not more than one-fifth of the mature or "effective" females are without young; but to avoid erroneous impressions or conflicting statements between others and myself, I have had but one season ("*trayt*") in which to personally observe and consider the multiplication of seals.

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* "This remark is sustained by the observation of old men, and especially by one of the best Creoles, Shiesneekov, who was on the island of St. Paul in 1817, and who knows of one "seecatch" (known by a bald head), which in that time had already a large herd of cows or females, surrounded and hunted by a like number of females and strong, savage old bulls; therefore, it may be safely thought that this bull did not get his growth until his fifth year, and at this time he could not have been less than ten years old. And this same bull came every year to the island and the same place for fifteen years in succession, up to 1832, and it was only in the later years that his harem grew smaller and smaller in number."

HIS THOUGHTS ON BIRTH OF PUPS.—There is one more very important question in the consideration of the breeding or the increase of seals, and that is, of the number of young seals born in one year, how many are males; and is the number of males always the same in proportion to the females?

Judging from the "holluschickie" accumulated from the "zapooska" in 1822–'24 on the island of St. Paul, and in 1826–'27 on the island of St. George, the number of young males was widely variable; for example, on the island of St. Paul, in three years, 11,000 seals were spared, and in the following three years there were killed 7,000, *i. e.*, about two-thirds of the number saved; opposed to this, on the island of St. George, from 8,500 seals spared in two years, less than 3,000 were taken—hardly one-third.

Why this irregularity? Why should more young males be born at one time, and at another less? Or why should there be years in which many cows do not bear young?

According to the belief of the people here, I think that of the number of seals born every year, half are males and as many females (*i. e., the other half*).

TABLE NO. I: ITS USE.—To demonstrate the above-mentioned conditions of seal-life, the table No. I has been formed of the number of seals annually killed on the Pribylov islands, from 1817 to 1838 (when this work was ended).

From this it will be seen that—

1. No single successive year presents a good number of seals killed, as compared with the previous year; the number is always less.
2. The annual number of seals killed was not in a constant ratio.
3. And, therefore, in the regular hunting-season there is less need or occasion, during the next fifteen years, to demand the whole seal kind.
4. Fewer seals were killed in those years, generally, following a previous year in which there were larger numbers of the "holluschickie"; that is, when the young males were not completely destroyed, and more were killed when the number of "holluschickie" was less.
5. The number of "holluschickie" is a true register or showing of the number of seals; *i. e.*, if the "holluschickie" increase and exist like the young females, and conversely.
6. "Holluschickie" break from the (common) herd and gather by themselves no earlier than the third year, as seen in the case of the spared seals on the islands of St. George and St. Paul, the latter from 1822–'24 to 1835–'37, inclusive; the former from 1826–'27.
7. The number of seals killed on the island of St. George, after two years ("zapooska") was resumed, and gradually increased to five times as many.
8. In the fifth year from the first "zapooskie" (*or saving*) it became possible to count or reckon on the number remaining, and six-year-olds began to appear twelve times as numerous, and seven-year-olds came in numbers sevenfold greater than their previous small number; and, therefore, the number of three-year-old seals was quite constant.
9. If on the island of St. George, in 1826–'27, the seals had not had this rest ("*zapooska*"), and the killing had been continued, even at the diminished ratio of one-eighth, in 1840 or 1842 there would not have been a single seal left, as appears by the following table:

| | Seals. |
|---|---|
| 1825 | 5,500 |
| 1826 | 4,400 |
| 1827 | 3,520 |
| 1828 | 2,816 |
| 1829 | 2,468 |
| 1830 | 2,160 |
| 1831 | 1,890 |
| 1832 | 1,554 |
| 1833 | 1,360 |
| 1834 | 1,190 |
| 1835 | 1,040 |
| 1836 | 850 |
| 1837 | 700 |
| 1838 | 580 |
| 1839 | 500 |
| 1840 | 400 |

10. RESULTS OF THE "ZAPOOSKA".—Following two years of "zapooska" (*saving*), the seal-life is enhanced for more than ten years, and the loss sustained by the company in the time of "zapooskov" (about 8,500) is made good in the long run. The case may be thus stated: if the company had not spared the seals in 1826–'27 they would have received, from 1826 to 1838 (twelve years), no more than 24,000, but by making this zapooska regulation for two years, they got in ten years 31,576, and, beyond this, they can yet take 15,000 without another, or any, zapooska.
11. And in this case, where such an insignificant number of seals was spared on St. George (about 8,500), and in such a short time (two years), the result was at once significant every year; that is, three times more appeared than the number spared. The result, therefore, must be large annually on the island of St. Paul, where, in consequence of the last orders or directions of the governor, already four years of saving have been in force, in which time over 30,000 seals have been left for breeding.

On this account, and in conformity with the above, I here present a table, a prophecy of the seals that are to come in the next fifteen years from 7,060 seals saved on the island of St. Paul in 1835.

On the island of St. Paul, at the direction of the governor, a "zapoosk" or saving was made of 12,700 seals; that is, before the year 1834 there were killed 12,700 seals, and on the following year, if this saving had not been made, according to the testimony of the inhabitants, no more than 12,200 seals would or could have been taken from the islands, it being thought that this number (12,200) was only one twenty-fifth of the whole; but instead of killing 12,200, only 4,052 were taken, leaving in 1835, for breeding, 8,118 fresh young seals, males and females, together.

In making this hypothetical table of seals that are to come, I take the average killing, that is, one-eighth part, and proceed on the supposition that the number of saved seals will not be less than 7,060.

In the number of 7,060 seals we can calculate upon 3,600 females; that is, a slight majority of males. With the new females born under this "zapooska" I place half of those born the first year, and so on.

Females, in the twelve or eighteen years next after their birth, must become less in number from natural causes, and by the twenty-second year of their lives they must be quite useless for breeding.

Of the number of seals which may be born during the next four years of "zapooska", or longer, we may take half for females. This number is included in the table, and the males, or "holluschickie", make up the total.

TABLE NO. II: ITS SHOWING.—From the table II observe that—*

1. Old females, that is, those which in 1835 were capable of bearing young, in 1850 must be canceled (minus). They probably die in proportion of one-eighth of the whole number every year.

2. For the first four years of "zapooska", until the new females begin to bear, their number will be generally less.

3. A constant number of seals will continue during the first six years of their "zapooska"; in twelve, these seals will double; in fourteen years they will have increased threefold; and after fifteen years of this "zapooska" or saving of 7,060, in the first year, 24,000 may be taken from them; in the second, 28,000; in the third, 32,000; in the fourth, 36,000; in the fifth, 41,000; thus in five years more than 160,000 can be taken. Then, under the supervision of persons who will see that one-fifth of the seals be steadily spared, 32,000 may be taken every year for a long time.

4. Moreover, from the production of fifteen years' "zapooska", there can be taken from 60,000 to 70,000 "holluschickie", which, together with 160,000 seals, makes 230,000.

5. If this "zapooska" for the next fifteen years is not made for the seal-life, diminution will certainly ensue, and all this time, with all possible effort, no more than 50,000 seals will be taken.

Here it should be said that this hypothetical table of the probable increase of seals is made on the supposition of the decrease of females, and an average is taken accordingly. Furthermore, on the island of St. Paul, in 1836–'37, instead of 7,900 seals being killed, but 4,860 were taken. Hence, it follows that these 1,500 females thus saved in two years, and which are omitted from the table, will also make a very significant addition to the incoming seals. †

TABLE I, PART II.—*Bishop Veniaminov's Zapieska, etc., showing the seal-catch during the period of gradual diminution of life on the islands, from 1817 down to 1837.*

| Taken from— | 1817. | 1818. | 1819. | 1820. | 1821. | 1822. | 1823. | 1824. | 1825. | 1826. | 1827. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Saint Paul island | 47, 860 | 45, 932 | 40, 300 | 39, 700 | 35, 750 | 28, 150 | 24, 100 | 19, 850 | 24, 600 | 23, 250 | 17, 750 |
| Saint George island | 12, 328 | 13, 924 | 11, 925 | 10, 520 | 9, 245 | 8, 319 | 5, 773 | 5, 550 | 5, 500 | ‡ | 1, 950 |
| Total | 60, 188 | 59, 856 | 52, 225 | 50, 220 | 44, 995 | 36, 469 | 29, 873 | 25, 400 | 30, 100 | 23, 250 | 19, 700 |

| Taken from— | 1828. | 1829. | 1830. | 1831. | 1832. | 1833. | 1834. | 1835. | 1836. | 1837. |
|---|---|---|---|---|---|---|---|---|---|---|
| Saint Paul island | 18, 450 | 17, 150 | 15, 200 | 12, 950 | 13, 150 | 13, 200 | 12, 700 | 4, 052 | 4, 040 | 4, 220 |
| Saint George island | 4, 778 | 3, 661 | 2, 834 | 3, 084 | 3, 296 | 3, 212 | 3, 051 | 2, 528 | 2, 550 | 2, 582 |
| Total | 23, 228 | 20, 811 | 18, 034 | 16, 034 | 16, 446 | 16, 412 | 15, 751 | 6, 580 | 6, 590 | 6, 802 |

| | |
|---|---|
| Grand total for Saint Paul island | 464, 259 |
| Grand total for Saint George island | 114, 665 |
| Total catch during nineteen years of diminution | 578, 924 |

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* The reader, in following the calculations of the Bishop, as exhibited by this table, must not forget to bear in mind, as he runs it over, that it is arranged with a sliding scale of increase, that counts steadily down from 1840 to 1849; and also, a sliding down scale of decrease, by reason of natural death-rates, that works steadily across these figures of increase just specified.—H. W. E.

† I translate this chapter of Veniaminov's without abridgment, although it is full of errors, to show that while the Russians gave this matter evidently much thought at headquarters, yet they failed to send some one on to the ground, who, by first making himself acquainted with the habits of the seals from close observation of their lives, should then be fitted to prepare rules and regulations founded upon this knowledge. These suggestions of Veniaminov were, however, a vast improvement on the work as it was conducted, and they were adopted at once; but it was not until 1845 that the great importance of never disturbing the breeding-seals was recognized.—H. W. E.

‡ Left to breed.

TABLE II.—*Showing the number of seals that will visit the island in the next twenty-two years—a prophecy made by Veniaminov in 1834.*

| | Years. | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. | 14. | 15. | 16. | 17. | 18. | 19. | 20. | 21. | 22. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1835. | 1836. | 1837. | 1838. | 1839. | 1840. | 1841. | 1842. | 1843. | 1844. | 1845. | 1846. | 1847. | 1848. | 1849. | 1850. | 1851. | 1852. | 1853. | 1854. | 1855. | 1856. |
| 1 | 1835 .... | 3,600 | 0 | 0 | 0 | 0 | 900 | 1,200 | 1,200 | 1,200 | 1,200 | 1,200 | 1,200 | 1,200 | 1,200 | 1,200 | 1,000 | 800 | 400 | 200 | ...... | ...... | ...... |
| 2 | 1836 .... | 0 | 3,150 | 0 | ...... | ...... | ...... | 785 | 1,050 | 1,050 | 1,050 | 1,050 | 1,050 | 1,050 | 1,050 | 1,050 | 1,050 | 1,000 | 700 | 300 | 100 | ...... | ...... |
| 3 | 1837 .... | ...... | 0 | 2,755 | ...... | ...... | ...... | ...... | 680 | 918 | 918 | 918 | 918 | 918 | 918 | 918 | 918 | 918 | 900 | 600 | 300 | 10 | ...... |
| 4 | 1838 .... | ...... | ...... | ...... | 2,410 | ...... | ...... | ...... | ...... | 600 | 805 | 805 | 805 | 805 | 805 | 805 | 805 | 805 | 805 | 805 | 750 | 500 | 300 |
| 5 | 1839 .... | ...... | ...... | ...... | ...... | 2,110 | ...... | ...... | ...... | ...... | 450 | 700 | 700 | 700 | 700 | 700 | 700 | 700 | 700 | 700 | 700 | 600 | 400 |
| 6 | 1840 .... | ...... | ...... | ...... | ...... { | ...... | 1,845 | ...... | From old arrivals.. | | | 450 | 615 | 615 | 615 | 615 | 615 | 615 | 615 | 615 | 615 | 600 | 500 |
| | | | | | | New. | 900 | ...... | From new comers.. | | | 152 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 150 | 100 |
| 7 | 1841 .... | ...... | ...... | ...... | ...... { | ...... | ...... | 1,580 | ...... | ...... | ...... | ...... | 315 | 525 | 525 | 525 | 525 | 525 | 525 | 525 | 525 | 525 | 500 |
| | | | | | | Total new.. | | 1,985 | ..... | From new ones .... | | | 420 | 572 | 572 | 572 | 572 | 572 | 572 | 572 | 572 | 572 | 500 |
| 8 | 1842 .... | ...... | ...... | ...... | ...... | ...... { | ...... | ...... | 1,355 | ...... | ...... | ...... | ...... | 325 | 451 | 451 | 451 | 451 | 451 | 451 | 451 | 451 | 451 |
| | | | | | | | Total new.. | | 2,930 | ...... | From new ones ..... | | | 650 | 909 | 909 | 909 | 909 | 909 | 909 | 909 | 909 | 909 |
| 9 | 1843 .... | ...... | ...... | ...... | ...... | ...... | ...... { | ...... | ...... | 1,130 | ...... | ...... | ...... | ...... | 258 | 376 | 376 | 376 | 376 | 376 | 376 | 376 | 376 |
| | | | | | | | | Total new.. | | 3,768 | ...... | From new ones ..... | | | 880 | 1,188 | 1,188 | 1,188 | 1,188 | 1,188 | 1,188 | 1,188 | 1,188 |
| 10 | 1844 .... | ...... | ...... | ...... | ...... | ...... | ...... | ...... { | ...... | ...... | 900 | ...... | ...... | ...... | ...... | 225 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| | | | | | | | | | Total new.. | | 4,423 | ....... | From new ones ..... | | | 1,020 | 1,440 | 1,440 | 1,440 | 1,440 | 1,440 | 1,440 | 1,440 |
| 11 | 1845 .... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... { | ...... | ...... | 725 | ...... | ...... | ...... | ...... | 180 | 241 | 241 | 241 | 241 | 241 | 241 |
| | | | | | | | | | | Total new... | | 5,275 | ....... | From new ones ..... | | | 1,240 | 1,687 | 1,687 | 1,687 | 1,687 | 1,687 | 1,687 |
| 12 | 1846 .... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... { | ...... | ...... | 580 | ...... | ...... | ...... | ...... | 125 | 190 | 190 | 190 | 190 | 190 |
| | | | | | | | | | | | Total new ... | | 6,225 | ...... | From new ones ..... | | | 1,500 | 1,994 | 1,994 | 1,994 | 1,994 | 1,994 |
| 13 | 1847 .... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... { | ...... | ...... | 450 | ...... | ...... | ...... | ...... | 100 | 143 | 143 | 143 | 143 |
| | | | | | | | | | | | | Total new ... | | 7,560 | ....... | From new ones ..... | | | 1,810 | 2,420 | 2,420 | 2,420 | 2,420 |
| 14 | 1848 .... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... { | ...... | ...... | 250 | ...... | ...... | ...... | ...... | 61 | 83 | 83 | 83 |
| | | | | | | | | | | | | | Total new ... | | 9,083 | ...... | From new ones...... | | | 2,254 | 2,908 | 2,908 | 2,968 |
| 15 | 1849 .... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... { | ...... | ...... | 100 | ...... | ...... | ...... | ...... | 25 | 40 | 40 |
| | | | | | | | | | | | | | | Total new ... | | 10,654 | ...... | ...... | ...... | ...... | 2,550 | 3,187 | 3,187 |
| Total ♀ .... | | 3,600 | 3,150 | 2,755 | 2,410 | 2,110 | 2,745 | 3,565 | 4,285 | 4,898 | 5,323 | 6,000 | 6,805 | 7,990 | 9,333 | 10,754 | 12,369 | 14,153 | 16,148 | 18,216 | 20,820 | 20,105 | 19,358 |
| Total ♂ .... | | 3,460 | 3,150 | 2,755 | 2,410 | 2,110 | 2,745 | 3,435 | 4,215 | 4,102 | 5,378 | 6,000 | 6,795 | 8,010 | 9,267 | 10,746 | 12,331 | 14,147 | 16,102 | 18,184 | 20,824 | 20,095 | 19,342 |
| All ......... | | 7,060 | 6,300 | 5,510 | 4,820 | 4,220 | 5,490 | 7,000 | 8,500 | 9,700 | 10,700 | 12,000 | 13,600 | 16,000 | 18,600 | 21,500 | 24,700 | 28,300 | 32,250 | 36,400 | 41,640 | 40,200 | 38,700 |

From this table behold that—

*a.* Every fifteen years, from 3,600 females, there can be received in sixteen years 24,700 seals; in sixteen years still more; and in twenty years 41,640.

*b.* In the twenty-first year the incomes begin to diminish, provided that if in the meantime, or the following sixteen years, a certain number of young seals are not left to breed; and if every year a known number are left to breed, then in all following years the yield will never be less than 20,000 every year.

TABLE III.—*Calculation as to the taking of the seals on the island of St. George, made up from two years, and based upon that experience.* (1827–'28.)

| Year. | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | Grand total. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1826. | 1827. | 1828. | 1829. | 1830. | 1831. | 1832. | 1833. | 1834. | 1835. | 1836. | 1837. | |
| 1.—1826 | 2,200 | ...... | ...... | ...... | ...... | 450 | 700 | 700 | 700 | 700 | 700 | 700 | ...... |
| 2.—1827 | Breeding.. | 2,050 | ...... | ...... | ...... | ...... | 360 | 600 | 600 | 600 | 600 | 600 | ...... |
| 3.—1828 | Light .... | ...... | 1,700 | 1,500 | 1,200 | 1,000 | 700 | 550 | 400 | 250 | 100 | 50 | ...... |
| Females | ...... | ...... | ...... | ...... | ...... | 1,450 | 1,760 | 1,850 | 1,700 | 1,550 | 1,400 | 1,350 | ...... |
| "Hollusohickie" | 2,200 | 2,050 | 1,600 | 1,500 | 1,200 | ...... | 1,760 | 1,800 | 1,700 | 1,500 | 1,500 | 1,400 | ...... |
| Total | 2,200 | 2,050 | 1,600 | 1,500 | 1,200 | 1,450 | 3,520 | 3,650 | 3,400 | 3,050 | 2,900 | 2,750 | 29,270 |

The actual taking of seals was as follows:

| | Seals. | | Seals. |
|---|---|---|---|
| In 1828 | 4,778 | In 1834 | 3,051 |
| In 1829 | 3,661 | In 1835 | 2,528 |
| In 1830 | 2,834 | In 1836 | 2,550 |
| In 1831 | 3,084 | In 1837 | 2,582 |
| In 1832 | 3,296 | | |
| In 1833 | 3,212 | Total | 31,576 |

From this table it will be seen that up to 1838 my calculation makes a yield of 29,270 seals; while the actual result was 31,576; making a difference of 2,306.

The difference determines that the hypothesis upon which the table is based is correct.

## 31. VENIAMINOV'S ACCOUNT OF THE DISCOVERY OF THE PRIBYLOV ISLANDS.*

LOCATION AND DISCOVERY.—Under the name of the Pribylov islands are known two small islands lying in Bering sea, between 56° and 57° north latitude, and 168° and 170° west longitude.

Stoörman G. Pribylov, who had been on the American coast for some time and observed the indications of islands in Bering sea, became convinced of their existence; and the embarassed circumstances of his company finally induced him to attempt their discovery. * * * He was considered one of the best navigators of that region. * * * For a long time he was in close vicinity to one of the islands subsequently named after him, but three weeks elapsed before he could get a sight of the same through the surrounding fog. At last fate or good fortune, coming to the assistance of an enterprising man, raised the curtain of the fog, and the eastern headland of the island (*Tolstoi Mees*) nearest to the Aleutian archipelago rose up before the navigators, filling them with inexpressible joy. This island was named by them, after their ship, "St. George". The "predovchik" (*or leader*) of the expedition, Yeafeem Popov, with all the hunters on the vessel, landed and remained on the newly-discovered island; but the vessel, failing to find any harbor, returned to winter at the Aleutian islands, carrying away a few fur-seals and sea-otters. The hunters who remained on the island of St. George sighted, on the 29th of June (*Justinian calendar*) of the following year (the day of the apostles Peter and Paul), an island to the northward, which they at once named "Peter and Paul", but the name of Peter was subsequently dropped from common usage. These islands have borne, since their discovery, a variety of names. At first they were called simply "Novie" (*new*); the Pribylov; and the "predovchik" named them Laibdevskie (the principal shareholder of the company was Laibedev). Shellikov named them "Zubovie" (*this was the name of the minister of interior at that time, who was a partner and shareholder also*); but among the hunters they attained the appellation of "Saivernie" (*northern*) on account of their situation north of Oonalashka, and "Kotovnie", or Seal-islands. At the present time (1838) they are often called simply "The Islands" in the colonies (*i. e., Alaska and Kamtchatka*). The name of Pribylov, as the one most justly applied, should be used throughout.

The change from summer to winter is abrupt. The number of clear days is exceedingly small. The sun is rarely visible between the 1st of May and the middle of August, and during nearly all that time it is impossible to see beyond the distance of a few fathoms ("*sajeens*"). For this reason these islands are so difficult to find, that out of twenty ships only one succeeded in reaching them by a straight course. They are visible only during easterly winds for a brief period, * * * but the constant winds probably counteract the exhalations (*from the carcasses*). Under the present circumstances (1838) it would be impossible to remedy the trouble; to kill the animals at a greater distance from the village would require an increased number of laborers to pack the skins and meat; and if the carcasses were burned, the smoke would probably drive away the animals, while there is neither soil nor labor sufficient to bury or to burn them. The latter process would also deprive the inhabitants of their fuel, as they employ bones and putrified meat for cooking purposes, in place of wood.

The food supply is ample even to luxury, especially on the island of St. Paul. The labor is severe, but only temporary, and the inhabitants have a great deal of time for themselves. A majority of them employ their leisure hours very well, teaching themselves and their children the rudiments of the Russian and Aleutian grammar, and with such success that of late, under the administration of the Creole, Shiesneekov, nearly all the males on St. Paul have learned to read. These people are not only richer, but more active and energetic in their labor as well as in their pious faith, than are their Aleutian brethren elsewhere; and altogether the inhabitants of St. Paul may be called the first among the Aleuts.

On account of the value of fur-seal and sea-otter skins shipped from these islands since their discovery, and up to the present time (1838), they might be called the "Golden islands", without estimating the 125,000 blue foxes and 50,000 sea-otters shipped from there during the first thirty years (*after their discovery*).

THE VILLAGES AS THEY WERE IN 1838.—The first and most important settlement was situated at the southwestern extremity of the island (*Zapadnie*). The second, which is the present site, on the southeastern point (*Village Hill*). In the village of to-day (1838) there is a wooden chapel in honor of the apostles Peter and Paul, erected in 1821, and nicely ornamented in the interior, at the expense of the resident Aleuts; a dwelling for the manager; a store, and a magazine, all built like the church, of neatly-dressed drift logs. In addition to this, there is a "kozarmie" (*barracoon*) built after the fashion of Aleutian "oölaghamuh" (*or large, communistic, underground habitations*) houses, a few private dwellings, and thirteen native barrabaras. A small wind-mill has been added of late.

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*Translated, by the author, from Bishop Innocent Veniaminov's work, *Zapieska ob Ostrovah Oonahlashkenskaho Otdayla:* St. Petersburg, 1840. The only Russian treatise upon the subject found. Those selections most pertinent to the subject are introduced above in my translation. The italics are mine, and explanatory.—H. W. E.

The inhabitants subsist principally upon the flesh of fur-seals and sea-lions, with the addition of roots and a little flour. In the summer time, between June and September, halibut and some cod are caught around the shore, and altogether the living of these Aleuts is excellent and even luxurious, compared with that of their neighbors. The station is supplied with provisions and trading-goods from Sitka, the ship arriving annually in June and July. As there is no safe harbor, these vessels must receive and discharge their cargoes under sail.

In former years, up to 1820 or 1821, those islands were under the control of the Oonalashka office. The manager of St. Paul was, until the year 1834, also in charge of St. George, visiting the latter island every spring in a bidarkie; and, though these navigators cannot see from one island to the other, their journeys have been usually successful, with the exception of three occasions—twice the small craft missed the island of St. George (*going from St. Paul*), and pushed on to the coast of the Alaskan peninsula, where they finally secured a landing; and in the third instance, the bidarrah was lost altogether.

On the island of St. George there was no bay or entrance, with the exception of a shallow bight near the village (*Zapadnie*). This settlement contains a wooden chapel erected in honor to St. George, log buildings occupied by the agent of the company and his servants, and a number of barrabaras. * * * The inhabitants are, however, in less comfortable circumstances than those of St. Paul. Of provisions, they have a great abundance of sea-lion meat, sea-birds and their eggs. The eggs are obtained by lowering a person over the precipitous cliffs, by means of seal-skin ropes. Many perish in this attempt from the friction of the strands against the sharp edges of the rocks; and occasionally the foxes have been known to gnaw off the ropes on which the hunters were suspended.

Occasionally shocks of earthquakes* still remind us of the volcanic origin of the Pribylov islands. Very heavy ones occurred repeatedly in April on both islands, when many overhanging cliffs were thrown into the sea. The inhabitants of the Pribylov islands belong to the parish of Oonalashka, the priest of which is obliged to visit them once every two years (*to marry, baptize, etc*). These islands were not known before the year 1786; mate G. Pribylov,† then in the service of a swan-hunting company, first, in the Russian name, found them, but at the same time he was not the first discoverer, because, as before said (Part I, chap. 1,) on one of them (southwest side of St. Paul) signs, such as a pipe, brass knife-handle, and traces of fire, were found, indicating that people had been there before, but not long, as places were observed where the grass had been burned and scorched. But if we can believe the Aleuts in what they relate, the islands were known to them long before they were visited by the Russians. They knew and called them "Ateek", after having heard about them.

Eegad-dah-geek, a son of an Oonimak chief by the name of Ah-kak-nee-kak, was taken out to sea in a bidarkie by a storm, the wind blowing strong from the south. He could not get back to the beach, nor could he make any other landing, and was obliged to run before the wind three or four days, when he brought up on St. Paul island, north from the land which he had been compelled to leave. Here he remained until autumn, and became acquainted with the hunting of different animals. Elegant weather one day setting in, he saw the peaks of Oonimak. He then resolved to put to sea, and return to receive the thanks of his people there; and, after three or four days of traveling, he arrived at Oonimak, with many otter tails and snouts.‡

NO VEGETATION ON THE ISLANDS.—The islands were both at first without vegetation, with the exception of St. Paul, where there was a small *talneek* creeping along on the ground; and on St. George, if we believe the accounts of the first ones there to see, nothing grew, even grass, except on the places where the carcasses of dead animals rotted. In the course of time both islands were covered with grass, a great part of it being of the sedge kind. On them are two varieties of berries, etc., etc.

EARLY STATUS OF THE COLONISTS.—The Aleuts serving the company here sustained the following relations between themselves and it, to wit: each of them worked without solicitation and at whatever was found, and to which they were directed, or at that which they understood. Payment for their toil was not established by the day or by the year, but in general for each thing taken by them or standing or put to their credit by the company; for instance, especially the skins of animals, the teeth of walrus, barrels of oil, etc. These sums, whatever they might be, were placed by the company to their credit, for all general hunting and working was established or fixed for the whole year fairly. The Aleuts, in general, received no specific wages, though they were not all alike or equal, there being usually three or four classes.

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*These shocks probably occurred in 1796–'97, when Boga Slov island was raised, in April or May of that year, from the bed of Bering sea, 170 miles directly south of St. George. Such earthquakes were also characteristic of those sub-tropical fur-seal islands, Juan Fernandez and Masafuera.—H. W. E.

†Gehrman Pribylov, the discoverer of the seal-islands, was a native of "old Russia"; his father was one of the surviving sailors of the "St. Peter", which was wrecked, with Bering in command, November 4, 1741, on Bering island. The only reference, which I can find to him, is the vague incidental expressions used here and there, throughout an extended series of lengthy Russian letters published by Techmainov, as illustrative of the condition of affairs in regard to the Russian American Company. Pribylov was, when cruising, in 1783–'86, for the rumored seal-grounds, merely the first mate of the sloop "St. George". The captain and part owner was one M. Zubov, who was a member of a trading association then quite well organized in Alaska, and known as the "*Laibedev Lastochin*" company. It does not appear that Pribylov took any part in the business of sealing, other than that of remaining in charge of the company's vessels. He died while in discharge of these duties, at Sitka, March, 1796, on his ship, "The Three Saints" ("*Tree Svaytoi*").

Pribylov, himself, called these islands of his discovery, after Zubov; but the Russians then, and soon, unanimously indicated the group by its present well deserved title, "*Ostrovie Pribylova.*"—H. W. E.

‡Here Veniaminov says that he does feel inclined to believe this story, as the peaks of Oonimak can be seen occasionally from St. Paul. I have no hesitation in saying that they were never observed by any mortal eye from the Pribylov group. The wide expanse of water between these points, and the thick, foggy air of Bering sea, especially so at the season mentioned in this story above, will always make the mountains of Oonimak invisible to the eye from St. Paul island. A *mirage* is almost an impossibility; it may have been much more probable if the date was a winter one.—H. W. E.

In these classes, to the last or least, the sick and old workmen were counted, although they were only burdens, and therefore they received the smaller shares, about 150 rubles, and the other and better classes received from 220 to 250 rubles a year. Those who were zealous were rewarded by the company with 50 to 100 rubles. The wives of the Aleuts, who worked only at the seal-hunting, received from 25 to 35 rubles.*

ANIMALS ON THE PRIBYLOV ISLANDS.—Foxes and mice. Sometimes the ice brings bears and red foxes. The bears were never allowed to live, since they could not be made useful; and also the red foxes, as they would only spoil the breed already existing, with regard to color of the fur.

Fur-seals, sea-lions, hair-seals, and a few walrus are the only animals that may be said to belong to the Pribylov islands.

BIRDS.—The *guillemots* (or *arries*); gulls; puffins; crested, horned, and white-breasted auks; snow-finches; geese (two kinds); a few kinds of *Tringa*; sea-ducks, black and gray. Most of these birds come here to lay, and with them *jägers*, hawks, owls, and "chikees" (big *Larus glaucus*), and the albatross is frequently to be seen around the beaches.

Sea-otters became scarce generally in 1811, and in the next thirty years extinct.

The fur-seals ("sea-cats") astonish us by their great numbers, as they gradually come up on to their breeding-places, notwithstanding harsh and foolish treatment of them, continued almost half a century (until 1824), without mercy.

RUSSIAN WASTE AND SLAUGHTER.—In the first years, on St. Paul island, from 50,000 to 60,000 were taken annually, and on St. George from 40,000 to 50,000 every year. Such horrible killing was neither necessary nor demanded. The skins were frequently taken without any list or count. In 1803, 800,000 seal-skins had accumulated, and it was impossible to make advantageous sale of so many skins; for in this great number so many were spoiled that it became necessary to cut or throw into the sea 700,000 pelts. If G. Resanov (our minister to Japan) had not given this his attention, and put himself between the animals and this foolish management of them, it appears plainly to me that these creatures would have long ago changed for the worse.

NO RECORDS PRIOR TO 1817: EARLY DRIVING.—Of the number of skins taken up to 1817, I have no knowledge to rely upon, but from that time and up to the present writing, I have true and reliable accounts, which I put in the appendix to this volume. From these lists it will be seen that still in 1820, on both islands, there were killed more than 50,000 seals, viz, on St. Paul, 39,700; and on St. George, 10,250. There were eye-witnesses to the reason for this diminution of the seals, and it is only wonderful, beside, that they are still existing, as they have been treated almost without mercy so many years. The cows produce only one pup each, every year. They have known deadly enemies, and also are still exposed to many foes unknown. From this killing of the seals they steadily grew less, except on one occasion, which was on St. George island, where an opportunity was given suddenly to kill a large number; but the circumstances do not seem to be important. On one occasion a drive was made of 15,000 male and female seals, but the night was dark, and it was not practicable to separate the cows from the males, and they were, therefore, allowed to stand over until daylight should come. The men put in charge of the herding of the drove were careless, and the seals took advantage of this negligence, and made an attempt to escape by throwing themselves from the bluffs over the beach near by into the sea; but, as this bluff was steep, high, rough, and slippery, they fell over and were all injured. Now, for the first time, great numbers of seals were missed, and why, it was not significant or apparent; but in the following year, instead of the appearance and catch of 40,000 or 50,000, less than 30,000 were killed and taken, and then, too, the numbers of seals were known to diminish, and in the same way, only greater, on the other island. For instance, in the first years, on the island of St. George, the seals were only five or six times less than on St. Paul, but in 1817 they were only less than one-fourth; but in 1826 they were almost one-sixth again.

The diminution of seals there (St. Paul) and on the other island, from 1817 to 1835, was very gradual and visible every year, but not always equal.

The killing of seals in 1834, instead of being 80,000 or 60,000, was only 15,751 from both islands (St. Paul, 12,700; St. George, 3,051).

SUM TOTAL OF FUR-SEALS TAKEN.—In the first thirty years (according to Veniaminov's best understanding), there were taken "more than two and a half millions of seal-skins"; then, in the next twenty-one years, up to 1838, they took 578,924. During this last taking, from 1817 to 1838, the skins were worth on an average "no more than 30 rubles each" ($6 apiece).*

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* Compare this annual payment of the Russians with the cash settlement made every year by the Alaska Commercial Company, the present lessee of these islands, as indicated by a prior chapter on the condition of the business there.—H. W. E.

A great many sea-otters (*Enhydra marina*) were found on St. Paul island at first, and as many as 50,000 were taken from the island, but years have passed since one has been seen in the vicinity, even, of the islands.

## 32. HISTORY OF THE ORGANIZATION OF THE RUSSIAN-AMERICAN FUR COMPANY.

PRIBYLOV ISLANDS PASS INTO ITS CONTROL.—The mention made by Veniaminov, of the occupation of the Pribylov islands immediately after their discovery by a score or so of rival traders and their butchering suites, is authentic; it is not necessary to paint the selfish details of the mercenary crews, as I find them drawn by several Slavic chroniclers. In 1799 the whole territory of Alaska went into the control of the Russian-American Company, and a picture of this organization, which managed affairs on the seal-islands for sixty-seven long years, may be interesting in this connection.

CAUSES OF EARLY RUSSIAN FUR-TRADE.—The accidental circumstances connected with Bering's ill-fated voyage in 1741, were the first direct means of impetus given to Russian exploration and trade in the waters of the North Pacific and Bering sea; the skins of the sea-otter and the blue foxes, in especial, which the survivors took from Bering island back to Kamtchatka and Russia, sold for such high prices that it stimulated a large number of hardy, reckless men to scour those seas in search of fur-bearing lands. This trade, thus commenced, was for many years carried on by individual adventurers, each of whom acted alternately as a seaman, as a hunter, and as a trader, solely for his individual profit.

INCEPTION OF THE RUSSIAN-AMERICAN COMPANY.—At length, however, an association was formed in 1785, among a number of Siberian merchants, to carry on the fur-trade of the North Pacific. It received the protection and encouragement of the Empress Catherine, who bestowed upon it many valuable privileges. G. Shellikov was the ruling spirit of the corporation. Catherine's son and successor, Paul, was at the outset of his reign, disposed to abolish these imperial advantages extended to this company, by his mother, on account of the heartless conduct of affairs in Alaska. Reasons of state, however, caused him to abandon this resolution; and he issued a "ukase" dated July 8, 1799, which granted to those united merchants, aforesaid, a charter, under the title of the Russian-American Company, that gave them exclusive use and control, for a period of twenty years, of all the coasts of America on the Pacific and the islands in that ocean, from Bering straits to the 55th degree of south latitude, together with the right of occupying any other territories not previously possessed by civilized nations. The residence of the directors of this company was first fixed at Irkutsk, Siberia, which was the great depository or bonded warehouse for the Chinese trade with all the Russias, a short distance only from Kiachta, on the frontier, where the Mongols and Muscovites alone could meet for barter; it was, afterward, transferred to St. Petersburg, and these directors were personally made known to and placed under the surveillance of the Imperial Department of Commerce.

Those privileges, thus accorded by Paul, were confirmed and extended, even, by Alexander; and under these favorable auspices the power and influence of the Russian-American Company rapidly advanced. In 1803 its establishments extended from Attoo to Sitka; during 1806 preparations were made to occupy the littoral regions north of the Columbia river, but that plan was soon abandoned.

AUTOCRATIC POWER OF THE RUSSIAN-AMERICAN COMPANY.—The government of Alaska by this company was arranged and directed in simple despotism; each trading post was superintended by a Russian overseer or "precashcheek", who, with the aid of a small number of Russians, maintained absolute control over all the natives in his district; he compelled them to labor incessantly, in and out of season, for the benefit of the company; these overseers were in turn under abject subserviency to a chief agent, one of which resided in the limits of four natural divisions of the country; those men were again directly responsible to the authority of the governor-general who resided at Sitka, and who was appointed really by the imperial government, though nominally by the directors; his powers were supposed to be limited and defined by regulations drawn up and signed by him in St. Petersburg; but, in fact, they were absolute, and irresponsible to any court on earth.

THE IRON-WILLED BARANOV.—The person who filled the office of governor-general soon after the organization of the Russian-American Company and for many years afterward, was Alexander Baranov; he was a man of iron will, of dauntless courage, shrewd and wholly devoid of tender feeling; under his autocratic management the affairs of this company prospered pecuniarily, and its stock rose accordingly in value; hence his proceedings were always approved at St. Petersburg, although the truth in regard to his cruelty was often made known there.

BAD REPUTATION OF PROMYSHLENIKS.—In addition to the natives themselves, the company transported to Alaska some four or five hundred Russians, who were termed "promyshleniks", or "hunters". They were employed as trappers, fishermen, seamen, soldiers or mechanics, just as their superiors might command, and they were under the same rule as that I have just described as applicable to the natives; their lot, according to Paul von Krusenstern, a Russian who voyaged thither in 1804–1805, seems to have been more uninviting even than that of the wretched natives.

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*These quotations are in the Alaskan currency of that period, and refer to paper or parchment "rubles", each worth about 20 cents specie. See table of Russian weights, values, etc., in the Glossary.—H. W. E.

**Baranov's attempt to colonize California.**—Prior to 1812, Sitka was the extreme southern limit of the Russian-American Company. But old Baranov, greatly annoyed over the loss of supply ships from the Okotsk, by which their bread, at Kadiak and Sitka, was cut off for years at a time, determined to settle at some place south, where these necessaries to a comfortable physical existence could be raised from the soil; so he asked of the Spanish governor at Monterey permission to erect a few houses on the shore of the small bay at Bodega, California, in order to "procure and salt the meat of the wild cattle" which overran that part of the country, north of the harbor of San Francisco, for the "use of the governor's table at New Archangel" (Sitka). The Castilian was happy to oblige a peer; but, in the lapse of three or four years after this permit was granted, the Russians had formed a large settlement, built a fort, and had, in actuality, taken possession of the country. The Spanish governor first remonstrated, then commanded Baranov to move off, in the name of his most Catholic majesty, the king of Spain. He discovered quickly, to his infinite chagrin, that the Russian had abused his confidence, and defied him. The Spaniard could not enforce his order, and Kuskov, the Russian deputy in charge at Bodega, openly taunted and resisted him. The Russian-American Company remained here practically unmolested, until 1842, when they sold their fixtures to General Sutter, a Swiss American, for $30,000, and vacated California.

**Attempt to secure the Sandwich islands.**—In 1815 Baranov, instead of feeling chilled by the California unpleasantness, then in full headway, turned his ambitious eyes to the Sandwich islands, and actually despatched a vessel, or rather two of them, under the direction of Dr. Shaeffer, a German surgeon, who landed on Atooi, with one hundred picked Aleuts; but they were, at the lapse of a year, so discouraged by the open opposition of the Russian government to this scheme, that they abandoned the project.

**Rapid decay of the Russian-American Company after the death of Baranov.**—In 1862, when the third extension of the twenty years' lease had expired, the affairs of the Russian-American Company were in a bad condition financially—deeply in debt, and the Imperial government was not disposed to renew the charter. This state of affairs gave rise, in 1864–'67, to negotiation with other trading organizations for the lease, which finally culminated in the purchase of Alaska by our government July, 1867. Such, in brief, was the Russian-American Company; it flourished under Baranov, but declined steadily to bankruptcy twenty years after his removal, when eighty years old, on account of extreme age, in 1818. In short, its great compeer, the Hudson Bay Company, was very much earlier initiated in the same manner June, 1670; then it finally organized with the Northwest Company under its present title, with renewed royal prerogatives and despotic sway over all British North America in 1821; it too has declined to a commercial cipher to-day, with its autocratic rights abolished long since; in 1857, I think; they were wholly rescinded; its subsidence was due, however, to the constant increasing white settlement of its territory.

## 33. METEOROLOGICAL ABSTRACT FOR THE MONTHS, FROM SEPTEMBER, 1872, TO APRIL, 1873, INCLUSIVE.

[Being interesting as the exhibit of an unusually severe winter. Made by Chas. P. Fish, United States Signal Service, St. Paul island.]

| Character of observation. | Months of record. | | | |
|---|---|---|---|---|
| | September. | October. | November. | December. |
| Mean of barometer, corrected | 29.773 | 29.512 | 29.458 | 29.488 |
| Maximum of barometer, corrected | 30.46 | 30.04 | 30.23 | 30.04 |
| Minimum of barometer, corrected | 28.87 | 28.51 | 28.62 | 28.05 |
| Monthly range of barometer, corrected | 1.59 | 1.53 | 1.61 | 1.99 |
| Greatest daily range of barometer, corrected | 0.97 | 0.97 | 0.87 | 0.80 |
| Least daily range of barometer, corrected | 0.03 | 0.04 | 0.06 | 0.03 |
| Mean daily range of barometer, corrected | 0.259 | 0.293 | 0.339 | 0.249 |
| Mean of exposed thermometer | 44°.2 | 36°.0 | 34°.3 | 26°.6 |
| Maximum of exposed thermometer | 52° | 45° | 41° | 37° |
| Minimum of exposed thermometer | 33° | 22° | 23° | 4° |
| Monthly range of exposed thermometer | 19° | 23° | 18° | 33° |
| Greatest daily range of exposed thermometer | 11° | 11° | 12° | 11° |
| Least daily range of exposed thermometer | 1° | 1° | 1° | 1° |
| Mean of maxima of exposed thermometer | 46°.8 | 38°.7 | 36°.2 | 29°.1 |
| Mean of minima of exposed thermometer | 41°.8 | 33°.3 | 31°.5 | 24° |
| Mean daily range of exposed thermometer | 5°.0 | 5°.4 | 4°.7 | 5°.1 |
| Mean relative humidity | 85.6 | 83.9 | 86.6 | 87.8 |
| Maximum relative humidity | 100 | 100 | 100 | 100 |
| Minimum relative humidity | 56 | 65 | 60 | 70 |
| Prevailing wind | N. | N. | S. | N. |
| Number of miles traveled by wind | 9,138 | 11,872 | 14,539 | 16,644 |
| Mean daily velocity of wind | 304.6 | 383 | 484.6 | 530.5 |
| Mean hourly velocity of wind | 12.7 | 16 | 20.2 | 22.1 |
| Maximum hourly velocity of wind | 33 | 42 | 74 | 53 |
| Proportion of cloudiness | 92 | 84 | 78.9 | 84 |
| Amount of rain-fall, in inches | 2.89 | 3.08 | 2.38 | 2.99 |
| Greatest daily amount of rain-fall | 0.85 | 0.58 | 0.31 | 0.42 |
| Amount of melted hail and snow (included in rain-fall) | 0.20 | 0.91 | 0.82 | 2.38 |
| Number of days on which precipitation occurred | 30 | 20 | 27 | 27 |
| Number of days on which hail or snow fell | 4 | 15 | 17 | 24 |

### 34. METEOROLOGICAL ABSTRACT, ETC.—Continued.

| Character of observation. | Months of record. | | | | Character of observation. | Months of record. | | | |
|---|---|---|---|---|---|---|---|---|---|
| | January. | February. | March. | April. | | January. | February. | March. | April. |
| Mean of barometer, corrected | 29.953 | 29.507 | 29.768 | 29.769 | Mean relative humidity | 85.7 | 86.2 | 81.8 | 84.29 |
| Maximum of barometer, corrected | 30.50 | 30.51 | 30.31 | 30.35 | Maximum relative humidity | 100 | 100 | 100 | 100 |
| Minimum of barometer, corrected | 29.32 | 28.26 | 29.05 | 29.00 | Minimum relative humidity | 53 | 49 | 46 | 63 |
| Monthly range of barometer, corrected | 1.18 | 2.25 | 1.26 | 1.35 | Prevailing wind | ENE. | N. | N. | N. |
| Greatest daily range of barometer, corrected | 0.58 | 0.95 | 0.66 | 0.73 | Number of miles traveled by wind | 17,903 | 16,646 | 14,512 | 18,607 |
| Least daily range of barometer, corrected | 0.03 | 0.06 | 0.05 | 0.03 | Mean daily velocity of wind | 577.5 | 594.3 | 468.1 | 620.2 |
| Mean daily range of barometer, corrected | 0.194 | 0.421 | 0.219 | 0.242 | Mean hourly velocity of wind | 24.1 | 24.8 | 19.5 | 25.84 |
| Mean of exposed thermometer | 15°.7 | 18°.6 | 12°.6 | 23°.9 | Maximum hourly velocity of wind | 43 | 82 | 88 | 53 |
| Maximum of exposed thermometer | 34° | 34° | 35° | 35° | Proportion of cloudiness | 62.8 | 74.9 | 68 | 73.6 |
| Minimum of exposed thermometer | —11° | —12° | — 7° | 3° | Amount of rain-fall, in inches | 0.96 | 5.78 | 1.21 | 1.77 |
| Monthly range of exposed thermometer | 45° | 46° | 42° | 32° | Greatest daily amount of rain-fall | 0.39 | 1.07 | 0.38 | 0.50 |
| Greatest daily range of exposed thermometer | 22° | 28° | 20° | 24° | Amount of melted hail and snow (included in rain-fall) | 0.83 | 4.87 | 1.21 | 1.77 |
| Least daily range of exposed thermometer | 0° | 3° | 3° | 3° | | | | | |
| Mean of maxima of exposed thermometer | 18°.9 | 22°.6 | 17°.1 | 27°.9 | Number of days on which precipitation occurred | 21 | 27 | 27 | 26 |
| Mean of minima of exposed thermometer | 11°.9 | 15°.1 | 7°.4 | 19°.4 | | | | | |
| Mean daily range of exposed thermometer | 7°.0 | 7°.5 | 9°.7 | 8°.5 | Number of days on which hail or snow fell | 20 | 25 | 27 | 26 |

CLASSIFICATION OF THE WINDS.—The winds, here, may be classified under two heads: *Summer winds*—Blowing fresh during June, July, and August, principally from the west-northwest, varied with light airs from the northeast, and a gale or two from the southwest, lasting a day or so. *Winter winds*—Stirring fresh, to gales, throughout September to June, principally from the northwest to north-northeast; the "boorgas", or snow and sleet storms, coming invariably from that direction. One or two heavy southeasters occur every fall, as a rule; in October generally; the brief lulls between blasts during this season are occupied by light southerly airs.

The summer winds are always charged with fog; while the winter gales usually blow out clear, unless accompanied with sleety spiculæ or snow. In Siberia, Wrangell says that the southwest breezes are the coldest; the north-northwest ones are such here. The southerly airs are mild; but, I never felt any especial warmth when exposed to them.

CHARACTERISTICS OF BERING SEA ICE.—The descriptions which Wrangell, Demetri Laptev, and Hendenstrom have given of the behavior of the ice packs, between the Kolyma mouth and Cape Chelagsköi, were duplicated, in all their details, by the floes which environed St. Paul during the winter of my residence there. On the 27th May, 1873, the ice fields around the island seemed as solid and unbroken to every point of the compass as they had for the five months preceding; and night settled over them in this shape; early in the morning of the following day, I arose, and, judge of my pleasant astonishment in viewing the open waters of Bering sea on every hand; the only suggestions left of its icy fetters were the numerous scattered cakes of thickest floes, which bobbed about at wide intervals, there was little or no strong wind attending this sudden dissolution. The decomposition of the ice had taken place so secretly that its final relegation to its original form was fairly accomplished almost instantly and simultaneously, and without warning to human eyes; the alternate layering of salt, in ocean water ice, accounts for this peculiar vanishing of sea floes.

THE FAILURE OF THE BAROMETER IN BERING SEA.—Pre-eminent among the many difficulties in the path of the mariner who may be cruising in Bering sea, is the fact that his barometer, which gives such timely and intelligent signals of warning, or of confidence, everywhere on the high seas of the earth, is, up here, by some reason or other, wholly impotent; and does nothing to aid, and everything to confuse and distress the sailor. Captain M. C. Erskine assured me of this; and his declaration is proof positive to my mind; he is undoubtedly, by the long experience of more than fourteen consecutive seasons' sailing in and out of Bering sea, 1867–1880 (this year's trip will make his fifteenth summer in those waters), the most thoroughly posted man, living, in regard to the currents, tides, winds and waves of the northwest coast between San Francisco and Bering straits.

With the exception of what Parry says in his narrative of his third voyage (1824), I do not find any specific mention made of this behavior of the barometer in the north; all of the arctic seamen, unquestionably, fully understand its utter worthlessness to them. Parry declares (Harper's *Family Library*, p. 66, vol. ii) "the indications of the barometer previous to and during this gale deserve to be noticed, because it is only about Cape Farewell that, in coming from the northward down Davis strait, this instrument begins to speak a language which has ever been intelligible to us as a weather-glass".

During the course of my cruise in Bering sea, July–September, 1874, the barometer was carefully noted, and Captain Baker of the "Reliance" satisfied himself that the less attention he gave to it the better, as far as the success of our voyage was concerned.

## 34. THE METHOD OF DRESSING THE FUR-SEAL SKIN.

HOW SEAL-SKINS ARE DRESSED.—As a matter of interest to so large a proportion of our people who delight in the possession of, or covet, a seal-skin sacque, I have taken the liberty of republishing the following letter in a previous brochure; and, as it answers now equally well, in reply to the query as to how the natural seal-skin is tanned, plucked, and dyed so as to pass the ordeal of fashionable dress-parade, I herewith reproduce it, stating simply, in doing so, that the writer is a very successful operator, and one whose work, when finished from his hands, is said to be always equal, and often superior, to the best English manufacture. It was written to me in answer to my question, by the senior member of the firm undersigned:

ALBANY, *October* 22, 1874.

SIR: The Alaska Commercial Company sold in London, December, 1873, about 60,000 skins taken from the islands leased by our government, of the catch of 1873. The remainder of the catch, about 40,000, were sold in March. This company have made the collection of seal from these islands much more valuable than they were before their lease, by the care used by them in curing the skins and taking them only when in season. We have worked this class of seal for several years—when they were owned by the Russian American Fur Company, and during the first year they were owned by our government.

When the skins are received by us in the salt, we wash off the salt, placing them upon a beam somewhat like a tanner's beam, removing the fat from the flesh side with a beaming-knife, care being required that no cuts or uneven places are made in the pelt. The skins are next washed in water and placed upon the beam with the fur up, and the grease and water removed by the knife. The skins are then dried by moderate heat, being tacked out on frames to keep them smooth. After being fully dried, they are soaked in water and thoroughly cleansed with soap and water. In some cases they can be unhaired without this drying process, and cleansed before drying. After the cleansing process they pass to the picker, who dries the fur by stove-heat, the pelt being kept moist. When the fur is dry he places the skin on a beam, and while it is warm he removes the main coat of hair with a dull shoe-knife, grasping the hair with his thumb and knife, the thumb being protected by a rubber cob. The hair must be pulled out, not broken. After a portion is removed the skin must be again warmed at the stove, the pelt being kept moist. When the outer hairs have been mostly removed, he uses a beaming-knife to work out the finer hairs (which are shorter), and the remaining coarser hairs. It will be seen that great care must be used, as the skin is in that soft state that too much pressure of the knife would take the fur also; indeed, bare spots are made. Carelessly-cured skins are sometimes worthless on this account. The skins are next dried, afterward dampened on the pelt side, and shaved to a fine, even surface. They are then stretched, worked, and dried; afterward softened in a fulling-mill, or by treading them with the bare feet in a hogshead, one head being removed and the cask placed nearly upright, into which the workman gets with a few skins and some fine, hardwood sawdust, to absorb the grease while he dances upon them to break them into leather. If the skins have been shaved thin, as required when finished, any defective spots or holes must now be mended, the skin smoothed and pasted with paper on the pelt side, or two pasted together to protect the pelt in dyeing. The usual process in the United States, is to leave the pelt sufficiently thick to protect them without pasting.

In dyeing, the liquid dye is put on with a brush, carefully covering the points of the standing fur. After lying folded, with the points touching each other, for some little time, the skins are hung up and dried. The dry dye is then removed, another coat applied, dried, and removed, and so on until the required shade is obtained. One or two of these coats of dye are put on much heavier and pressed down to the roots of the fur, making what is called the ground. From eight to twelve coats are required to produce a good color. The skins are then washed clean, the fur dried, the pelt moist. They are shaved down to the required thickness, dried, working them some while drying, then softened in a hogshead, and sometimes run in a revolving cylinder with fine sawdust to clean them. The English process does not have the washing after dyeing.

I should, perhaps, say that, with all the care used, many skins are greatly injured in the working. Quite a quantity of English dyed seal-skins were sold last season for $17, damaged in the dye.

The above is a general process, but we are obliged to vary for different skins. Those from various parts of the world require different treatment; and there is quite a difference in the skins from the seal-islands of our country—I sometimes think about as much as in the human race.

Yours, with respect,

GEO. C. TREADWELL & CO.

H. W. ELLIOTT, Esq.

FUR-SEAL SKINS ARE OF PERMANENT VALUE.—I have frequently been asked whether, in the light of probabl caprices of fashion, the value of fur-seal skins would at times shrink to a mere nominal figure, or not. I think the history of this trade during the last twenty years, at least, and since the skins have been treated for market a above recited, that this record shows the fur-seal skin to be an article of intrinsic value, just as objects of luxurious gold and silver work, of precious stones, are, and always will be, no matter what the style may decree. That the demand made by the "mode" will sensibly appreciate their fixed high value is also very certain, as it does so to-day; but, withdraw it, the seal-skin is still a costly purchase to the wearer, and will ever be so.

## 35. BERING, *NOT* BEHRING.

BERING, HIMSELF, WROTE HIS NAME, "BERING".—I, myself, do not understand the reason why a false sound should be given to this navigator's name, when our alphabet is fully equal to its correct rendition. Here is the way the Russians write it, and Bering himself signed his name Бирингъ = Bering, (or Bereng), exactly in our own letter sounds. Yet this unwarranted corruption of the true equivalent of a celebrated name continues to be the common form of its expression by publication in England and this country. The Russians and the Danes sound the letter "r" in Bering precisely as we do; and the softened flattened sound of "r", indicated by *Behring*, is an error that should be avoided. It is originally a German corruption. Those Teutonic writers have made the Russian nomenclature, as translated for us, by them, look strange and sound odd to hundreds of English minds who know better; but Forster, whom I quote below, was also a German, and hence his testimony to the correct orthography of the subject in question, is all the more valuable, especially so, since he says in the preface to his work there cited: "The numerous researches upon which, more especially in the ancient part, and that relative to the middle ages, I was obliged to enter, the multifarious departments of learning, from which I have derived some of the following notes and remarks, *the orthography of a proper name*, has frequently cost me hours, and sometimes whole days."

COGENT REASONS WHY IT IS "BERING".—Also in this relation, Professor Gill, of the Smithsonian Institution, informs me that "the name of the navigator, which has been conferred on the strait separating America and Asia, is unquestionably spelled BERING and not BEHRING. I submit in explanation my reasons: 1st. The navigator himself was born in Jutland, and a scion of a Danish family, whose members bore the name of Bering, and two representatives of which had the same Christian name, viz, (1) Vitus Bering, born 1617, died 1675, some time professor of poetry at Copenhagen, and (2) Vitus Bering, born 1682, died 1753, a priest of Ollerup and Kirkeby. The form *Behring*, so far as I can ascertain, is unknown in Denmark (see Nyerup's Dansk-Norsk Litteratur-Lexicon: v. i, pp. 56, 57, 1818). 2d. The form *Bering* is almost (but not quite) universally adopted in all non-English works, for example, Biographie Universelle (Michaud): v. 4, p. 261, 1811; also nouv. éd.: v. 4, p. 28, 1854; Nouvelle Biographie Générale (Hoefer): v. 5, p. 527, 1855; Allgemeine Encyclopädie der Wissenschaften und Künste (Ersch und Gruber): v. 9, p. 136, 1822; Neues Konversations-Lexicon (Meyer's): v. 3, p. 238, 1862; Deutsch-Amerikanisches Conversations-Lexicon (Schem): v. 2, p. 296, 1869, and numerous others. The exceptional cases are Pierer's Universal Lexicon, Grand Dictionnaire Universel du xix^e^ siècle, etc. In English dictionaries, the true form, *Bering*, is adopted in the Brief Biographical Dictionary, by Holes, 1865, and the Dictionary of Biographical Reference, by Phillips, 1871, and is gradually superseding the more familiar English form. An explanation of the reason of the origin of the name *Behring*, is found in the fact that it was originally derived from the Russian, without a knowledge of its primitive source, and was the supposed English phonetic expression of the Russian characters. Inasmuch, however, (1) as the original form of a name, without regard to its pronunciation, is universally adopted in our biographies and bibliographies, and (2) as the original form of the navigator's name was *Bering*, such is the correct one, and that which must ultimately supersede the other. It need only be added that Bering himself, and the Russians universally, (?) adopt that form when writing in English characters, and that the Russian letter ('и') in his name, represented by 'eh,' is especially ordained by the Russians to be rendered by the Latin character 'e,' in accordance with the pronunciation of the Latin and continental races generally."

In addition to this clear statement by Professor Gill, I desire to add the following: John Reinhold Forster, I. U. D., who sailed around the world with Captain Cook—a man that universally commanded respect in his day as a scholar and a high-minded gentleman—in his *Voyages and Discoveries in the North*, London, 1783, pp. 401–402, writes: "Nevertheless, it would be still more proper to make this strait a kind of monument to the very deserving and truly great navigator, *Veit Bering*, by naming it, after him, *Bering straits*."

THE COMMON ERROR OF "OFF" FOR "OV".—Furthermore, in this connection, it will be noticed that I do not spell the common Russian terminative "овъ" as "-off"; these letters "овъ" in the Russian, are sounded by their makers exactly as we would "*ov*" in our own alphabet; for instance, take the name "*Baranov*," or "Барановъ" in the Russian; the common English and German spelling in our language is "*Baranoff*"; but, when these same writers come to "Барановичъ", instead of making it "*Baranofitch*", according to their first erroneous rule, they spell it correctly, "*Baranovitch*." In the same way they murder "*Pribylov*"; but did they chance to write it in the possessive, it would appear correctly as "*Pribylova*", and not "*Pribyloffa*". The Russians have our letter "*f*", as "ф" in their alphabet; and they use it freely when they want to express that same sound of "*f*" in our tongue; for instance, in "*Timothy*", they always say "*Timofay*" (Тимофейъ): "*Officer*," is "*Offitsar*," etc.

THE UNWARRANTED "W" FOR "V".—This unsettled state of English orthography, as far as it relates to the introduction and correct rendition of Russian nomenclature, produces much embarrassment and annoyance to any writer who may seek for a fixed rule; not only do no two authors agree, but these authorities themselves are guilty of the inconsistencies which I have pointed out above. Thus, these German translations of the Russian have given us "Moscow", when there is no sound of "W" in the Russian language or suggestion of it in that facile and extensive alphabet of nearly forty letters. In the case of Moscow, I presume we must be guided by the authority and example of Gibbon, who declares that "some words, notoriously corrupt, are fixed, and as it were, naturalized in the vulgar tongue. The prophet *Mohammed* can no longer be stripped of the famous, though improper, appellation of *Mahomet*; the well-known cities of *Aleppo*, *Damascus*, and *Cairo*, would almost be lost in the strange descriptions of *Haleb*, *Damashk*, and *Al Cahira*."

HIGH TIME TO CORRECT SUCH BLUNDERS.—But, in all kindness, I submit that the name of Bering has not been so firmly travestied as has that of the Arabic chief, and ought not to be passed down misspelled on the map of the great sea and straits which perpetuate and commemorate his being. And it is high time such numberless outrages as "Wolga", for "Volga"; "Kiew", for "Kiev"; "Azow", for "Azov"; "Pribiloff", for "Pribylov"; "Werst", for "Verst", be corrected in all future printing of Russian nomenclature.

## 36. THE LAW PROTECTING THE SEAL-ISLANDS.

AN ACT to prevent the extermination of fur-bearing animals in Alaska.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That it shall be unlawful to kill any fur-seal upon the islands of St. Paul and St. George, or in the waters adjacent thereto, except during the months of June, July, September, and October, in each year; and it shall be unlawful to kill such seals at any time by the use of fire-arms, or use of other means tending to drive the seals away from said islands: *Provided,* That the natives of said islands shall have the privilege of killing such young seals as may be necessary for their own food and clothing during other months, and also such old seals as may be required for their own clothing and for the manufacture of boats for their own use, which killing shall be limited and controlled by such regulations as shall be prescribed by the Secretary of the Treasury.

SEC. 2. *And be it further enacted,* That it shall be unlawful to kill any female seal, or any seal less than one year old, at any season of the year, except as above provided; and it shall also be unlawful to kill any seal in the waters adjacent to said islands, or on the beaches, cliffs, or rocks where they haul up from the sea to remain; and any person who shall violate either of the provisions of this or the first section of this act, shall be punished on conviction thereof, for each offense, by a fine of not less than two hundred dollars nor more than one thousand dollars, or by imprisonment not exceeding six months, or by both such fine and imprisonment, at the discretion of the court having jurisdiction and taking cognizance of the offenses; and all vessels, their tackle, apparel, and furniture, whose crew shall be found engaged in the violation of any of the provisions of this act, shall be forfeited to the United States.

SEC. 3. *And be it further enacted,* That for the period of twenty years from and after the passage of this act, the number of fur-seals which may be killed for their skins upon the island of St. Paul is hereby limited and restricted to seventy-five thousand per annum; and the number of fur-seals which may be killed for their skins upon the island of St. George, is hereby limited and restricted to twenty-five thousand per annum: *Provided,* That the Secretary of the Treasury may restrict and limit the right of killing, if it shall become necessary for the preservation of such seals, with such proportionate reduction of the rents reserved to the government as shall be right and proper; and if any person shall knowingly violate either of the provisions of this section, he shall, upon due conviction thereof, be punished in the same way as is provided herein for a violation of the provisions of the first and second sections of this act.

SEC. 4. *And be it further enacted,* That immediately after the passage of this act, the Secretary of the Treasury shall lease, for the rental mentioned in section 6 of this act, to proper and responsible parties, to the best advantage of the United States, having due regard to the interests of the government, the native inhabitants, the parties heretofore engaged in the trade, and the protection of the seal-fisheries, for a term of twenty years from the 1st day of May, 1870, the right to engage in the business of taking fur-seals on the islands of St. Paul and St. George, and to send a vessel or vessels to said islands for the skins of such seals, giving to the lessee or lessees of said islands a lease duly executed, in duplicate, not transferable, and taking from the lessee or lessees of said islands a bond, with sufficient sureties, in a sum not less than $500,000, conditioned for the faithful observance of all the laws and requirements of Congress, and of the regulations of the Secretary of the Treasury touching the subject-matter of taking fur-seals and disposing of the same, and for the payment of all taxes and dues accruing to the United States connected therewith. And in making said lease the Secretary of the Treasury shall have due regard to the preservation of the seal-fur trade of said islands, and the comfort, maintenance, and education of the natives thereof. The said lessees shall furnish to the several masters of vessels employed by them certified copies of the lease held by them, respectively, which shall be presented to the government revenue-officer for the time being, who may be in charge at the said islands, as the authority of the party for landing and taking skins.

SEC. 5. *And be it further enacted,* That at the expiration of said term of twenty years, or on surrender or forfeiture of any lease, other leases may be made in manner as aforesaid for other terms of twenty years; but no persons other than American citizens shall be permitted, by lease or otherwise, to occupy said islands, or either of them, for the purpose of taking the skins of fur-seals therefrom, nor shall any foreign vessel be engaged in taking such skins; and the Secretary of the Treasury shall vacate and declare any lease forfeited, if the same be held or operated for the use, benefit, or advantage, directly or indirectly, of any person or persons other than American citizens. Every lease shall contain a covenant on the part of the lessee that he will not keep, sell, furnish, give, or dispose of any distilled spirits or spirituous liquors on either of said islands to any of the natives thereof, such person not being a physician and furnishing the same for use as medicine; and any person who shall kill any fur-seal on either of said islands, or in the waters adjacent thereto (excepting natives as provided by this act), without authority of the lessees thereof, and any person who shall molest, disturb, or interfere with said lessees, or either of them, or their agents or employés, in the lawful prosecution of their business, under the provisions of this act, shall be deemed guilty of a misdemeanor, and shall for each offense, on conviction thereof, be punished in the same way and by like penalties as prescribed in the second section of this act; and all vessels, their tackle, apparel, appurtenances, and cargo, whose crews shall be found engaged in any violation of either of the provisions of this section, shall be forfeited to the United States; and if any person or company, under any lease, herein authorized, shall knowingly kill, or permit to be killed, any number of seals exceeding the number for each island in this act prescribed, such person or company shall, in addition to the penalties and forfeitures aforesaid, also forfeit the whole number of the skins of seals killed in that year, or, in case the same have been disposed of, then said person or company shall forfeit the value of the same. And it shall be the duty of any revenue officer, officially acting as such on either of said islands, to seize and destroy any distilled spirits or spirituous liquors found thereon; *Provided*, That such officer shall make detailed report of his doings to the collector of the port.

SEC. 6. *And be it further enacted*, That the annual rental to be reserved by said lease, shall be not less than fifty thousand dollars per annum, to be secured by deposit of United States bonds to that amount, and in addition thereto a revenue tax or duty of two dollars is hereby laid upon each fur-seal skin taken and shipped from said islands during the continuance of such lease, to be paid into the Treasury of the United States; and the Secretary of the Treasury is hereby empowered and authorized to make all needful rules and regulations for the collection and payment of the same; and to secure the comfort, maintenance, education, and protection of the natives of said islands, and also for carrying into full effect all the provisions of this act; *Provided*, That the Secretary of the Treasury may terminate any lease given to any person, company, or corporation, on full and satisfactory proof of the violation of any of the provisions of this act, or rules and regulations established by him.

SEC. 7. *And be it further enacted*, That the provisions of the seventh and eighth sections of an act entitled "An act to extend the laws of the United States relating to customs, commerce, and navigation over the territory ceded to the United States by Russia, to establish a collection district therein, and for other purposes", approved July 27, 1868, shall be deemed to apply to this act; and all prosecution for offenses committed against the provisions of this act, and all other proceedings had because of the violations of the provisions of this act, and which are authorized by said act above mentioned, shall be in accordance with the provisions thereof, and all acts and parts of acts inconsistent with the provisions of this act are hereby repealed.

SEC. 8. *And be it further enacted*, That the Congress may at any time hereafter alter, amend, or repeal this act.

Approved July 1, 1870.

AMENDED, MARCH 24, 1874.—*Be it enacted, etc.*, That the act entitled "An act to prevent the extermination of fur-bearing animals in Alaska", approved July first, eighteen hundred and seventy, is hereby amended so as to authorize the Secretary of the Treasury, and he is hereby authorized, to designate the months in which the fur-seals may be taken for their skins on the islands of St. Paul and St. George, in Alaska, and in the waters adjacent thereto, and the number to be taken on or about each island respectively.

## 37. THE ORGANIZATION AND REGULATIONS OF THE ALASKA COMMERCIAL COMPANY.

### BY-LAWS OF THE ALASKA COMMERCIAL COMPANY, SAN FRANCISCO, CALIFORNIA.

I. The corporate name of this company is the Alaska Commercial Company, and its affairs are under the control of five trustees, who shall hereafter be chosen by the stockholders of the company on the second Wednesday of June in each year, and who shall hold office until their successors are elected. The annual meetings of the stockholders shall be held at the office of the company. At all elections of trustees by the stockholders, each stockholder shall be entitled to one vote for every share of stock held by him on the books of the company. Stockholders may vote by proxy. All proxies shall be signed by the party owning the stock represented.

II. The principal place of business of the company is San Francisco, California.

III. The regular meetings of the board of trustees will be held at the office of the company on the first Wednesday in each month, at 12 o'clock m., and no notice of such meeting to any of the trustees shall be requisite. Other meetings of the board of trustees may be held upon the call of the president, by notice, signed by him, of the time and place of meeting, personally served on each trustee residing within this state, or published in a newspaper of general circulation in San Francisco for ten days successively next preceding the day of such meeting. Special meetings may be held upon notice, signed by three trustees, stating the time and place of meeting, and the purpose for which the meeting is called, having been duly served on each trustee, or published in a newspaper of general circulation in San Francisco for ten days successively next preceding the day of meeting, and no business other than that specified in the notice shall be transacted at such special meeting. At all meetings of the board any three of the trustees being present shall constitute a quorum for the transaction of the business of the company. Adjourned meetings may be held in pursuance of a resolution of the board adopted at any regular or general meeting of the board. Any three trustees elected at any annual meeting of the stockholders of the company, and being present at the close of such stockholders' meeting may, on the same day, without notice to any of the trustees, meet and organize the board by the election of officers, and may transact such other business as may come before the board at such meeting.

IV. The officers of the company shall consist of a president, a vice-president, and a secretary, who shall be chosen by the board of trustees at their first meeting after the annual election of trustees; such officers to hold office one year, or until their successors are elected.

V. The president, or in his absence the vice-president, shall preside at the meetings of the board. In case neither is present, the board may appoint a president *pro tempore.*

VI. All vacancies in the board may be filled by the board at the next meeting after the existence of such vacancy, and it shall require the affirmative vote of three trustees to elect. In case of any vacancy occurring among the officers or agents of the company, the same may be filled at any meeting of the board.

VII. All certificates of the capital stock of the company shall be signed by the president and secretary, attested by the corporate seal of the company, and can be issued to the parties entitled thereto or their authorized agent. All transfers of stock shall be made on the books of the company by the secretary, upon surrender of the original certificate or certificates, properly indorsed by the party in whose favor the same was issued. No stock shall be transferred to any person not a stockholder of the company at the time of such transfer, unless the same shall have been offered for sale to the company, or stockholders of the company, and the purchase at the fair cash or market value refused, except by authority of a resolution of the board of trustees permitting such transfer.

VIII. The corporate seal of the company consists of a die of the following words: "Alaska Commercial Company, San Francisco, California."

IX. The corporate seal, and all property, securities, interests and business of the company, shall be under the control and general management of the president, subject to the direction of the board of trustees. The funds of the company shall be deposited (from time to time as they are received) to the credit of the company, with a bank doing business in San Francisco, to be designated by the president, and the said funds can be drawn from such bank only by proper checks or drafts, signed by the president or vice-president of the company. The books of the company shall be kept by the secretary, who shall also keep a correct record of all the proceedings of the board of trustees had at their meetings, and perform such other duties as the board of trustees may require.

X. The pay and salaries of all officers of the company shall be determined, from time to time, by the board of trustees.

XI. The president of the company shall have power to appoint and employ such general business agents, factors, attorneys, clerks, and other employés as he may deem proper and requisite for conducting the business and affairs of the company; and he shall fix the pay, commissions, or salaries of all such agents, factors, attorneys, clerks, and other employés, from time to time, as circumstances shall require.

XII. All transfers of the capital stock of this company, made to persons not citizens of the United States, or made for the use or benefit of any citizen or citizens of any foreign government, are absolutely void.

XIII. Dividends from the net profits of the company may be declared and paid by order of the board of trustees, in accordance with law.

XIV. These by-laws may be altered or amended by the board of trustees in the manner prescribed by law.

### REGULATIONS FOR CONDUCT OF AFFAIRS ON THE SEAL-ISLANDS.

OFFICE ALASKA COMMERCIAL COMPANY,
SAN FRANCISCO, *January*, 1872.

The following regulations are prescribed for the guidance of all concerned:

1. The general management of the company's affairs on the islands of St. Paul and St. George is intrusted to one general agent, whose lawful orders and directions must be implicitly obeyed by all subordinate agents and employés.

*2. Seals can only be taken on the islands during the months of June, July, September, and October in each year, except those killed by the native inhabitants, for food and clothing, under regulations prescribed by the Secretary of the Treasury. Female seals and seals less than one year old will not be killed at any time, and the killing of seals in the waters surrounding the islands, or on or about the rookeries, beaches, cliffs, or rocks, where they haul up from the sea to remain, or by the use of fire-arms, or any other means tending to drive the seals away from the islands, is expressly forbidden.

3. The use of fire-arms on the islands, during the period from the first arrival of seals in the spring season until they disappear from the islands in autumn, is prohibited.

4. No dogs will be permitted on the islands.

5. No person will be permitted to kill seals for their skins on the islands, except under the supervision and authority of the agents of the company.

6. No vessels other than those employed by the company, or vessels of the United States, will be permitted to touch at the islands, or to land any persons or merchandise thereon, except in cases of shipwreck or vessels in distress.

*7. The number of seals which may be annually killed for their skins on St. Paul island is limited to 75,000, and the number which may be so killed on St. George island is limited to 25,000.

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* Sections 2 and 7 of the above regulations were based upon the law of July 1, 1870; but since then Congress has given the Secretary of the Treasury the power to fix the ratio for each island upon a more intelligent understanding of the subject, and also to extend the time for taking seal-skins, from the 1st of June up to the 15th of August.—H. W. E.

8. No persons other than American citizens, or the Aleutian inhabitants of said islands, will be employed by the company on the islands in any capacity.

9. The Aleutian people living on the islands will be employed by the company in taking seals for their skins, and they will be paid for the labor of taking each skin and delivering the same at the salt-house forty cents, coin, until otherwise ordered by the Secretary of the Treasury. For other labor performed for the company, proper and remunerative wages will be paid, the amount to be agreed upon between the agents of the company and the persons employed. The working-parties will be under the immediate control of their own chiefs, and no compulsory means will ever be used to induce the people to labor. All shall be free to labor or not, as they may choose. The agents of the company will make selection of the seals to be killed, and are authorized to use all proper means to prevent the cutting of skins.

10. All provisions and merchandise required by the inhabitants for legitimate use will be furnished them from the company's stores, at prices not higher than ordinary retail prices at San Francisco, and in no case at prices above 25 per cent. advance on wholesale or invoice prices in San Francisco.

11. The necessary supplies of fuel, oil, and salmon will be furnished the people *gratis*.

12. All widows and orphan children on the islands will be supported by the company.

13. The landing or manufacture on the islands of spirituous or intoxicating liquors or wines will, under no circumstances, be permitted by the company, and the preparation and use of fermented liquors by the inhabitants must be discouraged in every legitimate manner.

14. Free transportation and subsistence on the company's vessels will be furnished all people who at any time desire to remove from the islands to any place in the Aleutian group of islands.

15. Free schools will be maintained by the company eight months in each year, four hours per day, Sundays and holidays excepted, and agents and teachers will endeavor to secure the attendance of all. The company will furnish the necessary books, stationery, and other appliances for the use of the schools, without cost to the people.

16. The physicians of the company are required to faithfully attend upon the sick, and both medical attendance and medicines shall be free to all persons on the islands; and the acceptance of gratuities from the people for such services is forbidden.

17. The dwelling-houses now being erected by the company will be occupied by the Aleutian families free of rent or other charges.

18. No interference on the part of the agents or employés of the company in the local government of the people on the islands, or in their social or domestic relations, or in their religious rites or ceremonies, will be countenanced or tolerated.

19. It is strictly enjoined upon all agents and employés of the company to at all times treat the inhabitants of the islands with the utmost kindness, and endeavor to preserve amicable relations with them. Force is never to be used against them, except in defense of life, or to prevent the wanton destruction of valuable property. The agents and employés of the company are expected to instruct the native people in household economy, and, by precept and example, illustrate to them the principles and benefits of a higher civilization.

20. Faithful and strict compliance with all the provisions and obligations contained in the act of Congress entitled "An act to prevent the extermination of fur-bearing animals in Alaska", approved July 1, 1870, and the obligations contained in the lease to the company executed in pursuance of said act, and the regulations of the Secretary of the Treasury, prescribed under authority of said act, is especially enjoined upon all agents and employés of the company. The authority of the special agents of the Treasury appointed to reside upon the islands must be respected, whenever lawfully exercised. The interest of the company in the management of the seal-fisheries being identical in character with that of the United States, there can be no conflict between the agents of the company and the agents of the government, if all concerned faithfully perform their several duties and comply with the laws and regulations.

21. The general agent of the company will cause to be kept books of record on each island, in which shall be recorded the names and ages of all the inhabitants of the islands, and, from time to time, all births, marriages, and deaths which may occur on the islands, stating, in cases of death, the causes of the same. A full transcript of these records will be annually forwarded to the home office at San Francisco.

22. Copies of these regulations will be kept constantly posted in conspicuous places on both islands, and any willful violation of the same by the agents or employés of the company will be followed by the summary removal of the offending party.

JOHN F. MILLER,
*President Alaska Commercial Company.*

General Miller, in January, 1881, was elected, by the legislature of California, to the Senate of the United States. He is succeeded as president of the Alaska Commercial Company by Mr. Lewis Gerstle, who is one of the original stockholders, and who has always been prominently identified with the business. The affairs of the company are now principally managed by Messrs. Gerstle, Sloss, Niebaum, and Neumann, on the Pacific coast; by Mr. Hutchinson, at Washington; and Sir Curtis Lampson in London.

## 38. COMMENTS UPON THE LEGISLATION OF CONGRESS.

RATIO OF CATCH AT FIRST INCORRECTLY APPORTIONED.—The original text of the existing law for the protection of the seal-islands, provides that the 100,000 seals which may be annually taken from them shall be proportioned by killing 75,000 on St. Paul and 25,000 on St. George. This ratio was based evidently upon the foregoing table of Veniaminov, which, if accurate, would clearly show that fully one-third as many seals repaired to the smaller island as to the larger one, and until I made my surveys, 1872–'74, it was so considered by all parties interested. The fact, however, which I soon discovered, is that St. George receives only one-eighteenth of the whole aggregate of fur-seal visitation peculiar to the Pribylov islands, St. Paul entertaining the other seventeen parts.

REASON FOR AMENDMENT OF 1874.—This amazing difference, in the light of prior knowledge and understanding, caused me, on returning to Washington in October, 1873, to lay the matter before the Treasury Department, and ask that the law be so modified that, in the event of abnormally warm killing-seasons, a smaller number might be taken from St. George, with a corresponding increase at St. Paul; for, unless this was done, it might become at any season a matter of great hardship to secure 25,000 killable seals on St. George, in the short period allotted by the law of July 1, 1870. The Treasury Department, while fully concurring in my representations, seemed to doubt its power to do so; then, with its sanction, I carried the question before Congress, January, 1874, and secured from that body an amendment of the act of July 1, 1870, above quoted in full (act, etc., approved March 24, 1874), which gives the Secretary of the Treasury full discretion in the matter, and fixes the hitherto inflexible ratio of killing on each island upon a sliding scale, as it were, for adjustment from season to season, upon a more intelligent understanding of the subject; and, also, this amendatory act grants an extension of the legal limit of killing, by giving the Secretary of the Treasury the power to fix it annually.

LAW WORKS WELL.—As the law is now amended, the killing on the two islands can be sensibly adjusted each season, by the relative number of seals on the two islands, which will vary so markedly on St. George according as it may be abnormally dry and warm when the period for driving the "holluschickie" is at hand.*

SPECIAL AGENTS OF THE TREASURY DEPARTMENT.—Prior to March, 1872, the supervision of the Treasury Department over its interests on the Pribylov islands was directed by the detail of special agents from the Secretary, who paid them out of a contingent fund of $50,000, which Congress voted in 1868 for the "collection of customs" in Alaska; this appropriation running out, the secretary drew the following bill, which Congress adopted, and it was approved March 5, 1872:

> SECTION I. *Be it enacted, etc.,* That the Secretary of the Treasury be, and he is hereby, authorized to appoint one agent and three assistant agents, who shall be charged with the management of the seal-fisheries in Alaska, and the performance of such other duties as may be assigned to them by the Secretary of the Treasury; and the said agent shall receive the sum of ten dollars *per diem;* one assistant agent the sum of eight dollars *per diem;* and two assistant agents the sum of six dollars each *per diem* while so employed; and they shall also be allowed their necessary traveling expenses in going to and returning from Alaska, such expenses not to exceed the sum of three hundred dollars in any one year.
>
> SEC. II. *And be it further enacted,* That the Secretary of the Treasury be, and is hereby, authorized to erect a dwelling-house upon each of the islands of St. Paul and St. George, for the use of said agents, the cost of both not to exceed the sum of six thousand dollars.
>
> SEC. III. *And be it further enacted,* That the said agents be, and they are hereby, empowered to administer oaths in all cases relating to the service of the United States, and to take testimony in Alaska for the use of the government in any manner concerning the public revenues.

Under this law the present force of treasury officers is creditably maintained on the Pribylov islands. Living there, as they do, in perfect isolation, so far from headquarters, it is necessary that, to insure the personal ability of the officers to be out on the killing-grounds in the sealing-season, two agents at least should be detailed upon each island, as they are; should one fall sick, then the other is on hand. The work every year of taking the seals, like the moving of the tides, cannot and will not wait for any man; it is literally "now or never!" with its conduct.

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*Upon my urgent and persistent representations, the law directing, and appropriating for, the maintenance of a revenue cutter in Alaska waters, for the protection of the seal-islands and sea-otter hunting-grounds, was inserted in the sundry civil budget for 1877; and, in May of that year, the late Capt. George W. Bailey, in the United States revenue marine cutter "Richard Rush", sailed on that errand from San Francisco. This special service has been continued ever since, and now will remain a regularly sustained action on the part of the department, I trust. The excellent record and efficiency of the supervision rendered by the revenue marine in Alaska has been so well maintained and is so apparent, that I do not see how it can be suffered to fall. It is the only effective arm of the United States government in that region, or that has ever been so. All travel in that country is essentially by water; nine-tenths of its people live by the seaside.

The fur-seals of Alaska, collectively and individually, are the property of the general government, and for their special and sole protection the extra legislation of July, 1870, was designedly enacted. Every fur-seal playing in the waters of Bering sea around about the Pribylov islands, no matter if found so doing one hundred miles away from those rookeries, belongs there, has been begotten and born thereon, and is the animal that the explicit shield of the law protects; no legal sophism or quibble can cloud the whole truth of my statement. Construe the law otherwise, then a marine license of hunting beyond a marine league (3 miles) from the shores of the Pribylov islands, would soon raise up such a multitudinous fleet, that its cruising could not fail, in a few short years, in so harassing and irritating the breeding-seals as to cause their withdrawal from the Alaskan rookeries, and probable retreat to those of Russia—a source of undoubted Muscovitic delight and emolument, and of corresponding shame and loss to us.

The matter is, however, now thoroughly appreciated and understood at the Treasury Department, and has been during the past four years, as the seal pirates have discovered to their chagrin and discomfiture.

## 39. PARAGRAPHS OF REFERENCE RELATIVE TO SUBJECTS DISCUSSED IN THE PRECEDING MEMOIR, AND REFERRED TO AS NOTE 39.

**A.** Previous publications of the writer [Section I].—I allude, at the outset, to the fact that a brief digest of my surveys had been published by the government in 1873–'74; it is entitled *Condition of Affairs in Alaska:* 8o, 1874. This report was principally given up to the state of the fur-trade over all Alaska, the people and resources thereof; it also contains the substance of a still briefer report of mine made upon the Pribylov islands in September, 1873, and was printed by the Treasury Department during my absence in Alaska. Owing to causes of which I have necessarily no personal knowledge, only 75 copies of this report were struck off; it was illustrated by 50 quarto plates photographed from my drawings and paintings.

**B.** St. Felix must not be confounded with Masafuera [Section 2].—The overshadowing number of fur-seals found on Masafuera and Juan Fernandez islands, just to the southward of this island, has caused a great deal of confusion as to the existence, or not, of *Arctocephalus* on this island and Ambrosia islet, in the old records and statements of Antarctic fur-sealers. It has, however, never been a very prominent rookery, but it has been one, nevertheless, and hence I give its name.

A fur-seal skin was taken from either the straits of Le Maire or Juan Fernandez as early as 1686, and presented to the Museum of the Royal Society in London; here it was first noticed as new by Dr. Grew, in 1694; but the name of the donor and the locality being unknown, the matter was allowed to drop by naturalists, and Grew's descriptions were laid aside by them as obscure and apocryphal; indeed, even as late as 1823, Baron Cuvier said of the Grew diagnosis, "Que faire de cette phoque—Que faire de cette otarie?" (*Dict. Class. d'Hist. Nat.*, tome xiii.)

I say that this specimen was taken from the above localities in all probability; because, unless it came from the Falkland islands, there were no other fur-seal grounds known to navigators at so early a date. Spanish and English buccaneers were, however, familiar with Juan Fernandez and Masafuera as soon as 1574–'86, or a full century prior to the receipt of the Grew specimen. These sea pirates, however, prided themselves over their swords alone; so we have no record of what they really knew or did. Nevertheless, some of them, evidently, employed a leisure hour or day in securing and transmitting the skin above referred to. In summing up, therefore, Henry Brewer, in 1646, at Staten land, first noticed the southern fur-seal. William Dampier, in 1683, first called specific attention to it as a fur-seal, and Dr. Grew, as above stated, first described it formally as a new seal to natural science. So much is due to the true literature of the Antarctic fur-seal.

**C.** Pribylov's discovery of the islands [Section 3].—"Anglieskie Böokta," or English bay, so-called by the natives because in 1849 a large English whale (?) ship was stranded on the shoals of that reach of the coast, and the wreck driven ashore there.

**D.** Land and scenery [Section 4].—This village lagoon has been filling up very perceptibly since 1868, when Hutchinson and Morgan then were able to sail in a small sloop, drawing six feet of water, up to its head. To-day such a vessel could not come nearer than half a mile to their anchorage of 1868. The principal shoaling takes place in a direct line here between Tolstoi Mees and the Village Hill, where a rocky reef seems to be slowly rising, pushed up by ice fields. The sloop yacht "Jabez Howe", which was wrecked in 1873 on Akootan, is probably the last sea-going vessel that has or ever will gain an entrance to the village lagoon, St. Paul island; or swing at anchor in the cove.

**E.** St. Paul [Section 4].—The physical difficulties of pedestrianism here recall vividly to my mind the recent death of Mr. Edward Gill, a brother of the distinguished naturalist, Professor Gill, of the Smithsonian Institution. Late in October, 1876, this young man, in company with several of the natives and two agents of the Alaska Commercial Company, started out one bright morning for a walk, intending to go to Northeast point, then to return by Nahsayvernia to English bay, and home to the village in the evening; they had journeyed on this route as far as Maroonitch, at the north shore, when a storm of wind and sleet arose which blew directly in their faces as they came across the island to English bay. Gill sank several times from exhaustion, caused by the severe exercise of walking in the sphagnum on Boga Slov and of jumping over the tussocks near the bay. Finally, at the head of the lagoon, and in sight of the village lights, he dropped into the long grass, utterly prostrated; his companions, too weak to carry him farther, struggled on, and when the relief party found him he was warm, but life had departed. He was in perfect health and condition at the starting; but the chill fury of the icy gale had compassed his death.

**F.** Resident natives of St. Paul, July 1, 1870, taken from Philip Volkov's lists, August 8, 1873. [Section 5.]

[The names in italics were either dead or absent from the island at the date of copy, August 8, 1873.]

1. *Philip Keemachneek.*
2. *Effroseenia, his wife.*
3. *Ivan, his son.*
4. *Danelo, his son.*
5. Vasseele Seedulee.
6. *Mareena, his wife.*
7. *Alexander, his son.*
8. Sylvester, his son.
9. *Eefeem Anoolanak.*
10. *Matroona, his wife.*
11. *Simeon, adopted son.*
12. *Marka Aveelyah.*
13. *Feeleechat, his wife.*
14. Peter Peeshenkov.
15. Matroona, his wife.

16. Ivan Eemanov.
17. Anna, his wife.
18. Yeagor, his son.
19. Loobov, his step-daughter.
20. Maxseem, his step-son.
21. Maria, his niece.
22. Nickolai Krukov.
23. Peter Krukov.
24. Agrafeena, his wife.
25. Ivan Korchootin.
26. Ooleeana, his wife.
27. Yahkov Korchootin.
28. Lookahria, his sister.
29. *Natalia Makooleena.*
30. Maria Paranchina.
31. Keesar Shabbylean.
32. Agrafeena, his wife.
33. Neekon, his son.
34. *Ripsimia Plottnikova.*
35. Avdotia, her daughter.
36. Prokoopee Meeseekin.
37. Eveduxsia, his wife.
38. Avdotia Meeseekina, his step-mother.
39. Anna, daughter of Meeseekin.
40. Deemeetree Veatkin.
41. Evelampia Veatkin,
42. Balakshin (Benedict).
43. Matroona, his wife.
44. Meexhae, his son.
45. Balakshin, second (Benedict).
46. Stepan Krukov.
47. Natalie, his wife.
48. Avdokia Seeribneekova (widow).
49. Timofay, her son.
50. Olga, her daughter.
51. Paraskeevee, her daughter.
52. Akooleena, her daughter.
53. Michael Barrhov.
54. Malania, his wife.
55. Agnes, his daughter.
56. Daniel, his nephew.
57. Avdotia, Schepeteenah (widow).
58. Tahreentee, her son.
59. Elasie, her son.
60. Hee-une-iah, her daughter.
61. Kerick Booterin, first chief.
62. Seeg-lee-teekiah, his wife.
63. *Patalamon, his son.*
64. Kerick, his son.
65. Salomayee, his daughter.
66. Ooleeta, his daughter.
67. George Booterin, his son.
68. Carp Booterin.
69. Lookariah Booterin.
70. Alexander Pancov.
71. Porfeerie, his son.
72. Avdotia, his step-daughter.
73. Paraskeevie, his step-daughter.
74. Yakov Sootyahgin.
75. Eeroadea, his wife.
76. Feedosayee Saydeek.
77. Anesia, his wife.
78. Anna, his daughter.
79. Feoktista, his godmother.
80. Dayneese Saydeek.
81. *Baiz yahzeekov (Evlampia).*
82. *Anna, his wife.*
83. *Maria, his daughter.*
84. Maroon Nakock.
85. Paraskeevie, his wife.
86. Zachar, his step-son.
87. ———, his nephew.
88. Paraskeevie, niece.
89. Natalia Habaroova.
90. Pavel Habarov, her son.
91. *Paul Shies-neekov (priest).*
92. *Meeh-ah-elo, his son.*
93. Meeloveedova, Alexsandra (widow).
94. Simeon, her son.
95. *Alexsandra, her daughter.*
96. Antone, her son.
97. Marcia, her daughter.
98. Kerick Artamanov.
99. Olga, his wife.
100. Melania, his daughter.
101. Vasseleesee, his daughter.
102. Kah-sayn-yah, his daughter.
103. Gearman Artamanov.
104. Anna Tarantayvah (widow).
105. Anna, her daughter.
106. Stephen Bayloglazov.
107. Yealeena, his wife.
108. *Sayrgee, his son.*
109. Anna, his daughter.
110. Paraskeevie, his adopted girl.
111. Ermolie Cushing.
112. Faokla, his wife.
113. Faokla, his daughter.
114. Oolyahnah, his daughter.
115. Aggie Cushing, his son.
116. Antone Sootyahgen.
117. Oolyahnah, his wife.
118. Meetrofan, his son.
119. *Meehaie, his son.*
120. Yahkov Mandrigan.
121. Afanashia, his wife.
122. *Lookayleean, his son.*
123. Maria, his daughter.
124. Oseep Pahomov.
125. Varvarah, his wife.
126. Maria Seedova (widow).
127. Ahkakee, her son.
128. ———, her daughter.
129. ———, her daughter.
130. ———, her daughter.
131. ———, her daughter.
132. Alexsayee Neederazov.
133. Akooleena, his wife.
134. Christeena, his daughter.
135. Agrafeena, his daughter.
136. Keer Saydeek.
137. Yealeena, his wife.
138. *Maria, his daughter.*
139. Ivan Mandrigan.
140. Tatahyahn, his wife.
141. Vasseelee, his son.
142. Marfa, his daughter.
143. Feelat Teetov.
144. Peter, his son.
145. Yeaon, his son.
146. Yeagor Arkashav.
147. Alexsandra, his wife.
148. Martin, his step-son.
149. Nekolaie, his step-son.
150. Stepan, his step-son.
151. Kereek, his son.
152. Arsaynee, his son.
153. Tatayahnah, his daughter.
154. Timofay Evanov.
155. Fevronia, his daughter.
156. Paymen Kooznitzov.
157. Oseep Baizyahzeekov.
158. Alexsandra, his wife.
159. Paul, his son.
160. Kahsaynyah, his step-daughter.
161. Avdokia, his step-daughter.
162. *Kahsaynyah, his daughter.*
163. *Ivan Paranchin.*
164. Zaharrov Evemainov.
165. Keereenayah, his wife.
166. Fevronia, his daughter.
167. Ivan Hapov.
168. Anna, his sister-in-law.
169. *Alexsandra, his daughter.*
170. Ivan, his son.
171. Yeagor Korchootin.
172. Zachar Saydeek.
173. Oosteenia, his wife.
174. Vasseelee, his son.
175. Marvra, his daughter.
176. *Nekon, his nephew.*
177. Feelip Saydeek.
178. Stepan Skahvortsov.
179. Philip Vollkov.
180. Ellen, his daughter.
181. Matroona, his daughter.
182. Markiel Vollkov, his son.
183. Gavreelo Korchurgin.
184. Lukaylean, his son.
185. *Ivan Sootyahgen.*
186. Heeyoniah, his wife.
187. Aneesia, his daughter.
188. Emelian Sootyahgen.
189. Marko Korchootin.
190. Dareyah, his wife.
191. Ivan, his son.
192. Zeenovia, his daughter.
193. Timofay Glottov.
194. Maria, his wife.
195. ———, his son.
196. Ivan, his son.
197. Yeafeemia, his daughter.
198. Iraklin Mandrigan.
199. Oosteenie, his wife.
200. Eeon, his son.
201. Paul Soovorrov.
202. Vassa, his wife.
203. ———*, his son.*
204. Akyleena, his mother.
205. *Agrafeena, his adopted girl.*
206. Yeafeem Korchootin.
207. Palahgayee, his wife.
208. *Peter, his son.*
209. Luka Mandrigan.
210. Eereena, his wife.
211. Neekeeta Yitchmainov.
212. Christeena, his daughter.
213. Domenah, his daughter.
214. Taheesah, his daughter.
215. Ivan Yitchmainov.
216. Michael Korzerov.
217. Alexsandra, his wife.
218. Stepan Korzerov.
219. Paul Korzerov.
220. *Ivan Kozlov.*
221. Palahgayah, his mother.
222. Feodar, her son.
223. *Eveducksia, her daughter.*
224. Platone Tarakanov.
225. Marfa, his wife

226. *Akoolena, his mother.*
227. Kerick Tarakanov.
228. Domian M. Kok (John Frater).
229. Oolyahnah, his wife.
230. Anna, his daughter.
231. Salomayah, Artamanov's daughter.

*White men in charge.*

1. Dr. McIntyre.
2. H. W. McIntyre.
3. Dr. Cramer.
4. *John M. Morton.*
5. Chas. Bryant.
6. D. Webster.
7. ———, a cooper.
8. ———, a carpenter.

What constitutes a native of St. Paul.—There has been some petty divergence of opinion on the island as to who are the real "natives" thereof, because these natives enjoy certain privileges that are very valuable to them and coveted by all outside Alaskan brethren.

In this connection the people living here are divided into three classes; that is, the males:

*First.* The natives, properly speaking, or those who have been born and raised upon the Pribylov islands; not over one-quarter of the present adult population can lay claim to this title.

*Second.* The people who were living thereon, but not born natives at the time of the transfer of all Alaska, July, 1867; this class constitutes a majority of the citizens of the two islands as they exist to-day.

*Third.* The people who were living and working as sealers on the Pribylov islands at the date of the granting by the government of the present lease to the Alaska Commercial Company, August 31, 1870.

Of the above three divisions, strict justice and true equity unite in recognizing the third class as the natives of the Pribylov islands. This settles the question also to the best satisfaction of these people themselves, and removes every quibble of dispute in the premises. Accurate records of the men, women, and children living on each island at the date of the lease in 1871 can be found in the church registers on both St. Paul and St. George.

Curious derivation of natives' names.—Any one at all acquainted with the Russian language will not fail to notice that the names in the above list have some odd derivations, relating to physical peculiarities, defects, and other originations that are more or less comical in their suggestions. I was told by a very bright Russian, who spent a season here, 1871–'72, as special agent of the Treasury Department, that the Aleutian ancestors of these people when they were converted and baptized into the Greek Catholic church received their names, bran new, from the fertile brains of the priests, who, after exhausting the common run of Muscovitic titles, such as our Smiths and Joneses, were compelled to fall back upon some personal characteristics of the new claimant for civilized nomenclature. Thus we have to-day on the seal-islands a "Stepan Bayloglazov", or "Son of a White Eye", "Oseep Baizyahzeekov", or "Son of a Man without a Tongue". A number of the old Russian governors and admirals of the imperial navy are represented here by their family names, though I do not think, from my full acquaintance with the name-sakes, that the distinguished owners in the first place had anything to do with their physical embodiment on the Pribylov islands.

Causes of death among the people.—The principal cause of death among the people, by natural infirmity, on the seal-islands, is the varying forms of consumption and bronchitis, always greatly aggravated by that inherited scrofulous taint or stain of blood which was, in one way or another, flowing through the veins of their recent progenitors, both here and throughout the Aleutian islands. There is nothing worth noticing in the line of nervous diseases, unless it be now and then the record of a case of alcoholism superinduced by excessive quass drinking. This "makoolah" intemperance among these people, which was not suppressed until 1876, was a chief factor to the immediate death of infants; for, when they were at the breast, the mothers would drink quass to intoxication, and the stomachs of the newly-born Aleuts or Creoles could not stand the infliction which they received, even second-hand. Had it not been for this wretched spectacle, so often presented to my eyes in 1872–'73, I should hardly have taken the active steps which I did to put the nuisance down; for it involved me, at first, in a bitter personal controversy, which, although I knew at the outset it was inevitable, still weighed nothing in the scales against the evil itself.*

A few febrile disorders are occurring, yet they yield readily to good treatment. The chief source of sickness used to arise from the wretched character of the barrabkies in which they lived; but it was, at first, a very difficult matter to get frame houses to supplant successfully the sod-walled and dirt-roofed huts of the islands.

Difficulty of getting suitable houses.—Many experiments, however, were made, and a dozen houses built, ere the result was as good as the style of primitive housing, when it had been well done and kept in best

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*This evil of habitual and gross intoxication, under Russian rule, was not characteristic of these islands alone, it was universal throughout Alaska. Sir George Simpson, speaking of the subject, when in Sitka, April, 1842, says: "Some reformation certainly was wanted in this respect; for of all the drunken, as well as of all the dirty places that I had visited, New Archangel [Sitka] was the worst. On the holidays in particular, of which, Sundays included, there are one hundred and sixty-five in the year, men, women, and even children were to be seen staggering about in all directions." [Simpson: *Journey Around the World;* 1841–'42, p. 88.]

Surprise has often been genuine among those who inquire, over the fact that there is no law officer here at either village, and wonder is expressed why such provision is not made by the government. But, when the following facts relative to this subject are understood, it is at once clear that a justice of the peace and his constabulary, would be entirely useless, if established on the seal-islands. As these natives live here, they live as a single family in each settlement, having one common purpose in life and only one; what one native does, eats, wears, or says, is known at once to all the others, just as whatsoever any member of our household may do will soon be known to us all who belong to its organization; hence if they steal or quarrel among themselves, they keep the matter wholly to themselves, and settle it to their own satisfaction. Were there rival villages on the islands and diverse people and employment, then the case would be reversed, and need of legal machinery apparent.

possible repair. In such a damp climate, naturally, a strong moldy smell pervades all inclosed rooms which are not thoroughly heated and daily dried by fires; and, in the spring and fall frost works through and drips and trickles like rain adown the walls. The present frame houses occupied by the natives owe their dryness, their warmth and protection from the piercing "boorgas", to the liberal use of stout tarred paper in the lining. The overpowering mustiness of the hallways, outhouses, and, in fact, every roofed-in spot, where a stove is not regularly used, even in the best-built residences, is one of the first disagreeable sensations which the new arrivals always experience when they take up their quarters here. Perhaps, if it were not for the nasal misery that floats in from the killing-grounds to the novice, this musty, moldy state of things up here would be far more acute, as an annoyance, than it is now. The greater grief seems to soon fully absorb the lesser one; at least in my own case, I can affirm the result.

AMIABLE CHARACTER OF THE NATIVES.—These people are singularly affectionate and indulgent toward their children. There are no "bald-headed tyrants" in our homes, as arbitrary and ruthless in their rule as are those snuffly babies and young children, on the seal-islands. While it is very young, the Aleut gives up everything to the caprice of his child, and never crosses its path or thwarts its desire; the "deetiah" literally take charge of the house; but as soon as these callow members of the family become strong enough to bear burdens and to labor, generally between 12 and 15 years of age, they are then pressed into hard service relentlessly by their hitherto indulgent parents; the extremes literally meet in this application.

They have another peculiarity: when they are ill, slightly or seriously, no matter which, they maintain or affect a stolid resignation, and are patient to positive apathy. This is not due to deficiency of nervous organization, because those among them who exhibit examples of intense liveliness and nervous activity, behave just as stolidly when ill as their more lymphatic townsmen do. Boys and girls, men and women, all alike are patient and resigned when ailing and under treatment; but it is a bad feature after all, inasmuch as it is well-nigh impossible to rally a very sick man who himself has no hope, and who seems to mutely deprecate every effort to save his life.

DISPOSITION TO GAMBLE.—The inherent propensity of man to gamble is developed here to a very appreciable degree, but it in no way whatever suggests the strange gaming love and infatuation with which the Indians and Eskimo elsewhere of Alaska are possessed. The chief delight of the men and boys of the two villages is to stand on the street corners "pitching" half dollars; so devoted, indeed, have I found the native mind to this hap-hazard sport, that frequently I would detect groups of them standing out in pelting gales of wind and of rain, "shying" the silver coin at the little dirt-driven pegs. A few of them, men and women, play cards with much skill and intelligence.

CHILDREN'S SPORTS.—The urchins play marbles, spin tops, and fly kites, intermittently, with all the feverish energy displayed by the youth of our own surroundings; they frolic at base-ball, and use "shinny" sticks with much volubility and activity. The girls are, however, much more repressed, and, though they have a few games, and play quietly with quaintly dressed dolls, yet they do not appear to be possessed of that usual feminine animation so conspicuously marked in our home life.

ATTACHMENT TO THE ISLANDS.—The attachment which the natives have for their respective islands was well shown to me in 1874. Then, a number of St. George people were taken over to St. Paul, temporarily, to do the killing incidental to a reduction of the quota of 25,000 for their island and a corresponding increase at St. Paul; they became homesick immediately, and were never tired of informing the St. Paul natives that St. George was a far handsomer and more enjoyable island to live upon! that walking over the long sand reaches of "Pavel" made their legs grievously weary, and that the whole effect of this change of residence was "ochen scootchnie". Naturally, the ire of the St. Paul people rose at once, and they retorted in kind, indicating the rocky surface of St. George, and its great inferiority as a seal-island. I was surprised at the genuine feeling on both sides, because, as far as I could judge from a residence on each island, it was a clear case of tweedle-dee and tweedle-dum between them, as to opportunities and climate necessary for a pleasurable existence. The natives, themselves, are of one and common stock, though the number of Creoles on St. George is relatively much larger than on St. Paul; consequently the tone of the St. George village is rather more sprightly and vivacious.

CREATURE COMFORTS.—As far as a purely physical existence goes, the American method of living on and in the climate of the Pribylov islands is highly conducive to strength and health. Tea and coffee, seasoned with condensed milk and lump sugar; hot biscuits, cakes, and waffles; potatoes, served in every method of cookery; salt salmon, cod-fish, and corned beef; mess pork; and, once a week, a fresh roast of beef or steaks; all the canned vegetables and fruits; all the potted sauces, jams, and jellies; pies, puddings, and pastries; and the exhaustive list of purely sea-faring dishes, such as pea and bean, barley and rice soups, curries, and maccaroni; these constitute the staples and many of the luxuries with which the agents of the Alaska Commercial Company prolong their existence while living here in the discharge of their duties, and to which they welcome their guests for discussion and glad digestion.

A piano on St. Paul in the company house, an assorted library, embracing over 1,000 volumes, selected from standard authors in fiction, science, and history, together with many other unexpected adjuncts of high comfort for body and soul, will be found on these islands, wholly unexpected to those who first set foot upon them. A small Russian printed library has also been given by the company to the natives on each island for their special entertainment. The rising generation of sealers here, if they read at all, will read our own typography.

**G.** FOOD AND STORE SHOPPING OF THE NATIVES [Section 5].—Most of these articles of food mentioned heretofore are purchased by the natives in the company's store at either island; this food and the wearing apparel, crockery etc., which the company bring up here for the use of the people, is sold to them at the exact cost price of the same plus the expenses of transportation; and, many times within my knowledge, they have bought goods here, at these stores, at less rates than they would have been subjected to in San Francisco; the object of the company is not, under any circumstances, to make a single cent of profit out of the sale of these goods to the natives; they aim only to clear the cost and no more. Instructions to this effect are given to its agents, while those of the government are called upon to take notice of the fact.

The store at St. Paul, as well as that at St. George, has its regular annual "opening" after the arrival of the steamer in the spring, to which the natives seem to pay absorbed attention; they crowd the buildings day and night, eagerly looking for all the novelties in food and apparel; these slouchy men and shawl-hooded women, who pack the area before the counters here, seem to feel as deep an interest in the process of shopping as the most enthusiastic votaries of that business do in our own streets; it certainly seems to give them the greatest satisfaction of their lives on the Pribylov islands.

**H.** VIGILANCE OF THE NATIVES [Section 7].—One of the peculiarities of these people is that they seldom undress when they go to bed—neither the men, women, nor children; and also that at any and all hours of the night during the summer season, when I have passed in and out of the village to and from the rookeries, I always found several of the natives squatting before their house doors or leaning against the walls, stupidly staring out into the misty darkness of the fog, or chatting one with the other over their pipes. A number of the inhabitants, by this disposition, are always up and around throughout the settlement during the entire night and day. In olden times, and even recently, these involuntary sentinels of the night have often startled the whole village by shouting at the top of their voices the pleasant and electric announcement of the "ship's light!" or have frozen it with superstitious horror in the recital, at daybreak, of ghostly visions.

**I.** HABITS OF FUR-SEAL PUPS [Section 9].—I have repeatedly watched young pups as they made advances to nurse from another pup's mother; the result invariably being, that while the mother would permit her own offspring to suckle freely, yet, when these little strangers touched her nipples, she would either move abruptly away, or else turn quickly down upon her stomach, so that the maternal fountains were inaccessible to the alien and hungry "kotickie". I have witnessed so many examples of the females turning pups away, to suckle only some particular other one, that I feel sure I am entirely right in saying that the seal-mothers know their own young; and that they will not permit any others to nurse save their own. I believe that this recognition of them is due chiefly to the mother's scent and hearing.

**J.** PARASITES OF THE FUR-SEAL [Section 9].—The fur-seal spends a great deal of time, both at sea and on land, in scratching its hide; for it is annoyed by a species of louse, a *pediculus*, to just about the same degree and in the same manner that our dogs are by fleas. To scratch, it sits upon its haunches, and scrapes away with the toe-nails of first one and then the other of its hind-flippers; by which action it reaches readily all portions of its head, neck, chest, and shoulders; and, with either one or the other of its fore-flippers, it rubs down its spinal region back of the shoulders to the tail. By that division of labor with its feet, it can promptly reduce, with every sign of comfort, any lousy irritation wheresoever on its body. This *pediculus* peculiar to the fur-seal attaches itself almost exclusively to the pectoral regions; a few, also, are generally found at the bases of the auricular pavilions.

When the fur-seal is engaged in this exercise, it cocks its head and wears exactly the same expression that our common house-dog does while subjugating and eradicating fleas; the eyes are partly or wholly closed; the tongue lolls out; and the whole demeanor is one of quiet but intense satisfaction.

The fur-seal appears also to scratch itself in the water with the same facility and unction so marked on land; only it varies the action by using its fore-hands principally, in its fluvatile exercise, while its hind-feet do most of the terrestrial scraping.

**K.** HEALTHINESS OF THE FUR-SEALS [Section 9].—While I have written with much emphasis upon the total absence of any record as to the prevalence of an epidemic in these large rookeries, I should, perhaps, mark the fact that no symptoms of internal diseases have ever been noticed here, such as tuberculosis of the lungs, etc., which invariably attack and destroy the fur-seal when it is taken into confinement, as well as the sea-lions also; the latter, however, have a much greater power of endurance under such artificial circumstances of life. The thousands upon thousands of disemboweled Pribylov fur-seal carcasses have never presented abnormal or diseased viscera of any kind.

**L.** BEHAVIOR OF FUR-SEALS AT NIGHT [Section 9].—I naturally enough, when beginning my investigation of these seal-rookeries, expected to find the animals subdued at night, or early morning, on the breeding-grounds; but a few consecutive nocturnal watches satisfied me that the family organization and noise was as active at one time as at another throughout the whole twenty-four hours. If, however, the day preceding had chanced to be abnormally warm, I never failed then to find the rookeries much more noisy and active during the night than they were by daylight. The seals, as a rule, come and go to and from the sea, fight, roar, and vocalize as much during midnight moments as they do at noonday times. An aged native endeavored to satisfy me that the "seecatchie" could see much better by twilight and night than by daylight. I am not prepared to prove to the contrary, but I think that the fact of his not being able to see so well himself at that hour of darkness was the true cause of most of his belief in the improved nocturnal vision of the seals.

As I write, this old Aleut, Phillip Vollkov, has passed to his final rest—"un konchielsah" winter of 1878–'79. He was one of the real characters of St. Paul; he was esteemed by the whites on account of his relative intelligence, and beloved by the natives, who called him their "wise man", and who exulted in his piety. Phillip, like the other people there of his kind, was not much comfort to me when I asked questions as to the seals. He usually answered important inquiries by crossing himself, and replying, "God knows." There was no appeal from this.

**M.** SULLENNESS OF OLD MALE SEALS [Section 10].—The old males, when grouped together by themselves, at the close of the breeding-season, indulge in no humor or frolicsome festivities whatsoever. On the contrary, they treat each other with surly indifference. The mature females, however, do not appear to lose their good nature to anything like so marked a degree as do their lords and masters, for they will at all seasons of their presence on the islands be observed, now and then, to suddenly unbend from severe matronly gravity by coyly and amiably tickling and gently teasing one another, as they rest in the harems, or later, when strolling in September. There is no sign given, however, by these seal-mothers of desire or action in fondling or caressing their pups; nor do the young appear to sport with any others than the pups themselves, when together. Sometimes a yearling and a five or six months-old pup will have a long-continued game between themselves. They are decidedly clannish in this respect—creatures of caste, like Hindoos.

**N.** LEAPING OUT OF WATER: "DOLPHIN JUMPS" [Section 10].—As I never detected the sea-lions or the hair-seals leaping from the water around these islands, in those peculiar dolphin-like jumps which I have hitherto described, I made a note of it early during my first season of observation, for corroboration in the next. It is so: neither the sea-lion nor the hair-seal here ever leaped from the ocean in this agile and singular fashion heretofore described. Allen, so conservative usually, seems, however, to have fallen into an error by reading the notes of Mr. J. H. Blake, descriptive of the sea-lions of the Gallapagos islands. As Allen quotes them entire in a foot-note (page 211, *History of North American Pinnipeds*), I am warranted in calling attention to the fact, that no authentic record has as yet been made of such peculiar swimming by *Phocidæ*, or the sea-lion branch of the *Otariidæ*. My notice has been called to this mistake by Professor Allen's own note, page 367, upon a quotation from my work, citing Mr. Blake's notes above referred to, which are themselves very interesting, but do not even hint at a dolphin-jump.

How fast the fur-seal can swim, when doing its best, I am naturally unable to state. I do know that a squad of young "holluschickie" followed the "Reliance", in which I was sailing, down from the latitude of the seal-islands to Akootan pass with perfect ease; playing around the vessel, while she was logging straight ahead, 14 knots to the hour.

The fur-seal, the sea-lion, the walrus, and the hair-seal all swim around these islands, and in these waters, submerged, extended horizontally and squarely upon their stomachs. I make this note here because I am surprised to read [on page 651, Allen: *Hist. N. A. Pinnipeds*] that the harp (hair) seal's "favorite position when swimming, as affirmed by numerous observers, is on the back or side, in which position they also sleep in the water". Although this is a far-distant, geographically speaking, relative of the hair-seal of St. Paul island, yet the remarkable difference in fashion of swimming seems hardly warranted, when the two animals are built exactly alike. Still, I have no disposition to question, earnestly, the truth of the statement, inasmuch as I have learned of so many very striking radical differences in habits of animals as closely related, as to pause, ere seriously doubting this assertion that a harp-seal's favorite way in swimming is to lie upon its back when so doing. It is simply an odd contradiction to the method employed by the hair-seals of the North Pacific and of Bering sea.

While I am unable to prove that the fur-seal possesses the power to swim to a very great depth, by actual tests instituted, yet I am free to say that it certainly can dive to the uttermost depths, where its food-fish are known to live in the ocean; it surely gives full and ample evidence of possessing the muscular power for that enterprise. In this connection, it is interesting to cite the testimony of Mr. F. Borthen, the proprietor of the Fro islands, a group of small islets off Trondhjems fiörd, in Norway; this gentleman has had an opportunity of watching the gray-seal (*Halichœrus grypus*) as it bred and rested on these rocks during an extended period of time. Among many interesting notes as to the biology of this large hair-seal, he says, "As a proof that they (the seals) fetch their food from a considerable depth, it is related that a few years ago a young one was found caught by one of the hooks of a fishing line that was placed at a depth of between 70 and 80 fathoms, on the outer side of the islands. Gray-seals have several times been seen to come up to the surface with lings (*Molva vulgaris*) and other deep-water fishes in their mouths, such fishes seldom or never found at a less depth than between 60 and 70 fathoms."—[Robert Collett *on the Gray Seal, Proc. Zool. Soc.*, London: Part ii, 1881, p. 387.]

**O.** MONSTROSITIES AMONG THE SEALS.—Touching this question of monstrosities, I was led to examine a number of alleged examples presented to my attention by the natives, who took some interest, in their sluggish way, as to what I was doing here. They brought me an albino fur-seal pup, nothing else, and gravely assured me that they knew it owed its existence to the fecundation of a sea-lion cow by a fur-seal bull; "if not so, how could it get that color?" I was also confronted with a specimen—a full and finely grown four-year-old *Callorhinus* which had,

at some earlier day, lost its testicles either by fighting or accident while at sea; perhaps shaven off by the fangs
a saw toothed shark, and also gravely asked to subscribe to the presence of a hermaphrodite!

Undoubtedly some abnormal birth-shapes must make their appearance occasionally; but, at no time while was there, searching keenly for any such manifestation of malformation on the rookeries, did I see a singl example. The morphological symmetry of the fur-seal is one of the most salient of its characteristics, viewed a it rallies here in such vast numbers; but the osteological differentiation and asymmetry of this animal is equall surprising.

**P.** THE DERIVATION OF THE NOMENCLATURE OF THE ROOKERIES. *The Reef rookery*—"The Reef", so-calle on account of that dangerous line of submerged rocks, scarcely awash, which makes out to the southward fror the point. The very first seals of the season usually land here every spring.

*Zoltoi hauling-grounds.*—From "Zolotoi", or "golden", a Russian title given to the beach on account, perhaps of its beauty, contrasted with the rough, rocky coasts elsewhere on the island. There is no trace of precious minera in its composition, however, or even the glint of iron pyrites.

*Gorbotch rookery.*—"Gorbotch", or "humpback"; this name doubtless given it from the broken-backed outlin to the west shore of the reef peninsula, on which the rookery is located.

*Nah Speel rookery.*—"Nah Speel", corrupted from "speetsah", or point, why so distorted I have not satisfactoril learned from the people. It arises from some localism, undoubtedly, pertinent long ago, but since forgotten.

*Lukannon rookery.*—"Lukannon"; so named after one of the Russian pioneers, a sailor, who is said to hav taken from St. Paul island in 1787, over 5,000 sea-otters, aided by another promyshlenik, named Kaiekov; in th following year they only secured 1,000; and since then none have ever been taken from there to notice; whil during the last forty years not one, even, has been seen.

*Keetavie rookery.*—"Keetavie", from "Keet", or Whale. When the whaling fleets were active in these waters 1849–'56, a very large right whale, killed by some ship's crew, drifted ashore at the point here, and has thus give this name to it.

*Tolstoi rookery.*—"Tolstoi", or "thick". This is an indefinite name which the Russians use all over thei geography of Alaska, just as we employ "Deer Creek" or "Muddy Fork" in our topographical nomenclature o the West. This point at St. Paul is, however, a thick and solid one; more so than any other headland there.

*Zapadnie rookery.*—"Zapadnie," or "westward"; one of the few bear stories, which the natives told me, i response to my queries as to the presence of polar "medvaidskie" in early times, is located between Boga Slov an Zapadnie point; there are one or two rude basaltic caves on the slopes of this hill, into which the natives ca squeeze themselves by great effort; here, they have declared to me, that as recently as 1848, a large polar bea lived and infested the island for some time. It was finally shot by a *posse comitatus* of the people, who were assiste by an English whale-boat's crew that, noticing the skurry on land, came ashore and joined in the hunt, armed wit their lances. No record is made of bruin on the Pribylov since the death of this one. It undoubtedly was astra from St. Matthew island, two hundred miles to the northward. Prior to this event, the natives count several bea fights and routs—at wide intervals, however—since the occupation of the islands.

*Polavina rookery.*—"Polavina", or "half way"; so named because the point and the old deserted village sit contiguous was nearly half-way between Novastoshnah and the village. An officer of the government, C. P. Fish United States Signal Service, in 1874, started out to measure anew the height of Polavina Sopka; he strapped a barometer to his shoulders, and left the village early one July morning. The fog thickened up that noon rathe more solidly than usual, and when he came down he missed the sealers' well-defined trail between Northeast poin and Lukannon, and brought up on the shore of that little round lake, just southwest of the point. He actuall passed the whole of the remaining daylight, six or seven hours, in walking around it, and declared that he woul never have left this unconscious circular tramp had the fog, as is usual, not lifted just at late evening and given hi better bearings. He never knew or suspected until then that he was walking in his own tracks. This is a true fog story.

*Novastoshnah rookery.*—"A place of recent growth," so named from the fact that in early times—1787–'90— Hutchinson's hill formed an island distinct and well-defined from St. Paul; the people then used to go from Vesoli Mista over to Northeast point in boats.

THE ST. GEORGE ROOKERIES.—There is nothing peculiar to the nomenclature of the St. George rookeries they all bear English names around the village, while "*Zapadnie*" is named simply as it lies west therefrom, an "*Starry Ateel*" because it is near the site of an old settlement on the island.

FIRST ARRIVALS OF "HOLLUSCHICKIE" USUALLY APPEAR MAY 14TH–15TH.—The first "driving", for th season, of the "holluschickie" seldom takes place sooner than the 12th or 15th of May; then only small number are secured, usually on the Reef point at St. Paul, and at the Great Eastern rookery on St. George; they are drive thus early for food, though the skins are always carefully taken and accepted by the company; the sealing seaso opens lawfully by the 1st of June and closes on the 15th of August. But in practice it does not begin until th 12th–14th of June and ends by the 20th–25th of July.

ANNUAL CROAKING BY THE SEALERS.—I noticed in this connection a very queer similarity between the sealer on St. Paul and our farmers at home; they, just as the season opens, invariably prophesy a bad year for seals and scant supply; then when the season closes they will gravely tell you that there never were so many seals on the island before! I was greeted in this manner by the agents of the company and the government in 1872, again in 1873, and again in 1874. I did not get up to the grounds in 1876 soon enough to hear the usual spring croaking of of disaster; but arrived, however, in time to hear the regular cry of "never was so many seals here before"!

## 40. FINAL NOTES AND TABLES RELATIVE TO THE VALUE, PROTECTION, AND GROWTH OF THE FUR-SEAL; AND THE REVENUE DERIVED FROM THAT INDUSTRY ON THE PRIBYLOV ISLANDS.

AN EXHIBIT OF VALUES GIVEN BY VENIAMINOV.—Pt. i: *Zapieskie, etc.*, p. 83, showing the relative importance, commercially, of the land and marine furs taken from the Oonalashka district (and sold) in 1833, by the Russian American Company. (This district embraces the Pribylov islands.)

| Sort of fur. | Number of skins. | Price per skin. | Sum of value. | Reduced to our currency. | Remarks by the author, H. W. E. |
|---|---|---|---|---|---|
| Sea-otters | 100 | 450 paper rubles. | 45, 000 | $9, 000 | *Enhydra marina.* |
| Black foxes | 300 | 150 paper rubles. | 45, 000 | 9, 000 | *Vulpes fulvus* var. *argentatus.* |
| Cross foxes | 600 | 25 paper rubles. | 15, 000 | 3, 000 | *Vulpes fulvus* var. *decussatus.* |
| Red foxes | 500 | 10 paper rubles. | 5, 000 | 1, 000 | *Vulpes fulvus.* |
| Blue foxes | 1, 500 | 10 paper rubles. | 15, 000 | 3, 000 | *Vulpes lagopus.* |
| Land-otters | 80 | 50 paper rubles. | 4, 000 | 800 | *Lutra canadensis.* |
| Fur-seals | 15, 000 | 50 paper rubles. | 750, 000 | 150, 000 | *Callorhinus ursinus.* |
| Walrus-ivory | 100 poods. | 80 paper rubles. | 8, 000 | 1, 600 | A "pood is $36\frac{1}{10}$ pounds avoirdupois. |
| Whalebone | 200 poods. | 40 paper rubles. | 8, 000 | 1, 600 | The baleen from the right whale, *Balæna.* |
| Miscellaneous furs | .......... | .......... | 1, 000 | 200 | Deer and sea-lion skins, odds and ends, etc. |
| Sum total | .......... | .......... | 896, 000 | $179, 200 | |

The country (Alaska) is divided up into 5 districts: Sitka, Kadiak, Oonalashka, Atka, and the North.

This whole country is under the control and government of the "Russian-American Company". * * * The business is conducted with a head, or a colonial governor, assisted by officers of the Imperial navy (Russian), and those of the company's fleet, and other chiefs; in every one of the districts the company has an office, which is under the direction of an office chief (or agent), and he in turn has foremen (or "bidarsheeks").

The company on the island of St. Paul killed from 60,000 to 80,000 fur-seals per annum, but in the last time (1833?), with all possible care in getting them, they took only 12,000. On the island of St. George, instead of getting 40,000 or 35,000, only 1,300 were killed. * * * [Veniaminov: *Zapieskie, etc.*, pt. i: chap. xii, 1840.]

The table and extracts which I quote above give me the only direct Russian testimony as to the value of the Pribylov fur-seal catch when the skins were in scant supply. It will be seen that they were worth then just $10 each.

I now append a brief but significant extract from Techmainov—significant simply because it demonstrates that all Russian testimony, other than Veniaminov's, is utterly self-contradictory in regard to the number of seals taken from the Pribylov islands. Techmainov first gives a series of tables which he declares are a true transcript and exhibit of the skins sold out of Alaska by the Russian-American Company. The latest table presented, and up to the date of his writing, 1862, shows that 372,894 fur-seal skins were taken from the Pribylov islands, via Sitka, to the Russian markets of the world, in the years 1842–1862, inclusive; or giving an average catch of 18,644 per annum. (p. 221.) Then further on as he writes (nearly one hundred pages), he stultifies his record above quoted by using the language and figures as follows:

"In earlier times more were taken than in the later; at present (1862) there are taken from the island of St. Paul 70,000 annually without diminishing the number for future killing; on St. George, 6,000. * * * From 1842 to 1861 there were taken from the island of St. Paul 277,778 seal skins; blue foxes, 10,508; walrus teeth, 104 poods; from St. George, 31,923 fur-seals; blue foxes, 24,286." [P. Techmainov: *Eestorecheskoi Obozerainia Obrazovania*, Russian-American Company; pt. ii, p. 310, 1863, St. Petersburg.] Further comment is unnecessary upon this author, who thus writes a "history of the doings of the Russian-American Company". Still, since Veniaminov's time, 1838–'40, it is the only *prima facie* testimony that we have touching these subjects while under Russian domination.

RUSSIAN GOVERNORS CONTROLLING THE PRIBYLOV ISLANDS.—The following list gives the names of the several autocratic governors of the Russian-American Company, who, in their order of mention, exercised absolute control over the the Pribylov islands between 1799 and 1867, inclusive; 1, Baranov; 2, Yahnovskie; 3, Moorayvev; 4, Chestyahkov; 5, Wrangell; 6, Kooprianov; 7, Etholine; 8, Tebenkov; 9, Rossenburg; 10, Viaviatskie; 11, Foragelm; 12, Maxsutov. Of the above, with the exception of Baranov, who was a self-made man, and General Viaviatskie, of the Russian army, all the others were admirals and captains in the Imperial navy of Russia.

FIRST EXEMPTION OF FEMALES IN DRIVING.—In the details of an old letter from a Creole agent of the Russian-American Company, on St. Paul, in 1847, I find the following side reference to the number of skins which were shipped from the Pribylov islands that season: [Ms. letter of Kazean Shiesneekov, St. Paul island, 1847.]

5,603 "holluschickov" (young males).
1,894 "sairiee" (four and five year-old males), or a total of 7,497.

This is interesting because it is the record of the first killing on the seal-islands when the females were entirely exempted from slaughter.

THE SEAL-ISLANDS WERE THE EXCHEQUER OF THE RUSSIAN-AMERICAN COMPANY: 1799–1825.—"The Russians in their colonial possession under Baranov, made, first, the seal-skin the basis of all transactions with foreigners, by buying up whole cargoes of goods and provisions brought into this country by English and American traders, and paying for the same in this way. In other words, the seal-islands were the exchequer where the Russian authorities could with certainty turn and lay their hands upon the necessary currency. These American, English, and other foreign sea-captains, having disposed of their supplies at Sitka or Kadiak in this manner, took their fur-seal skins to China and disposed of them at a handsome advance for tea, rice, etc., in exchange. The profits made by these foreigners having reached the ears of the Russian home management of the fur company controlling Alaska, it was ordered then that payments in fur-seal skins for these foreign supplies should cease, and that the Russians themselves would ship their skins to China and enjoy the emolument thereof. The result of this action was that the Chinese market did not prove as valuable to them as it was to the foreigners; it became overstocked, and a general stagnation and depression of the seal-business took place and continued until a change of base, in this respect, was again made, and the skins of the fur-seal were shipped, together with the beaver, in bulk to the great Chinese depot of Kiachta, where the Russians exchanged these peltries for the desired supplies of tea; the trade thereof assuming such immense proportions that the record is made where, in a single year, the Russian Fur Company paid to their government the enormous duty upon importations of tea alone of 2,000,000 silver rubles, or $1,500,000. This was the period in the history of the seal-islands when, for a second time, and within the writing of Veniaminov, the seal-life thereon was well nigh exterminated. The first decimation of these interests took place in the last decade of the eighteenth century and shortly after the discovery of the islands, when, it is stated, 2,000,000 skins of these animals were rotting on the ground at one time. Rezanov applied the correction very promptly in the first instance of threatened extermination of these valuable interests, and when the second epoch of decimation occurred in 1834 to 1836, Baron Wrangell, admirably seconded by Father Veniaminov, checked its consumption. These are instances of care and far-sightedness which are refreshing to contemplate."—Ivan Petrov: *Rept. on Pop. and Resources of Alaska; Ex. Doc. No.* 40, *46th Cong.*, *3d Sess.*, 1881.

IRREGULARITY OF THE APPEARANCE OF PELAGIC FUR-SEALS.—While investigating the subject of the actual numbers of fur-seals secured at sea, outside of the Pribylov islands, I learned from Captain Lewis (Hudson Bay Company's "Otter") that these animals never appear from season to season along the northwest coast, in the same general aggregate. For illustration, he cited the fact that in 1872, "immense numbers of fur-seal pups and yearlings" were observed in the ocean off Vancouver's island and the entrance to Fuca straits, "but last year (1873) very few of them again were seen." He thought that in the case of the unwonted abundance of fur-seals there during 1872, it was due to the fact "that these young seals must have lost their bearings, somewhat, in going north, and ran into the coast for a better point of departure". He declared, also, that fur-seals had never, during his 30 year's service on the northwestern coast, been known to appear in such great numbers before, nor did any other Hudson Bay man know to the contrary. In 1872 he thought that "8,000 to 9,000 skins, chiefly pups and yearlings" would be a fair estimate of the entire quantity taken; for 1873 his figures showed only "600 or 700 skins—these were all older ones".

RECENT ERRONEOUS STATEMENTS IN REGARD TO PELAGIC BIRTH OF FUR-SEALS.—Allen [in his *History of North American Pinnipeds*, pp. 772–773] quotes a writer, who declares that any statement that the fur-seal breeds alone on the Pribylov islands to the exclusion of all other grounds on the northwest coast of America and Alaska, is "preposterous to his mind". This author claims to know by his "own personal observation" that the fur-seal does "have pups in open ocean off the entrance to Fuca straits"! On the contrary, I assert that it is a physical impossibility for the *Callorhinus* to bring forth its young alive in the water; the pup would sink like a stone instantly after birth, and the mother be wholly helpless to save it.

I should not heed this statement of Mr. Swan, reinforced by that of an old sailor, so gravely entered by Allen, were it not for his introduction on the following page (773) of an innocent announcement of fact by Prof. D. S. Jordan, who by it is unfortunately made to appear in the light of sustaining the idle theory of pelagic birth. Jordan's simple declaration that he had seen a "live fur-seal pup [June 1, 1880] at Cape Flattery, taken from an old seal just killed, showing that the time of bringing them forth was just at hand", is correct as far as it goes; but remember, that this pup had been alive in its mother's womb for eleven months prior to the day Jordan saw it; and, ten days or three weeks later at the longest, this parent, if undisturbed, would have naturally brought it forth in the fullness of time on either St. Paul or St. George, of the Pribylov group. She could have made the journey there in six or seven days easily from Fuca straits, if she had been pressed to do so by the expiration of her period of gestation.

Naturally enough, the careful naturalist, like Allen, no matter how able, will be deceived now and then in this manner, by untrustworthy statements made by those who are supposed to know by personal observation of what they affirm. Mr. Swan has passed nearly an average lifetime on the northwest coast, chiefly in the waters of Washington territory, and has rendered to natural science and to ethnology efficient and valuable service by his labor in collecting, and his notes in regard to the Makah Indians of Cape Flattery; hence his erroneous statements above referred to (as to the fur-seal) had a *prima facie* weight with Allen, who, therefore, inserted them, and thus gave the romance an appearance of reality, which I cannot pass by in silence. The other, though hesitating, authority, Charles Bryant, is an old mariner, who has also been well situated by virtue of eight years' residence on St. Paul island; he ought to know better.

ORIGINAL SOURCE OF ERROR IN REGARD TO NUBILITY OF FEMALE FUR-SEALS.—*Veniaminov: Zapieskie, ob Oonalashkenskaho Otdayla:* Veniaminov little dreamed, as he labored over his queer calculations in 1834, that the then depleted rookeries of the Pribylov islands would have yielded, from 1868 to date, an annual average of more than three times 32,000 fur-seal skins; which number he at that time deemed the maximum limit of their ultimate production, should his tabulated advice be carried out. Is it not exceedingly strange that he never thought, during all his cogitations over this problem, of the real vital principle—of letting the females entirely alone—of sparing them strictly? I think that the worthy Bishop would have done so, had he passed more time on the rookeries himself. I cannot find, however, who the Russian was that had the good judgment, first of all men, to inaugurate a perpetual "zapooska" of the females on the Pribylov islands; it was done in 1847, for the first time, and has been rigidly followed ever since, giving the full expansion in 1857 to that extraordinary increase and beneficial result which we observe thereon to-day. I have been much amused in reading [Allen: *Hist. Pinnipeds*, p. 383] the argument of an old sailor, who had been stationed for eight years on these islands in charge of the United States Treasury interests. He claims to feel well assured that the female seals, when two years old, never land on the islands during that season of their age; remaining out at sea, and not coming to the Pribylov rookeries until their third year of growth! thus bearing their first young when four years old. I mention the fact, because it is not an original error of the aged treasury agent, but is evidently adopted from this account of Veniaminov, which was verbally translated and read to him in 1869, on St. Paul island, by one of the ex-agents of the Russian Company. The erroneous statement, however, is quoted in Allen: *Pinnipeds* (p. 383), with a grave preface by the author, that it is the result of eight years' study of the subject on the islands. Unfortunately, Veniaminov, himself, did not spend even eight consecutive weeks on the seal-grounds in question, and had he passed eight months there, investigating the matter, he would not—could not—have made this superficial blunder, in addition to his numerous other faulty announcements, etc., which the "*Zapieskie*" teems with, in regard to the seal-life.

CAUSES WHICH OCCASION AND DEMAND THE PRESENCE OF A REVENUE-MARINE CUTTER IN ALASKAN WATERS.—There remains an unwritten page in the history of the action of the government toward the protection of seal-life on the Pribylov islands, and it is eminently proper that it should be inscribed now, especially so since the author of this memoir was an eye-witness and an actor in the scene. When he first visited the seal-islands, in 1872–'73, he was compelled to take passage on the vessels of the company leasing the islands; compelled, because the government at that time had no means of reaching the field of action, except by the favor and the courtesy of the Alaska Commercial Company. This favor and this courtesy, as might be expected, was always promptly and generously proffered, and has never been alluded to as even an obligation or service rendered the Treasury Department. But, nevertheless, the thought occurred to me at the time, and was strengthened into conviction by 1874, that this indifference to its own self-respect and failure to support properly the aims of its agents up there, should end; and that the Treasury Department should detail one of its own vessels to visit, transport, and aid its officers on the Pribylov islands, and also be an actual living evidence of power to execute the law protecting and conserving the same.

In this sequence, do not misunderstand me; while the Alaska Commercial Company never entertained, and do not now entertain, the thought of refusing the favor asked by the government in transporting its own treasury officials to and from the seal-islands, yet, it would be a relief to that company if those agents aforesaid should be carried up and down upon the vessels of the government—a relief solely on the ground that a carping criticism is always made upon their courtesy and kindness in this respect, and a corresponding reflection thrown upon the treasury agents, who are compelled to take this method of conveyance, or else be absent from their field of duty, which the company does not propose to effect by barring them from its steamer, the aforesaid criticism notwithstanding.

Therefore, upon the occasion of my return from the field in question, October, 1874, I clearly recognized the immediate necessity of strengthening the arm of the government in that region, because, in addition to the foregoing reason, the following still more urgent one existed and exists:

Early in 1873 it became well known on the Pacific coast, that the officers of the law on the seal-islands had no means of enforcing the regulations protecting the seal-life on the same or in the waters adjacent; hence, a number of small craft, fitted out at San Francisco and contiguous ports, which cleared for the northwest coast and the Aleutian islands on "fishing ventures"; but, in reality, these vessels proceeded directly to the waters and rocks adjacent to the seal-islands, where, in plain sight of the villages on either islet, they shot the swimming seals with assumed indifference and great affection of legality!

In order, therefore, that this plain violation of law and its disastrous consequence should be effectually punished, and evaded, I published, and personally urged in 1874–'77, the urgent need and great propriety of enabling the responsible agents of the government on the Pribylov islands, to enforce the law as well physically as it could be done theoretically; and pointed clearly then to the advantage and effect which a revenue marine cutter would have, employed for this purpose. By repeated and untiring appearance before the Committee on Appropriations in the House and the Senate, I finally secured the legal authority and the money for the object in view. And the late Captain Baily, in the "Richard Rush", made the first cruise in the season of 1877, that had been ordered and sustained by the government toward the direct protection of the seal-islands, and its valuable property thereon since 1869.

The interesting Alaskan reports, which have arisen from the incidental cruisings of the "Rush" and the "Corwin", United States Revenue Marine, owe their origin to the above chain of circumstances, and this service, so efficient and so valuable, will, I trust, be faithfully sustained by the government in the future.

THE AUTHOR'S CLOSING PRESENTATION OF THE SUBJECT.—As I end this memoir, I am aware of one omission which should not be overlooked. It is the absence of a concise and condensed table, which shall exhibit at a glance the whole physical progress made by the fur-seal, from birth to advanced puberty. Therefore, I submit the following presentation of that subject:

*Table showing the relative growth, weight, etc., of the fur-seals.*

[Compiled from the field-notes of the author, made upon the killing-grounds of St. George and St. Paul.]

| GROWTH.<br>(*A fair average example.*) | 1 day old. | 6 months old. | 1 year old. | 2 years old. | 3 years old. | 4 years old. | 5 years old. | 6 years old. | 7 years old. | 8 years old. | Remarks. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Callorhinus ursinus* (male). | *Length.*<br>12 to 13 in. | *Length.*<br>24 in. | *Length.*<br>38 in. | *Length.*<br>45 in. | *Length.*<br>52 in. | *Length.*<br>58 in. | *Length.*<br>65 in. | *Length.*<br>72 in. | *Length.*<br>75 to 80 in. | *Length.*<br>Ceases. | Direct, from tip of nose to root of tail. |
| *Callorhinus ursinus* (fem.). | 12 to 13 in. | 24 in. | 37 in. | 42½ in. | 48 in. | 50 in. | Ceases. | ........... | ........... | ........... | Do. |
| GIRTH.<br>(*Immediately behind fore-flippers.*) | | | | | | | | | | | |
| *Callorhinus ursinus* (male). | *Girth.*<br>9 to 10½ in. | *Girth.*<br>25 in. | *Girth.*<br>25 in. | *Girth.*<br>30 in. | *Girth.*<br>36 in. | *Girth.*<br>42 in. | *Girth.*<br>52 in. | *Girth.*<br>64 in. | *Girth.*<br>70 to 80 in. | *Girth.*<br>80 to 84 in. | 8 year old citation an estimate only. |
| *Callorhinus ursinus* (fem.). | 9 to 10 in. | 25 in. | 25 in. | 30 in. | 34 in. | 36 in. | 37 in. | Ceases. | ........... | ........... | |
| WEIGHT (*avoirdupois*). | | | | | | | | | | | |
| *Callorhinus ursinus* (male). | *Lbs.*<br>5 to 7½ | *Lbs.*<br>39 | *Lbs.*<br>40 | *Lbs.*<br>58 | *Lbs.*<br>87 | *Lbs.*<br>135 | *Lbs.*<br>200 | *Lbs.*<br>280 to 350 | *Lbs.*<br>400 to 500 | *Lbs.*<br>500 to 600 | 7 and 8 year estimates are not based upon actual weights; an opinion merely. |
| *Callorhinus ursinus* (fem.). | 5 to 7 | 39 | 39 | 56 | 60 | 62 | 75 | Ceases. | ........... | ........... | |

NOTE.—All male fur-seals, from yearlings to puberty, are termed "bachelors", or "holluschickie", and all male fur-seals, from the age of five years on, are termed ("virile") bulls, or "seacatchie". All female fur-seals from one year and upward, are termed "cows", or "matkamie" ("mothers"). All the young, under yearlings, are termed "pups", or "kotickie" ("little cats").

In conclusion I desire to state that, as to the relative ages of the male and female *Callorhinus*, I have hitherto, in referring to it, taken the general ground of estimation which is commonly accepted in rating the duration of mammalian life. Nevertheless, on this point especially, I feel that if the real facts of the comparative longevity of the two sexes could be positively ascertained, the great discrepancy which the table above faithfully portrays and suggests, would be so modified as to make the relative length of life for the female much greater, and that of the male correspondingly less.

In my discussion of the reproduction of these animals, I clearly show that the male is physically qualified to procreate his race at the age of four years—but that he is not allowed to do so until he is six or seven. Also, that the female becomes a mother at the expiration of the third year of her life, and the immediate opening of the fourth. So, really, viewed from the point of sheer physical ability, if undisturbed, the male fur-seal wears the "toga virilis" at the close of the third and beginning of the fourth year of his life, while the female comes out eager for fecundation and prospective maternity at the end of the second and the beginning of the third summer of her existence.

TABULATED EXHIBIT OF METHOD OF KILLING, AND SEASONS OF THE YEAR IN WHICH IT IS DONE, ON THE PRIBYLOV ISLANDS.—In order that the reader may the more clearly understand the time of killing, the seasons in which it is done, and the relative selection of the different classes of seals for slaughter, food, etc., I take much satisfaction in being able to submit the following tabulation, which gives at a glance a succinct and comprehensive epitomé of one entire sealing-season and its work on the Pribylov islands. This table is literally brought down to date, and the figures upon which it is based I have taken from the recent official report of Col. H. G. Otis, who is the treasury agent in charge of the interests of the government therein represented. I ought, also, in simple justice to the authority from whom I have taken these enumerations, to state that those specifications of fact are evidently compiled from his field-notes with scrupulous attention, both in their original registration, and also in their transcription. As I here arrange them, they present a photograph of the entire disposition of 107,000 fur-seals slain upon the seal-islands during one whole year.

*Table showing the numbers slain, the time of so doing, the character, and the disposition made of the fur-seal on the Pribylov group for one year ending July 20, 1881.*

| Months; time of slaughter. | Number of fur-seals killed for natives' food. | | | | | Holluschickie killed for their skins. | | | | | Grand sum total | | Remarks. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Rejected skins. | | | | | Rejected skins. | | | | | |
| | Holluschickie. | Pups. | Under size. | Stagy. | Cut. | Prime. | Second rate. | Under size. | Cut. | Other reasons. | Skins accepted by Alaska Com'l Co. | Whole number of fur-seals slain. | |
| **SAINT PAUL ISLAND.** | | | | | | | | | | | | | |
| Balance left over from "1880 count" | ...... | ...... | ...... | ...... | ... | 228 | ...... | ...... | ...... | ... | 228 | ...... | Generally, a few skins left behind every season. |
| July (20th to 31st), 1880 | 261 | ...... | 5 | 233 | 13 | ...... | ...... | ...... | ...... | ... | 10 | 261 | Two year old males and a few yearlings, principally. |
| August, 1880 | 622 | ...... | ...... | ...... | ... | ...... | ...... | ...... | ...... | ... | 371 | 622 | Two and three year old males generally. |
| September, 1880 | 661 | ...... | ...... | 661 | ... | ...... | ...... | ...... | ...... | ... | ...... | 661 | Two year old males chiefly. |
| October, 1880 | 453 | 10 | 10 | 393 | ... | ...... | ...... | ...... | ...... | ... | 60 | 463 | Two and three year old males principally. |
| November, 1880 | 540 | 4, 400 | 4, 401 | 54 | 5 | ...... | ...... | ...... | ...... | ... | 480 | 4, 940 | Pups killed by express permission of the Secretary of the Treasury. |
| December, 1880 | 1, 248 | 3 | 14 | ...... | 36 | ...... | ...... | ...... | ...... | ... | 1, 201 | 1, 251 | Very fine skins; remaining latest on the islands. |
| January, 1881 | 1, 058 | ...... | 4 | ...... | 13 | ...... | ...... | ...... | ...... | ... | 1, 041 | 1, 058 | Do. Do. |
| May, 1881 | 176 | ...... | 5 | ...... | ... | ...... | ...... | ...... | ...... | ... | 171 | 176 | Very fine skins; first arrivals, two and three year old males. |
| June, 1881 | ...... | ...... | ...... | ...... | ... | 34, 836 | 294 | 11 | 16 | 3 | 35, 130 | 35, 160 | Very fine skins; two and three year old males chiefly. |
| July (1st to 20th), 1881 | ...... | ...... | ...... | ...... | ... | 40, 969 | 339 | 14 | 23 | ... | 41, 308 | 41, 345 | Do. Do. |
| Total | 5, 019 | 4, 413 | 4, 439 | 1, 341 | 67 | 76, 033 | 633 | 25 | 39 | 3 | 80, 000 | 85, 937 | |
| **SAINT GEORGE ISLAND.** | | | | | | | | | | | | | |
| Balance left over from "1880 count" | ...... | ...... | ...... | ...... | ... | 25 | ...... | ...... | ...... | ... | 25 | ...... | A few skins always left behind—not properly cured. |
| July (20th to 31st), 1880 | 147 | ...... | ...... | ...... | ... | ...... | ...... | ...... | ...... | ... | 147 | 147 | Two year old males, principally. |
| August, 1880 | 277 | ...... | 11 | ...... | ... | ...... | ...... | ...... | ...... | ... | 266 | 277 | Two and three year old males, usually. |
| September, 1880 | 122 | ...... | ...... | 64 | ... | ...... | ...... | ...... | ...... | ... | 58 | 122 | Do. Do. |
| October, 1880 | 63 | 500 | 500 | 62 | ... | ...... | ...... | ...... | ...... | ... | 1 | 563 | Pups, killed by express permission of the Secretary of the Treasury. |
| November, 1880 | 10 | 795 | 795 | ...... | ... | ...... | ...... | ...... | ...... | ... | 10 | 805 | Do. Do. |
| December, 1880 | 46 | 35 | 35 | ...... | ... | ...... | ...... | ...... | ...... | ... | 46 | 81 | Two and three year old males; fine skins. |
| May, 1881 | 87 | ...... | ...... | ...... | ... | ...... | ...... | ...... | ...... | ... | 87 | 87 | Two and three year old males; first arrivals of the new sealing year. |
| June, 1881 | ...... | ...... | ...... | ...... | ... | 8, 133 | ...... | 1 | 31 | 1 | 8, 133 | 8, 166 | Very fine skins; two and three year old males chiefly. |
| July (1st to 20th), 1881 | ...... | ...... | ...... | ...... | ... | 11, 227 | ...... | ...... | 25 | 5 | 11, 227 | 11, 257 | Do. Do. |
| Total | 752 | 1, 330 | 1, 341 | 126 | ... | 19, 385 | ...... | 1 | 56 | 6 | 20, 000 | 21, 505 | |
| Pribylov catch for 1880 (St. Paul and St. George islands): Grand sum total | 5, 771 | 5, 743 | 5, 780 | 1, 467 | 67 | 95, 418 | 633 | 26 | 95 | 9 | 100, 000 | 107, 442 | |

EXPLANATORY COMMENTS UPON THE ABOVE TABLE.—It will be at once noticed that, in the result of this last season's work on the Pribylov islands, as illustrated so clearly above, the Alaska Commercial Company has taken its full annual legal quota of 100,000 fur-seal skins therefrom. I call attention to it, because it is the first season in which the company has done so; it has never heretofore permitted more than 99,800, in round numbers, to be taken and charged to its account, preferring to always be a little within the mark, on account of the exceeding difficulty of reconciling the enumeration of the two sets of government officers, when their counts are placed side by side. For instance, the list of the treasury agent on the islands, when the skins are first shipped, is the official indorsement of the company's catch for the year; but when the ship reaches San Francisco, then these skins are all counted over anew by another staff of government agents. Should the tally of the seal-island agent be defective, and show that it was so by the recount of the custom-house officers in San Francisco, then did it run over 100,000 skins, the company would have an annoying and unpleasant explanation to make; while the resident treasury agent would be charged with maladministration of his affairs. Therefore, as it has never happened before, until this season of 1881, that the two counts at San Francisco and St. Paul have agreed to a unit, the company has given strict and imperative orders that no more than 99,800 or 99,850 skins shall be annually taken by its agents from the seal-islands. Taking the full quota of this season of 1881, was contrary to its express direction.

It is an exceedingly difficult matter to count these skins, precisely to a dot, when they are rapidly hustled int the baidars and then tossed below the decks of the rolling, pitching ship which receives them; a rough sea may b running, a gale of wind howling through the rigging, and a thick fog shrouding all in its wet gloom. I believe therefore, from my own full experience in this important matter, that it is a physical impossibility, at many season of shipment, to tally accurately *every* pelt as it enters the vessel's hold, when loaded off the islands here. The Treasury agent who comes within 100 to 150 skins, more or less, of the true 100,000, or in that ratio to the whole catch, as it may be, is doing all that he possibly can under the circumstances. Naturally, the custom-house tally is considered the most accurate, by reason of the great physical advantages attendant; and, upon its certification the company pays the tax levied by law.

USELESS SLAUGHTER OF THE PUPS.—The observer will also notice, that during the last season, viz, July 20, 1880, to July 20, 1881, as shadowed in the foregoing table, more than 7,000 seals were killed for food, the skins of which were simply wasted—never used; and of that aggregate we find nearly 6,000, or about nine-tenths of the entire loss, to be "pups". At this point, and in this connection, I desire to enter my protest against the useless and wholly uncalled-for slaughter of these pups, which is annually permitted and inadvertently ordered, with the best of spirit, by the Secretary of the Treasury. It is a shiftless legacy of the old Russian Company, which the present admirable conduct of business on the Pribylov islands really renders superfluous and wasteful; it is simply catering to a gastronomic weakness of the Aleuts, that should not be considered, inasmuch as the supply and the flesh of the two and three year-old males is fully good enough; and most of the skins taken from such animals late in October and thereon to the end of the year, will be accepted as prime by the company, and counted in the regular annual quota for exportation. I have in this matter, however, been quite as much at fault as the Secretary himself; more so, because I have not hitherto directed attention to it; it escaped my mind in 1874, and I have not had occasion to recall it until the present writing.

THE SEASON OF 1881 A VERY CREDITABLE ONE.—The exhibit given above, of the work performed in the height of the sealing season, June and July, is a better one, even, than any one which has passed prior to it under my supervision. In other words, the number of cut or rejected skins is almost infinitesimal compared with the huge aggregate accepted; and, were it not for the wasted pup skins, this presentation of the field-labor on the seal-islands for 1881, would be a very clean and economic synopsis.*

The thought also occurred to me, when regarding this special point of the relative improvement in the method of killing and handling seals and pelts, that a very simple yet trustworthy notice, as to the increase or diminution of the seal-life, would be served annually in the following manner: in 1872, I observed that the natives never had any difficulty in getting their full quota of "holluschickie" daily, during the prime season of taking skins; again, in 1873, I saw that, if anything, the number of "holluschickie" required was easier to obtain than in 1872, prior; still again, throughout the killing-season of 1874, the constant remark of all concerned, at St. Paul, was that the prime seals were never so abundant before; and, finally, in 1876, I heard, from these same parties interested, that it had been the most auspicious season, throughout, ever known to St. Paul island.

Thus, it may naturally be inferred, that this steady and rather increased supply of "holluschickie" from year to year, means nothing, unless it points to a relative annual augmentation of the seal-life on the Pribylov islands; and it really acts in this wise as a life-barometer, that is sensibly affected by the heavier or lighter pressure of the rookeries operating upon it.

Hence, the foregoing table, brought down as it is, to date, shows that the chosen seals are in abundant supply; that the work was remarkably expeditious; that the natives scarcely wasted a skin by cutting on the killing-grounds; and, all in all, it represents a highly creditable state of affairs, suggestive of the steady condition of prosperity and security, which I unhesitatingly prophesied in 1873, after giving the matter much study and reflection.

A PRESENTATION OF THE REVENUE DERIVED FROM THE PRIBYLOV ISLANDS.—The following transcript from the books of the Treasury Department, shows the exact receipts which the public coffers have derived as revenues from the seal-industry on the Pribylov islands, between the date of the act leasing them, July 1, 1870, up to August 20, 1881. I may say, without the least exaggeration, that these interests never yielded a tithe of this substantial aid and support to the government of Russia, and they would not have returned a single cent, net, to the Treasury of the United States, had they not been so wisely and promptly protected by the good sense of our Congress in 1870. They would have passed in a few short seasons beyond all knowledge of men, as far as their appearance on the great breeding rookeries of St. Paul and St. George was concerned.

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*The report of Colonel Otis, special agent Treasury Department, in charge of the seal-islands, for 1880, contains an interesting table, which covers a period of eleven years, viz, 1869–1880, inclusive; and it shows, first, the number of seal-skins taken in each sealing season proper on St. Paul island; second, the number of days expended in the work per annum; third, the number of sealers engaged; fourth, the average number of skins taken per day; and fifth, the average daily credit of skins taken for each man. The deduction which that gentleman makes from this suggestive and instructive codification, is that the seals seem to sensibly increase from year to year, rather than to diminish in numbers.

## TAX AND RENTAL PAID INTO THE TREASURY OF THE UNITED STATES BY THE ALASKA COMMERCIAL COMPANY—THE LESSEE OF THE PRIBYLOV ISLANDS—1870–'81.

*Tax on seal-skins taken by the Alaska Commercial Company, per act of July* 1, 1870.

| | | |
|---|---|---|
| No. 422, 4th quarter, 1870 | $86,167 00 | |
| No. 376, 1st quarter, 1871 | 5,862 00 | |
| No. 1215, 2d quarter, 1871 | 9,051 00 | |
| | | $101,080 00 |
| No. 753, 4th quarter, 1871 | 159,545 63 | |
| No. 1255, 2d quarter, 1872 | 102,807 00 | |
| | | 262,352 63 |
| No. 596, 4th quarter, 1872 | | 252,181 12 |
| No. 1466, 3d quarter, 1873 | 108,066 00 | |
| No. 1467, 3d quarter, 1873 | 150,648 75 | |
| No. 1001, 4th quarter, 1873 | 13,366 50 | |
| | | 272,081 25 |
| No. 1533, 3d quarter, 1874 | 261,822 75 | |
| No. 1534, 3d quarter, 1874 | 672 00 | |
| | | 262,494 75 |
| No. 445, 3d quarter, 1875 | 10,106 25 | |
| No. 1515, 3d quarter, 1875 | 147,598 50 | |
| No. 433, 4th quarter, 1875 | 104,879 25 | |
| | | 262,584 00 |
| No. 1089, 3d quarter, 1876 | 172,063 50 | |
| No. 433, 1st quarter, 1877 | 64,092 00 | |
| | | 236,155 50 |
| No. 1527, 3d quarter, 1877 | | 198,255 75 |
| No. 1659, 3d quarter, 1878 | 36,965 25 | |
| No. 1660, 3d quarter, 1878 | 209,895 00 | |
| No. 1581, 4th quarter, 1878 | 15,587 25 | |
| | | 262,447 50 |
| No. 1088, 3d quarter, 1879 | 223,125 00 | |
| No. 1686, 4th quarter, 1879 | 39,275 25 | |
| | | 262,400 25 |
| 3d quarter, 1880 | | 262,500 00 |
| 1881 | | 262,395 00 |
| Total tax paid up to date, August 20, 1881 | | 2,896,927 75 |
| Plus the annual rental of $55,000, from 1871–1880, inclusive, plus $5,480 75 rental for short lease of 1870 = rental paid | | 555,480 75 |
| Grand sum total of tax and rental | | 3,452,408 50 |

# GLOSSARY.

## 41. DEFINITION OF TECHNICAL TERMS AND RUSSIAN NOMENCLATURE, USED BY THE AUTHOR IN THE PRECEDING MONOGRAPH.

**Ahluckeyak** (Aleutian).—A rough back-bone.

**Aleut** (Russian).—Name given to all native inhabitants of the Aleutian islands.

**Arrie** (Russian).—*Lomvia arra.* The guillemot, or murre; so named from the bird's harsh cry of "arra-arra".

**Baillie Brüshkie** (Russian).—*Phaleris psittacula.* Parroquet Auk; "white bosom".

**Banyah** (Russian).—A steamy bath-house.

**Barbie** (Russian).—An elderly married woman.

**Barrabkie** (Russian).—A hut.

**Barrabara** (Russian).—A large hut, or "kozarmie".

**Booroon** (Russian).—Surf.

**Bidarrah** (Russian).—A large skin-covered boat, propelled with oars, or used with sails before the wind; carries from three to ten tons.

**Bidarka** (Russian).—A small skin-covered canoe.

**Bidarshik** (Russian).—One who controls a baidar and its crew; a foreman.

**Bobrovia** (Russian).—Otter island.

**Boga Slov** (Russian).—God's word.

**Boorga** (Russian).—Gale that blows fiercely and is laden with snow; from "booryah", a storm or tempest.

**Bolshoi** (Russian).—Big.

**Buik** (Russian).—A working ox, or bull.

**Bull** (English).—The adult male fur-seal; also the adult male walrus and sea-lion.

**Canooskie** (Russian).—*Simorhynchus cristatellus.* Crested auk.

**Chikie** (Russian).—*Larus glaucus.* Burgomaster gull.

**Chornie Goose** (Russian).—*Branta canadensis* var. *leucopareia.* White-collared goose.

**Choochkie** (Russian).—*Simorhynchus pusillus.* Least, or knob-billed auk.

**Choochil** (Russian).—To Stuff.

**Cookhnet** (Russian).—The Aleutian cooking hut outside of the barrabkie.

**Cow** (English).—The adult female of the fur-seal, the sea-lion, and the walrus.

**Dalnoi Mees** (Russian).—Distant cape.

**Deetiah** (Russian).—Children.

**Domashnie** (Russian).—Houses.

**Einahnuhto** (Aleutian).—The mammæ.

**Emannimik** (Russian).—Namesday; or, literally, used as birthday.

**Epatka** (Russian).—*Fratercula corniculata.* Horned puffin.

**Flensing** (English).—Act of removing skins from seal carcasses.

**Flipper** (English).—The fore-hand and hind-foot of fur-seal, sea-lion, and walrus.

**Gorbotch** (Russian).—Humpback.

**Gorode** (Russian).—A town; a village.

**Goverooskie** (Russian).—*Larus brevirostris*, and *L. tridactylus.* Gulls.

**Hauling** (English).—Action of seals in coming up from the sea over the land.

**Heat**, "**heating**" (English).—That sudden decay of the seal's body after death.

**Holluschak**, pl. **holluschickie** (Russian).—Bachelor; bachelors.

HUMPBACK WHALE (English).—*Megaptera versabilis.*

KALOG (Aleutian).—All the small cottoid fishes.

KAMLAIKA (Russian).—The water-proof shirt.

KAMMIN (Russian).—Stone.

KAMMINISTA (Russian).—Rocky place.

KANOOSKA (Russian).—See Canooskie, *antea.* "Little captain."

KAPOOSTAH (Russian).—All algæ. Sea-weeds; from "morskie kapoosta", a "sea-cabbage".

KAUTICK, pl. KAUTICKIE (Russian).—Fur-seal, collectively.

KEETAVIE (Russian).—Whale place.

KENCH (English).—Bin in the salt-house for pickling fur-seal skins.

KESHLA (Russian.)—Sour; rotting.

KIBITSCHA (Russian).—The common four-wheeled carriage of Russia.

KILLER-WHALE (English).—*Orca gladiator*, var. *rectipinnis.*

KOLITSKIE (Russian).—*Tringa ptilocnemis*, and all waders on the islands.

KOTICK, pl. KOTICKIE (Russian).—Young fur-seal.

KVASS, or QUASS (Russian).—Native home-brewed beer; vile product of flour, dried apples, sugar, and water, fermented in a cask for a certain period; also called "mahkoolah", after a Russian brewer.

LAABAS (Russian).—Drying or hanging frame for meat and fish.

LAAFKA (Russian).—Storehouse, or store.

LAASBUSTCHIE (Russian).—Breeding-grounds (literally, "a place where seals dry off").

LIMMERSHIN (Aleutian).—*Anorthura troglodytes;* wren. (A "chew of tobacco").

LOUGHTAK (Russian).—Air dried skins of all seals.

LUPUS (Russian).—*Fulmarus glacialis*, var. *Rodgersi.* Fulmar. A large species of petrel.

MAASLUCKEN (Aleutian).—Missing, or minus.

MATKA (Russian).—Mother; applied to female fur-seals and sea-lions.

MEDVAIDSKI (Russian).—Bears.

MELCHISKA (Russian)—Boy; urchin.

MEES (Russian).—Cape; headland; point.

MISTA (Russian).—Place; spot.

MOROSHKA (Russian).—The fruit of *Rubus chamæmorus.* "Little frost berry."

MORSEZOVIA (Russian).—Walrus island; also, "Morserovia".

MORSKIE KOT (Russian).—Fur-seals ("sea-cat").

NAHVOSTOKE (Russian).—"To the eastward"; applied to the Black Bluffs on St. Paul.

NAHSAYVERNIA (Russian).—"To or on the north shore."

NAH SPEEL (Russian).—"On the point"; a corruption of "nah speetsah".

NEARHPAH (Russian).—*Phoca vitulina.* The hair-seal.

NOVASTOSHNAH (Russian).—"Place of recent growth"; applied to Northeast point.

OCHEN (Russian).—Very.

OOTKIE (Russian).—Duck; applied to all ducks.

OREEL (Russian).—*Graculus bicristatus.* Shag, cormorant.

OSTROV (Russian).—Island.

PAHKNOOT (Russian).—A smell.

PAHTOSHKIE (Russian).—*Leucosticte tephrocotis* var. *griseinucha.* Gray-eared finch.

PEESAICH, pl. PEESTCHEE (Russian).—*Vulpes lagopus.* Blue and white foxes.

POD (English).—A smaller or larger gathering of seals on land.

POLAVINA SOPKA (Russian).—Halfway mountain.

POLTOOS (Russian).—*Hippoglossus vulgaris.* Halibut.

POMEERAT (Russian).—To die; applied only to the decease of animals.

PRECASHCHIK (Russian).—An agent; a clerk; a sheriff.

PREDOVCHIK (Russian).—The "senior officer".

PROMYSHLENIK (Russian).—A hunter.

POVARNIK (Russian).—A cook-room.

PUP (English).—The young of the fur-seal and sea-lion, up to the age of one year.

RAAK (Russian).—The common crab. (*Chionoeocetes.*)

RAHKOOSHKA (Russian).—The common mussel. (*Mytilus.*)

RAP-O-LOOF (Russian).—*Turdus migratorius.* Red-breasted Robin.

RAZBOINEK (Russian).—Robber.

REPKIE (Russian).—*Echinoidæ.* Sea-urchins.

ROOKERY, pl. ROOKERIES (English).—Breeding-grounds and breeding-seals thereon.

SAAFKA (Russian).—*Harelda glacialis.* "Old squaw," long-tailed duck.
SCOOCHNIE (Russian).—Tiresome; lonesome.
SEECATCH, pl. SEECATCHIE (Russian).—Male fur-seal and sea-lion, full grown.
SEEVITCH, pl. SEEVITCHIE (Russian).—Sea-lion, collectively.
SEROVNAH (Russian).—"Just like it."
SHEKSAH (Russian).—*Empetrum nigrum.* Vine and fruit thereof. The "crowberry" of English botanists.
SNAGUISKIE (Russian).—*Plectrophanes nivalis.* The snow bird.
STAROOKA (Russian).—An old woman.
STAREEK (Russian).—An old man.
STÖORMAN (Russian).—Ship's mate.
TALNEEK (Russian).—*Salix.* All the creeping willows are thus named.
TARBOSSA (Russian).—Native boots made of the flippers, throats, and intestines of the *Pinnipedia.*
TAWPORKIE (Russian).—*Fratercula cirrhata.* Tufted puffin; from its hatchet-like bill.
TAYOPLI (Russian).—Warm.
TOLSTOI (Russian).—Thick.
TONKIE MEES (Russian).—Little or peaked cape.
TREESCA (Russian).—*Gadus morrhua.* Codfish.
UN KONCHIELSAH (Russian).—"He has finished." The refined reference to human death; never applied to animals.
VARRONE (Russian).—*Corvus corax.* Raven.
VESOLIA MISTA (Russian).—Jolly place.
WHALE RIND (English).—The skin of the whale.
WIG (English).—That light buff-colored patch on the shoulders of the seecatchie.
ZAPOOSKA (Russian).—A saving of, or sparing of.
ZOOBÄDEN (Russian).—"Tooth cut; tooth bitten."

## 42. WEIGHTS, MEASURES, AND VALUES.

I introduce the following brief tables of Russian weights, measures, and values, in order that the occasional mention made by Veniaminov, in this respect, may be clearly understood, and also to assist any inquiring individual who may be disposed to read up Russian authorities on the subject of their travel, geographical research, and fur-trade in Alaska.

WEIGHTS.

1 zolotnik = 6 English grains av.
3 zolotnik = 1 "Lot".
32 "lots" = 1 English pound av.
1 pood = 36$\frac{1}{10}$ English pounds av.

MEASURES.

1 arsheen = 28 English inches.
1 vershoak = 1¾ English inches.
1 sajeen = 7 English feet.
3 versts = 2 English miles.

MONEY.

1 copper kopeck = 1 silver kopeck.
2 copper kopecks = 1 grösh.
3 copper kopecks = 1 alteen.
5 copper kopecks = 1 peetack.
5 silver kopecks = 1 peetak.
10 silver kopecks = 1 greevnah.
15 silver kopecks = 1 peteealtin.
20 silver kopecks = 1 dvoogreevenik.
25 silver kopecks = 1 chetvertak.
50 silver kopecks = 1 polteenah.
100 silver kopecks = 1 ruble.*

The gold coinage of Russia is seldom seen, even at home, and never has been used in Alaska; the form of its coinage is known to Russians as an "Impériale", and is equal to about $5 of our currency.

The word "ruble", according to Mr. S. N. Büynitskie, comes from the Russian "roobeet", or, to hew with a hatchet, because the practice of notching the bullion bars, as specified below, was one that called for the use of a little ax for that purpose. In 1654 rubles were first introduced to Russia, at Moscow, in the form of bullion bars, with deep notches in them, "*rubli,*" which enabled the possessor to detach as much of the bar as his payment might-require; hence the origin of the word *ruble;* the first silver money of Russia was coined at Novogorod in 1420; it was struck in small pieces, which were then, as now, called "*kopecks*"; the present value of the kopeck is not quite ¾ of 1 cent (United States currency). Nearly all the ordinary business calculations of Russia are made upon the basis of kopecks. At present, specie has substantially disappeared in that country, and depreciated paper is the representative; the silver kopeck no longer exists as current coin. The copper kopeck bears on its obverse side the figure of St. George spearing a dragon: "from this spear," says Georgi, "called *kapœa* in Russian, the term *kopeck* has been derived."

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*The silver ruble is nearly equal to 75 cents in our coin. The paper ruble fluctuates in Russia from 40 to 50 cents, specie value; in Alaska, it was rated at 20 cents, silver. Much of the "paper" currency in Alaska during Russian rule was stamped on little squares of walrus hide.

A still smaller coin, called the "*polooshka*", worth ¼ kopeck, has been used in Russia; it takes its name from a hare skin, "*ooshka*", or "little ears", which, before the use of money by the Sclavs, was one of the lowest articles of exchange; *pol* signifying *half*, and *polooshka*, *half a hare's skin.* From another small coin, the "*deinga*" (equal to ½ kopeck in value), is derived the Russian word for money, *deingah* or *deingie.**

In conclusion, it may be interesting to add to this mention of the coin used on the seal-islands and in the fur-trade transactions of Alaska, that the first piece of stamped money known to the numismatic records is a small coin made by the Phocians about 700 B. C., on the obverse side of which was the figure of a seal, so stamped because when these people were emigrating their boats were "followed by shoals of seals".

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*As far as I can ascertain, the above expression of Russian nomenclature, regarding the subjects named, is the first correct rendition made in the English language of the same. Clarke [*Travels:* 1800] gives, on a fly-leaf of introduction to his interesting and graphic picture of Russian life and country, these items of weight, measure, and money, nearly all correct as to figures, but hardly one of the Muscovitic equivalents is properly pronounced and spelled in accordance. He frankly confesses his ignorance, however, of the Russian language, and hence bars out all adverse criticism thereby. I should also add that I have, as far as possible, refrained from using any of the Aleutian nomenclature on the seal-islands, for the simple reason that while those natives do not, in talking among themselves, employ the above Russian titles, yet when they address us they do, and hence the Slavonian designations are those which all races up there agree upon in their definition and application.

# EXPLANATORY NOTES AND COMMENTS UPON THE MAP OF ST. PAUL ISLAND.

**St. Paul.**—This name was given to the island because it was descried for the first time on St. Paul's Day, July 10, 1787, by the Russian discoverers. [June 29, Justinian calendar.]

**Definitions for Russian names of the rookeries, etc.**—The several titles on the map that indicate the several breeding-grounds, owe their origin and have their meaning as follows:

**Zapadnie** signifies "*westward*" and is so used by the people who live in the village.

**Zoltoi** signifies "*golden*", so used to express the metallic shimmering of the sands there.

**Ketavie** signifies "*of a whale*", so used to designate that point where a large right whale was stranded in 1849 (?); from Russian "*keet*", or "*whale*".

**Lukannon.**—So named after one Lukannon, a pioneer Russian, who distinguished himself, with one Kaiecov, a countryman, by capturing a large number of sea-otters at that point, and on Otter island, in 1787-'88.

**Tonkie mees** signifies "*small (or "slender") cape*" [tonkie, "thin"; mees, "cape"].

**Polavina** literally signifies "*half way*", so used by the natives because it is practically half way between the salt-houses at Northeast Point and the village. **Polavina Sopka**, or "*half-way mountain*", gets its name in the same manner.

**Novastoshnah**, from the Russian "*novaite*", or "*of recent growth*", so used because this locality in pioneer days was an island to itself; and it has been annexed recently to the main land of St. Paul.

**Vesolia mista**, or "*jolly place*", the site of one of the first settlements, and where much carousing was indulged.

**Maroonitch**, the site of a pioneer village, established by one Maroon.

**Nahsayvernia**, or "*on the north shore*", from Russian "*sayvernie*".

**Boga Slov**, or "*word of God*", indefinite in its application to the place, but is, perhaps, due to the fact that the pious Russians, immediately after landing at Zapadnie, in 1787, ascended the hill and erected a huge cross thereon.

**Einahnuhto**, an Aleutian word, signifying the "*three mammæ*".

**Tolstoi**, a Russian name, signifying "*thick*"; it is given to at least a hundred different capes and headlands throughout Alaska, being applied as indiscriminately as we do the term "Bear creek" to little streams in the western states and territories.

**The Profile of St. Paul.**—That profile of the south shore, between the Village Hill and Southwest Point, taken from the steamer's anchorage off the Village cove, shows the characteristic and remarkable alternation of rookery slope and low sea-level flats. This point of viewing is slightly more than half a mile true west of the Village hill, to a sight which brings Boga Slov summits and Tolstoi head nearly in line. At Zapadnie is the place where the Russian discoverers first landed in 1787, July 10. With the exception of the bluffy west end, Ein-ahnuh-to cliffs, the whole coast of St. Paul is accessible, and affords an easy landing, except at the short reach of "Seethah" and the rookery points, as indicated. The great sand beach of this island extends from Lukannon to Polàvina, thence to Webster's house, Novastoshnah; from there over, and sweeping back and along the north shore to Nahsayvernia headland, then between Zapadnie and Tolstoi, together with the beautiful though short sand of Zoltoi. This extensive and slightly broken sandy coast is not described as peculiar to any other island in Alaska, or of Siberian waters.

**Fresh-water lakes.**—There are no running streams at any season of the year on St. Paul; but the abundance of fresh water is plainly presented by the numerous lakes, all of which are "svayjoi", save the lagoon estuary. The four large reefs which I have located are each awash in every storm that blows from seaward over them; they are all rough, rocky ledges. That little one indicated in English bay caused the wrecking of a large British vessel in 1847, which was coming in to anchor just without Zapadnie; a number of the crew were "maaslucken",* so my native informant averred.

**Drift-wood.**—Most of the small amount of drift-wood that is found on this island is procured at Northeast Point, and Polavina; the north shore from Maroonitch to Tsammanah has also been favored with sea-waif logs in exceptional seasons, to the exclusion of all other sections of the coast. The natives say that the St. George people get much more drift-wood every year, as a rule, than they do on St. Paul. From what I could see during my four seasons of inspection, they never have got much, under the best of circumstances, on either island. They pay little attention to it now, and gather what they do during the winter season, going to Polavina and the north shore with sleds, on which they hoist sails after loading there, and scud home before the strong northerly blasts.

Captain Erskine informs me that the water is free and bold all around the north shore, from Cross hill to Southwest Point; no reefs or shoals up to within a half a mile of land anywhere. English bay is very shallow, and no sea-going vessel should attempt to enter it, that draws over 6 feet.

**Authorities for latitude and longitude.**—All the positions of latitude and longitude which I place upon this map are taken from Captain Archimandritov's manuscript chart. During the whole month of July, 1874, while I was here with the "Reliance", there was not a single opportunity for a solar observation, although Captain Baker made several attempts to make some. Captain Erskine, however, has verified Archimandritov's work, and says that it is very near the correct thing. I could have taken observations easily in the occasional clear November days of 1872, but, unfortunately, the chronometer which I had, proved so defective that I abandoned the labor.

**How to reach Walrus islet.**—To visit Walrus island in a boat, pleasantly and successfully, it is best to submit to the advice and direction of the natives. They leave the village in the evening, and, taking advantage of the tide, proceed along the coast as far as the bluffs of Polavina, where they rest on their oars, doze and smoke, until the dawning of daylight, or later, perhaps, until the fog lifts enough for them to get a glimpse of the islet which they seek; they row over then in about two hours with their bidarrah. They leave, however, with perfect indifference as to daylight or fog; nothing but a southeaster can disturb their tranquility when they succeed in landing on Walrus island. They would find it as difficult to miss striking the extended reach of St. Paul on their return, as they found it well nigh impossible to push off from Polavina and find "Morzovia" in a thick, windy fog and running sea.

**Otter islet: Slight correction.**—Otter island, or "Bobrovia", is easily reached in almost any weather that is not very stormy, for it looms up high above the water. It takes the bidarrah about two hours to row over from the village, while I have gone across once in a whale-boat with less than one hour's expenditure of time, sail and oars, *en route*. A slight mistake of the engraver causes Crater point to appear as a bifurcated tongue. It is not so; but there is a funnel-shaped cavity here plainly emarginated from the sea, and on that extreme point, constituting and giving to it this name.

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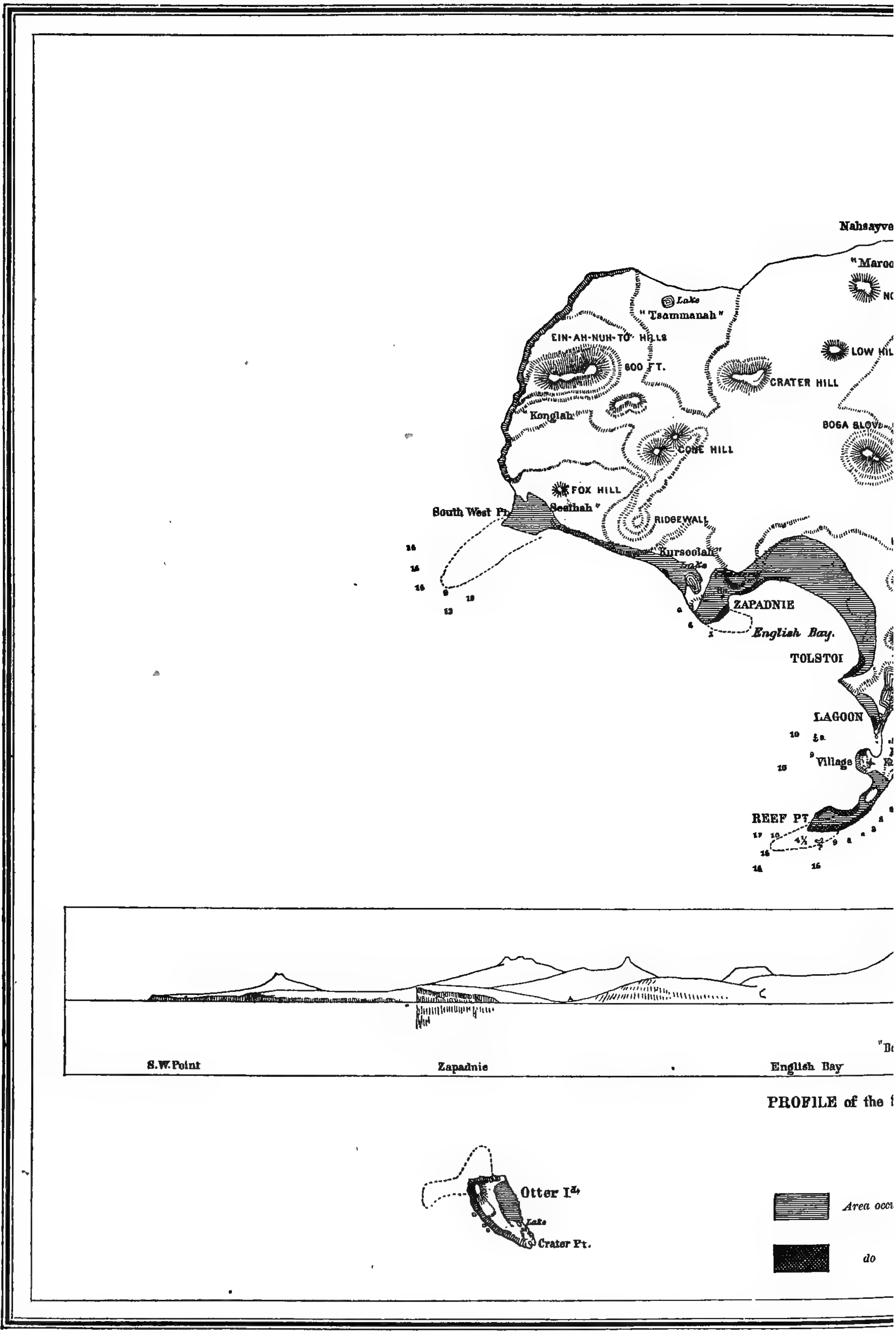
*Anything missing, or beyond human ken, in the Aleutian vernacular is "maaslucken".


Nahsayve
"Maroo
LOW HIL
CRATER HILL
BOGA SLOV
Lake
"Tsammanah"
EIN-AH-NUH-TO HILLS
600 FT.
Konglah
CONE HILL
FOX HILL
"Seethah"
South West Pt.
RIDGEWALL
"Kursoolah"
Lake
ZAPADNIE
English Bay.
TOLSTOI
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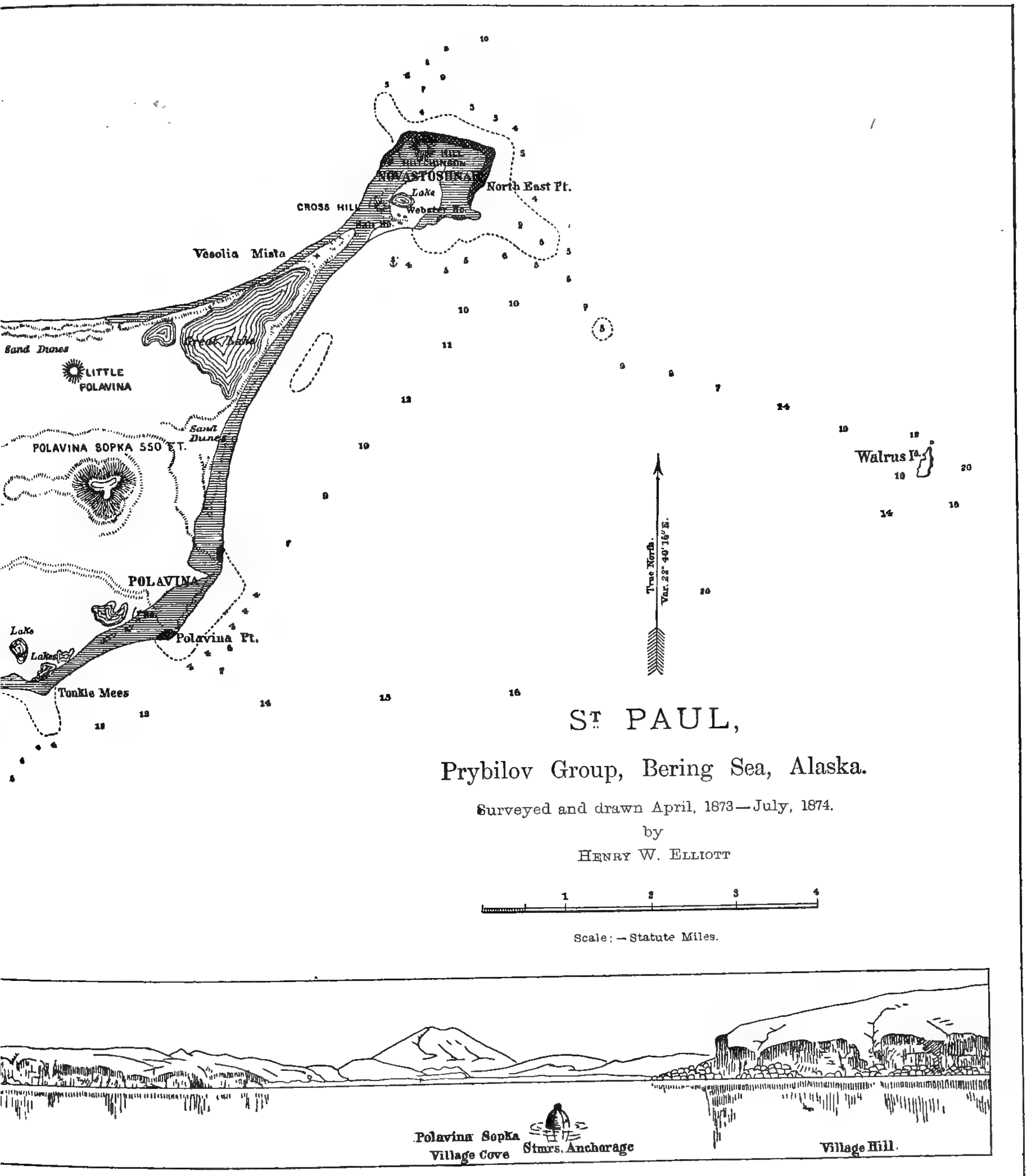


# St. PAUL,

## Prybilov Group, Bering Sea, Alaska.

Surveyed and drawn April, 1873—July, 1874.
by
Henry W. Elliott

Scale:—Statute Miles.

Superficial area of St. Paul 33 sq. m 42 m shore line (16½ *of which Seal Ground.)*

| | | |
|---|---|---|
| Reef Point | 57° 08′ 00″ N. Lat. | 170° 12′ 00″ W. Long. |
| S. W. | 57° 11′ 12″ N. Lat | 170° 19′ 03″ W. Long. |
| N. E. | 57° 16′ 04″ N: Lat. | 170° 00′ 02″ W. Long. |
| Otter I. | 57° 03′ 00″ N. Lat. | 170° 16′ 00″ W Long. |
| Walrus I. | 57° 11′ 05″ N. Lat. | 169° 49′ 05″ W. Long. |

*"Hauling Grounds."*

*"Breeding do.*

Soundings by Capt. J. G. Baker, U. S. Revenue Marine, in fathoms.

# EXPLANATORY NOTES AND COMMENTS UPON THE MAP OF ST. GEORGE ISLAND.

St. George.—This title was given to the island by its discoverer in honor of his vessel, the sloop "St. George".

Salient features of the topography: Inaccessible character of the coast.—The profile which I give of this island presents clearly the idea of that characteristic, bold, abrupt elevation of St. George from the sea. From the Garden cove around to Zapadnie beach, there is not a single natural opportunity for a man to land; then, again, from Zapadnie beach round to Starry Ateel there is not one sign of a chance for an agile man to come ashore and reach the plateau above. From Starry Ateel to the Great Eastern rookery there is an alternation, between the several breeding-grounds, of three low and gradual slopes of the land to sea-level; these, with the landing at Garden cove and at Zapadnie, are the only spots of the St. George coast where we can come ashore. An active person can scramble up at several steep places between the Sea Lion rookery and Tolstoi Mees, but the rest of that extended bluffy sea-wall, which I have just defined, is wholly inaccessible from the water. A narrow strip of rough, rocky shingle, washed over by every storm-beaten sea, is all that lies beneath the mural precipices.

Pretty cascade at Waterfall head.—In the spring, when the snow melts on the high plateau, a beautiful cascade is seen at Waterfall head; the feathery, filmy, silver ribbon of plunging water is thrown out into exquisite relief by the rich background of that brownish basalt and tufa over which it drops. Another pretty little waterfall is to be seen just west of the village, at this season only, where it leaps from a low range of bluffs to the sea; the first named cascade is more than 400 feet in sheer unbroken precipitation.

One or two small, naked, pinnacle rocks, standing close in, and almost joined to the beach at the Sea Lion rookery, constitute the only outlying islets or rocks; a stony kelp bed at Zapadnie, and one off the Little Eastern rookery, both of limited reach seaward, are the only hinderances to a ship's sailing boldly round the island, even to scraping the bluffs, at places, safely with her yard-arms. I have located the Zapadnie shoal by observation from the bluffs above; while Captain Baker, of the "Reliance", sounded out the other.

Authorities for latitude and longitude.—The observations which fix the positions of Tolstoi and Dalnoi Mees are taken from Russian authority (Captain Archimandritov), while the location of the village was made by Lieutenant Washburn Maynard and myself, in 1874, together with the degrees of variation to the compass; we used an artificial horizon; the overcast weather prevented our verification of the two other points given.

Trend of ocean currents here.—Although small quantities of drift-wood lodge on all points of the coast, yet the greatest amount is found on the south shore, and thence around to Garden cove; this drift-timber is usually wholly stripped of its bark, principally pine and fir sticks, some of them quite large, 18 inches to 2 feet in diameter. Several years occur when a large driftage will be thrown or stranded here; then long intervals of many seasons will elapse with scarcely a log or stick coming ashore. I found at Garden cove, in June, 1873, the well preserved husk of a cocoanut, cast up by the surf on the beach; did I not know that it was most undoubtedly thrown over by some whaler in these waters, not many hundred miles away at the farthest, I should have indulged in a pretty reverie over its path in drifting from the South seas to this lonely islet. I presume, however, that the timber, which the sea brings to the Pribylov islands, is that borne down upon the annual floods of the Kuskokvim and Nushagak rivers, on the mainland, and to the east-northeastward, a little more than 225 miles; it comes, however, in very scant supply. I saw very little drift-wood on St. Matthew island; but on the eastern shore of St. Lawrence there was an immense aggregate, which unquestionably came from the Yukon mouth.

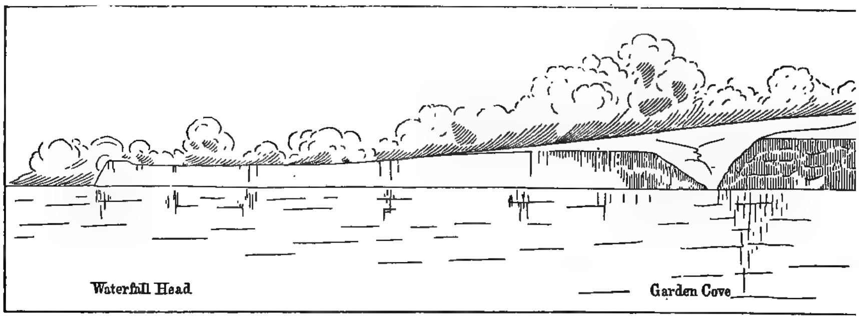
Spot of Pribylov's landing.—One of the natives, "stareek", Zachar Oostigov ("the president"), told me that the "Russians, when they first landed, came ashore in a thick fog", at Tolstoi Mees, near the present Sea Lion rookery site. As the water is deep and bold there, Pribylov's sloop, the "St. George", must have fairly jammed her bowsprit against those lofty cliffs ere the patient crew had intimation of their position. The old Aleut then showed me the steep gully there, up which the ardent discoverers climbed to the plateau above; and to demonstrate that he was not chilled, or weakened by age, he nimbly scrambled down to the surf below, some 350 vertical feet, and I followed, half stepping and half sliding over Pribylov's path of glad discovery and proud possession, trodden one June day by him, nearly a hundred years ago.

Suggestions for better loading and discharging a cargo.—With regard to the loading and unloading of the vessels at St. George, I believe that it would be wise and economical to grade a wagon-road over from the village to Garden cove; I think so because weeks and weeks consecutively have passed, to my personal knowledge, between the unloading and the loading of the steamer; when, during all that season of weary, anxious waiting for the surf to quiet down at the village landing, there was not a single day in which the ship could not have discharged or received her cargo easily and expeditiously on the sand beach at Garden cove. When the "St. Paul" has 75,000 seal-skins in her hold, taken on at the larger island, then has to pound "off and on" here, in fog and tempest, for a week or two, or even longer, waiting for a chance to get the 20,000 or 25,000 St. George skins (ready for her) in turn, her cargo is too costly to risk in this manner, inasmuch as the difficulty can be readily obviated by the cart-road I have indicated. The natives could and would hitch themselves into large hand-carts, and thus draw the skins across and supplies back, with the aid of a mule or two on the stiff grade; this would occur in ascending Ahluckeyak ridge from the village, and also up a short one again rising from Garden cove to the mesa tops. The distance is only 2¾ to 3¼ miles, and 2 miles of that is nearly fit for wheels, as it lies to-day. I think, seriously, this should be done; it may save or prevent in the future the loss of a valuable ship and her priceless cargo of human life and all its belongings. Thick fogs and howling gales of wind, are dangerous and chronic here.

What the sketch-map shows.—The sketch-map of Alaska, which I have inserted in the lower corner of this chart of St. George, is to show, better than any language can, the relative position of these celebrated seal-islands; and also to give a clear idea of their isolation and great distance from Sitka, where most of our people think all Alaska is centered. In fact, Sitka, as far as trade and resources and population are concerned, is one of the most insignificant spots known to that country. Kadiak, Oonga, Belcovskie, and Oonalashka each have a greater civilized population than has Sitka to-day, and each has a hundred-fold more importance as a trade-center. As the ship sails, the Pribylov islands are:

2,250 miles W. N.W. from San Francisco.
1,500 miles W. N.W. from Vancouver island, straits of Fuca.
1,400 miles W. N.W. from Sitka.
550 miles SW. N. W. from Kadiak.
192 miles N. N. W. from Oonalashka.
700 miles E. N. E. from Commander islands, Russian territory.

All these distances are via Oonalashka, save the last one.



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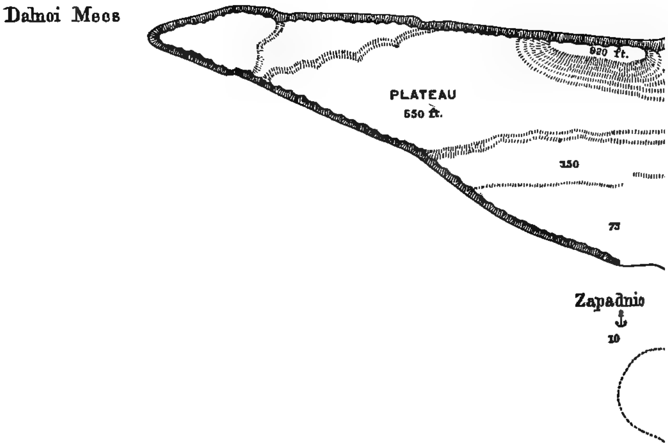
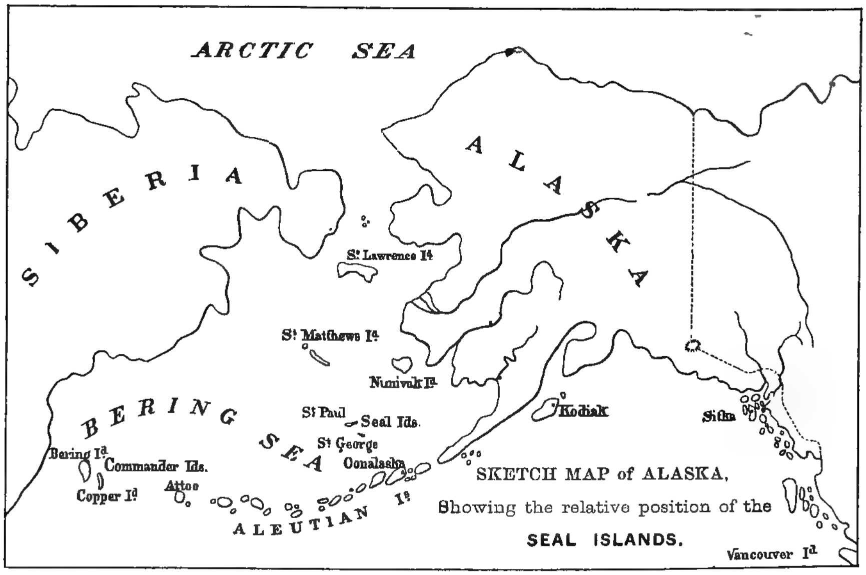
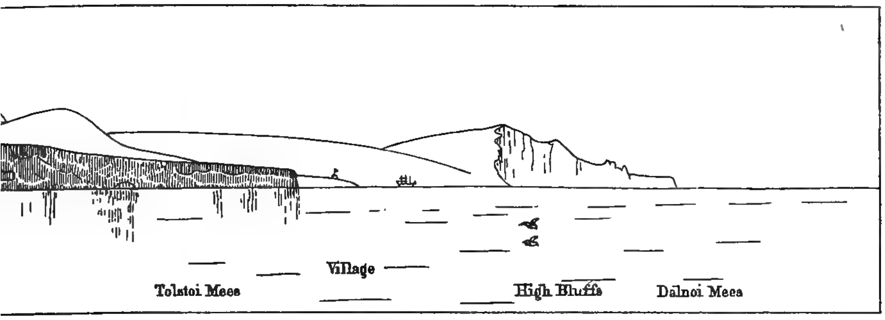




SKETCH MAP of ALASKA,
Showing the relative position of the
SEAL ISLANDS.



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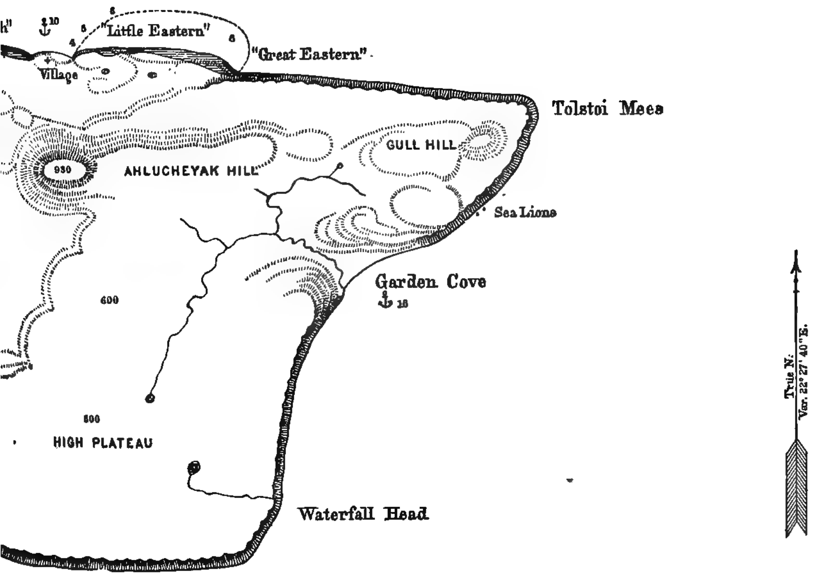

# ST GEORGE,

## Prybilov Group, Bering Sea, Alaska.

Surveyed and drawn April, 1873—July, 1874.
by
Henry W. Elliott.

Scale: — Statute Miles.

| | | |
|---|---|---|
| Tolstoi Mees; | 56° 37' 01" N. Lat. | 169° 27' W. Long. |
| Dalnoi Mees; | 56° 38' 03" N. Lat. | 169° 44' W. Long. |
| Village; | 56° 39' 16" N Lat. | 169° 19' W. Long. |

Water deep and bold all around Island, 16 to 20 fathoms.

EGEND.

*C. Ursinus as "Hauling Grounds."*

*do "Breeding do.*

area 27 sq: m., 29 m. coast.
*of which occupied by seals.)*

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# REPORT

ON THE

# SHIP-BUILDING INDUSTRY OF THE UNITED STATES.

BY

HENRY HALL,
SPECIAL AGENT.

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# LETTER OF TRANSMITTAL.

NEW YORK, *November* 30, 1882.

Hon. CHARLES W. SEATON,
*Superintendent of Census, Washington, D. C.*

SIR: I beg to submit a report on the ship-building industry of the United States.

The work of this investigation began in November, 1880, in the city of Bath, Maine, at which place the greatest number and the largest and finest wooden vessels in this country are built. It was found almost at once that the only means of getting full, reliable, and accurate statistics of the ship-building industry would be by personal visitation of the various ship-building localities of the country. After a thorough study of the state of the industry in Maine, the whole coast southward to Norfolk, Virginia, was visited, every ship-yard, repair yard, boat-shop, and important establishment being entered on the way. All the different establishments scattered along the Hudson river were then visited, and after that the boat-yards of the Erie canal and the ship-yards of the northern lakes all the way from Oswego, New York, to Manitowoc, Wisconsin. The statistics of the industry at Green Bay, Wisconsin, were obtained by correspondence. Letter-writing was, however, seldom resorted to, as one day spent in a ship-yard in personal contact with builder, engineer, and workmen, and in the inspection of such books, draughts, and models as one would be permitted to see, was worth four weeks' correspondence by mail. After a visit to the lakes, several weeks were spent on the Monongahela, Allegheny, Kanawha, Ohio, and Mississippi rivers in gathering the statistics of barge and steamboat building and in learning by actual observation what was going on in the yards. Two months were then spent on the Pacific coast in personal visits to all the different ship-building localities in California and on Puget sound and the Columbia river, Humboldt bay and Coos bay alone excepted, data from the two bays being obtained by correspondence. With regard to the Gulf of Mexico and the south Atlantic coast, the statistics of the industry were obtained through the medium of the local census agents and the local collectors of customs, and were verified by means of data prepared by leading and well-informed shipwrights in Charleston, South Carolina; Key West, Florida; New Orleans, Louisiana; and Galveston, Texas.

Great pains have been taken to verify the facts and statistics presented in this report. A large number of small builders keep no accounts other than rough memoranda on a board, no copy of which is retained after the boat or vessel in hand is completed, or, at any rate, nothing better than equally rough notes jotted down in a pocket memorandum book, which are not complete when entered, and are almost unintelligible in a year's time. Vessel builders trust to their memory and judgment in some things to an extent hardly paralleled in any other trade, and it frequently happened that those who had completed vessels of considerable size in the census year, having no accounts, and not having charged their memories with details, were unable to tell the quantities of materials that had entered into the construction of the vessels or how much money had been paid out for labor in building them. In such cases a careful calculation of the quantities of materials was made, based upon the size of the scantling in the vessels and the style of fastening adopted, and a result was then reached which, when corrected by the recollections of the builder, was practically correct. Results arrived at in this manner were compared with data obtained directly from the books of more careful builders, a large number of whom cheerfully submitted their private accounts for the inspection of the agent of the Census Office; and it is believed that by the continual employment of both of these checks upon the returns of the small builders, and by taking the returns of the larger establishments directly from their books, exaggeration has been avoided and substantial accuracy reached.

On the whole, the ship-builders of the country have assisted in the collection of facts about their industry with great heartiness. A few were sensitive and suspicious, owing to the fact that they had not been making money for a few years; but the great majority gave such practical and sufficient help as to secure the faithful and complete collection of the statistics required. A number of them have taken considerable trouble to supply information for this report. The Census Office is particularly indebted to the following persons:

L. W. Houghton, of Bath, Maine, for facts concerning cost of materials, cost of ships, and methods of building in former years.

William Rogers, of Bath, Maine, for historical and other valued information.

Pattee & Rideout, draughtsmen, of Bath, Maine, for models of old cotton ships and freighting vessels.

Edward O'Brien, of Thomaston, Maine, for information as to the days of labor required for the building of great ships.

Mrs. Donald McKay, of Hamilton, Massachusetts, for data in relation to the famous clipper ships built by her husband during his lifetime.

Hiram Lowell & Son, of Salisbury, Massachusetts, for models of fishing boats and historical information.

William H. Webb, of New York, for historical data in regard to the ship-building of New York city.

Gildersleeve & Sons, of Portland, Connecticut, for historical data.

William Cramp & Sons, of Philadelphia, for draughts, etc., of iron vessels.

The Harlan & Hollingsworth Company, of Wilmington, Delaware, for information in regard to iron vessels.

Robert Ashcroft, of Baltimore, for draughts and models of the clipper vessels of that port.

Emerson Rokes, of Baltimore, for facts about the white-oak supply of the Maryland and Virginia peninsulas.

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Constructor George W. Much, of Mare Island navy-yard, for draughts of vessels.

Constructor Samuel M. Pook, of the Washington navy-yard, for strength and weight of American ship-building woods.

Professor C. S. Sargent, of Brookline, Massachusetts, chief special agent of the Census Office on forestry, for data in regard to weights of American ship-building woods and the supply of ship timber.

W. W. Bates, of Chicago, for historical data.

Hon. N. B. Walker, chief of the tonnage division of the Treasury Department, for valuable tables showing the ship-building of the United States from 1797 down to 1882, being the first complete statement ever prepared for publication.

A large number of others have aided in the collection of special information of much value in the preparation of this report.

Respectfully, yours,

HENRY HALL,
*Special Agent.*

# SHIP-BUILDING INDUSTRY OF THE UNITED STATES.

## CHAPTER I.—FISHING VESSELS.

Fishing vessels properly come first in any account of the American ship-building industry. In the United States there are owned at the present time more than 51,000 boats and vessels which are regularly engaged in fishing either along the different coasts of the country, or on the banks of Newfoundland, or in the distant latitudes near the north and south poles, where they go for the noblest game the sea contains—the whale, the seal, and the sea lion. This multitude of boats, sloops, schooners, and ships gives constant employment to more than 101,000 hardy and energetic men in the catching and curing of fish and to thousands of people on shore in the various trades concerned in the building, fitting out, repair, and maintenance of vessels, and half a million of our population are afforded a livelihood by the fishing enterprise of the country. The boats put out from hundreds of capes and harbors, in fair weather and foul, and encounter much toil and danger, facing both bravely, and push their ventures under circumstances that would often completely check enterprise in the merchant navy. This rough but fascinating service trains hundreds of excellent new sailors annually, fitting them to go on the larger vessels of the merchant branch of our marine and enabling them to command, if required. It also makes hundreds of new carpenters and builders every year on shore, a large part of them getting their first acquaintance with the forms and the methods of framing and planking vessels in constructing some modest and clumsy boat during the rainy days or in wintry weather, for their own use when the fishing season next arrives, their unpretending efforts in this direction fitting them afterward for the skillful building of larger and more pretentious craft. It is not the least of the good things accomplished by the fishing fleet that it supplies the people with a vast quantity of cheap and delicious food; but that is mentioned only by the way. Fishing vessels are the starting point of our ship-building and merchant service, as they have been, historically, in the case of every nation which has been conspicuous upon the sea; and the experience of the United States is so like all the other important maritime nations of the earth in this respect that the similarity is too remarkable to be passed by without notice.

The first fishermen of whom we have any account were a race of people who settled on a forlorn portion of the Mediterranean coast, in a little territory, 200 miles long, cut off from the interior by rugged and heavily wooded mountains, which ran parallel with and not far from the coast. The land could not support the natives in agriculture, and they lived in part by fishing off shore in row-boats. Fishing villages were scattered along the coast of Phœnicia in large numbers as early as 1500 B. C., and had a large fleet of small boats, built from the strong and light timber of the country. The marketing of the surplus product of the fisheries, and the desire to buy grain and other needed commodities, led to expeditions along the coast to distant localities. This was the beginning of the far-reaching commerce of the Phœnicians, which did not pause until vessels had been sent as far northward as the British isles and as far southward as around the lower cape of Africa; it also made them the vessel builders of their age, and converted several fishing towns into large commercial cities.

The Carthaginians, who were colonists of the Phœnicians, began to build boats and to fish from the first, as their forefathers had done, and afterward to trade, and were the common carriers of the western part of the Mediterranean for several centuries.

Fishing boats were the small beginning from which sprang the sailors and the towering ships of the Barcelonians in Spain, the wonders of their day, in the early part of the Christian era.

The eminence of the Italians as builders of great vessels took its rise from the fisheries of the Adriatic sea. The ravages of the barbarians of the north, who made frequent invasions into Italy after A. D. 400, having driven a large number of people from the mainland to the islands which subsequently became the city of Venice, the settlers built boats for fishing purposes, and soon began to trade with the mainland and with Greece. Thinking only of subsistence, these islanders created by their modest efforts a race of brave sailors and a great fleet of boats, and in due time became the principal ship-builders of the world, their fleets assisting in all the crusades and their vessels being bought or borrowed by every nation of their time which had need to make a demonstration of any magnitude by sea.

The Portuguese also began their maritime career as fishermen. The busy trade of the early nations of Europe swept past their doors continually, but they took no part in it until, after many generations, they began to fish and had built sail-boats and small vessels large enough to go to the North sea and bring their catch safely home. The early commercial treaties of the Portuguese were made to protect their sailors and vessels in the northern isheries, it being one of their great industries, the country not being so well adapted to agriculture as to other pursuits; and not until after the reign of a king who flourished from A. D. 1279 to 1325, who brought people from Genoa to teach the art of building great ships and planted royal forests of useful timber, did the Portuguese begin to trade, explore, and conquer.

The fisheries of the north of Europe, and the abundant growth of cheap and good timber, made maritime and trading nations of every people in that part of the earth except the French. The latter occupied a fertile and delightful region, which fully employed the population at home. The Dutch became the foremost of the fishing nations. They had an immense fleet of small sailing boats and busses of their own construction and a great seafaring population of daring men, ready for any service. About 1360 they discovered the art of salting and curing fish, which enabled them to make long voyages for the sale of their staple, just as it did afterward in the case of the Americans. With the rise of industry at home this discovery brought them at once into a large and profitable foreign trade, and by 1580 they were the principal carriers of the north of Europe. By 1650, according to the histories, they had 3,000 vessels and 50,000 men fishing off the coasts of Great Britain, 9,000 vessels to market the fish, and 8,000 more which their owners were employing exclusively in general trade, and had taken possession of India, were pushing out to every part of the world, and were the commercial masters of the sea. One of their cities was built upon the immense mass of herring bones accumulated by the industry of several generations, very much as the little modern fishing town of Crisfield, in Maryland, has been built upon the immense bank of oyster shells thrown into deep water by her fishermen, which now affords a strong foundation for a whole town to stand where formerly vessels rode safely at anchor.

England felt the need of ships for defense from the earliest times; and, recognizing the fact that the best way to get them was to make it profitable for the people to build, she encouraged her fishermen by every means in her power. Her general trade was almost wholly carried on by foreigners, but at any rate she might have a fishing fleet. A great many regulations were made; bounties were given, with various special privileges; and, in addition thereto, in the sixteenth century the people were required by law to abstain from meat on two days of each week and sometimes 153 days in the year, in order to make a profitable market for fish and to foster the creation and maintenance of a large native marine. These regulations had the desired effect. Large numbers of boats and vessels were built yearly for fishing purposes, and the native ship-building industry of England received its start and derived a great deal of its early vigor from the construction of small smacks and fishing boats.

America has followed the path of all of her predecessors; and it was the steps she took in this direction which led originally both to the possession of her large fleet of fishing boats and vessels and to her success in the field of general nautical enterprise. The following statement of the details concerning the fishing fleet in the census year of 1880 has been prepared by the fishery branch of the census, in charge of Professor G. Brown Goode, of the Smithsonian Institution, at Washington:

| States and Territories. | NUMBER OF PERSONS EMPLOYED. | | | APPARATUS AND CAPITAL. | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Total. | Fishermen. | Shoresmen. | Vessels. | | | Boats. | | Value of minor apparatus and outfits. | Other capital, including shore property. |
| | | | | Number. | Tonnage. | Value. | Number. | Value. | | |
| The United States | 131,426 | 101,684 | 29,742 | 6,605 | 208,297.82 | $9,357,282 | 44,804 | $2,465,393 | $8,145,261 | $17,987,413 |
| New England states | 37,043 | 29,838 | 7,205 | 2,066 | 113,602.59 | 4,562,131 | 14,787 | 739,970 | 5,038,171 | 9,597,335 |
| Middle states, exclusive of the Great Lake fisheries. | 14,981 | 12,584 | 2,397 | 1,210 | 23,566.93 | 1,382,000 | 8,293 | 546,647 | 674,951 | 1,822,480 |
| Southern Atlantic states | 52,418 | 38,774 | 13,644 | 3,014 | 60,886.15 | 2,375,450 | 13,331 | 640,508 | 1,145,878 | 4,789,886 |
| Gulf states | 5,131 | 4,382 | 749 | 197 | 3,009.86 | 308,051 | 1,252 | 50,173 | 52,823 | 134,537 |
| Pacific states and territories | 16,803 | 11,613 | 5,190 | 56 | 5,463.42 | 546,450 | 5,547 | 404,695 | 467,238 | 1,330,000 |
| Great lakes | 5,050 | 4,493 | 557 | 62 | 1,768.87 | 183,200 | 1,594 | 83,400 | 766,200 | 313,175 |
| Alabama | 635 | 545 | 90 | 24 | 317.20 | 14,585 | 119 | 10,215 | 7,000 | 6,400 |
| Alaska | 6,130 | 6,000 | 130 | .......... | .......... | .......... | 3,000 | 60,000 | 7,000 | 380,000 |
| California | 3,094 | 2,089 | 1,005 | 49 | 5,246.80 | 535,350 | 853 | 91,485 | 205,840 | 307,000 |
| Connecticut | 3,131 | 2,585 | 546 | 291 | 9,215.95 | 514,050 | 1,173 | 73,585 | 375,535 | 457,850 |
| Delaware | 1,979 | 1,662 | 317 | 69 | 1,226.00 | 51,600 | 839 | 33,227 | 70,324 | 113,080 |
| Florida | 2,480 | 2,284 | 196 | 124 | 2,152.97 | 272,645 | 1,058 | 28,508 | 39,927 | 65,037 |
| Georgia | 899 | 809 | 90 | 1 | 12.00 | 450 | 358 | 15,425 | 18,445 | 44,450 |
| Illinois | 300 | 265 | 35 | 3 | 209.73 | 8,500 | 101 | 2,000 | 11,900 | 61,000 |
| Indiana | 52 | 45 | 7 | 1 | 21.90 | 2,500 | 15 | 1,650 | 20,210 | 5,000 |
| Louisiana | 1,597 | 1,300 | 297 | 49 | 539.69 | 20,821 | 165 | 4,800 | 18,000 | 50,000 |

| States and Territories. | NUMBER OF PERSONS EMPLOYED. | | | APPARATUS AND CAPITAL. | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Total. | Fishermen. | Shoresmen. | Vessels. | | | Boats. | | Value of minor apparatus and outfits. | Other capital, including shore property. |
| | | | | Number. | Tonnage. | Value. | Number. | Value. | | |
| Maine | 11, 071 | 8, 110 | 2, 961 | 606 | 17, 632. 65 | $633, 542 | 5, 920 | $245, 624 | $934, 593 | $1, 562, 235 |
| Maryland | 26, 008 | 15, 873 | 10, 135 | 1, 450 | 43, 500. 00 | 1, 750, 000 | 2, 825 | 186, 448 | 297, 145 | 4, 108, 850 |
| Massachusetts | 20, 117 | 17, 165 | 2, 952 | 1, 054 | 83, 232. 17 | 3, 171, 189 | 6, 749 | 351, 736 | 3, 528, 925 | 7, 282, 600 |
| Michigan | 1, 781 | 1, 600 | 181 | 36 | 914. 42 | 98, 500 | 454 | 10, 345 | 272, 920 | 60, 900 |
| Minnesota | 35 | 30 | 5 | 1 | 33. 59 | 5, 000 | 10 | 900 | 3, 760 | 500 |
| Mississippi | 186 | 110 | 76 | ........ | ............ | ............ | 58 | 4, 600 | 1, 600 | 2, 600 |
| New Hampshire | 414 | 376 | 38 | 23 | 1, 019. 05 | 51, 500 | 211 | 7, 780 | 60, 385 | 89, 800 |
| New Jersey | 6, 220 | 5, 659 | 561 | 590 | 10, 445. 90 | 545, 900 | 4, 065 | 223, 963 | 232, 339 | 490, 000 |
| New York | 7, 266 | 5, 650 | 1, 616 | 541 | 11, 582. 51 | 777, 600 | 3, 441 | 289, 885 | 390, 200 | 1, 171, 900 |
| North Carolina | 5, 274 | 4, 729 | 545 | 95 | 1, 457. 90 | 39, 000 | 2, 714 | 123, 175 | 225, 436 | 118, 950 |
| Ohio | 1, 046 | 925 | 121 | 9 | 359. 51 | 38, 400 | 487 | 29, 830 | 253, 795 | 151, 775 |
| Oregon | 6, 835 | 2, 795 | 4, 040 | ........ | ............ | ............ | 1, 360 | 246, 600 | 245, 750 | 639, 000 |
| Pennsylvania | 552 | 511 | 41 | 11 | 321. 99 | 10, 500 | 156 | 13, 272 | 40, 538 | 55, 500 |
| Rhode Island | 2, 310 | 1, 602 | 708 | 92 | 2, 502. 77 | 191, 850 | 734 | 61, 245 | 138, 733 | 204, 850 |
| South Carolina | 1, 005 | 964 | 41 | 22 | 337. 32 | 15, 000 | 501 | 9, 790 | 25, 985 | 15, 500 |
| Texas | 601 | 491 | 110 | ........ | ............ | ............ | 167 | 15, 000 | 4, 400 | 23, 000 |
| Virginia | 18, 864 | 16, 051 | 2, 813 | 1, 446 | 15, 578. 93 | 571, 000 | 6, 618 | 292, 720 | 560, 763 | 489, 636 |
| Washington | 744 | 729 | 15 | 7 | 216. 62 | 11, 100 | 334 | 6, 610 | 8, 648 | 4, 000 |
| Wisconsin | 800 | 730 | 70 | 11 | 220. 25 | 26, 700 | 319 | 24, 975 | 145, 165 | 26, 000 |

The first step in the development of the fishing business of America, and the attendant ship-building industry, was that which led to the crossing of the Atlantic by European fishing craft and the planting of small establishments on shore by their crews. At the time of the settlement of the north Atlantic coast fish were in great demand abroad and brought high prices. In 1497 Cabot made known in Europe that the ocean in the neighborhood of the northern part of this continent was full of fish of a size then seldom seen in the old country. Here, he said, "were great seals, and those which we commonly call salmons, and also soles above a yard in length; but especially there is a great abundance of that kinde which the savages call baccalos, or codfish." When this information was printed in London the news spread to every part of Europe, and there was great excitement among fishing merchants and the owners of fishing vessels. In 1504 several Normans and Biscayans crossed the ocean in craft dangerously small for that voyage and took cargoes of cod, which they carried back for sale. The great banks of Newfoundland, 200 miles broad and 600 miles long, were soon discovered. By 1517 there were 50 European vessels on the spot taking fish, and by 1540 there were establishments on shore at Newfoundland for salting and drying what they had caught. From that day to this the banks have been annually resorted to by large numbers of vessels, and the coast has been occupied by fishermen. In 1577 the French had 150 sail on the banks, and there were between 300 and 400 in all on the spot. By 1600 the English were sending out 200 vessels annually, and were employing fully 10,000 men as catchers and curers; and as they had now become familiarized with the idea of crossing the Atlantic, the large profit they found in the business made their fishing expeditions to America a regular feature of British enterprise. In 1602, 1603, 1605, and 1606 several explorers who had pushed on past the banks to the mainland of America discovered that cod could be taken close inshore to what is now Maine and Massachusetts in six or seven fathoms of water which were far larger and better than those caught off Newfoundland, where the depth was forty-five or fifty fathoms; and it was also found that six or seven cod would make a quintal in New England, when, by reason of their smaller size, twice that number were required at Newfoundland, while the shares of common fishermen earned only £6 or £7 each at Newfoundland, against £14 in New England. The reports brought back by these explorers were so satisfactory that they greatly increased a desire then felt in England for colonizing the mainland of America with fishing stations. Merchants found it expensive to add twenty men to the company of a vessel and carry them across the ocean and back again, paying and maintaining them all the while, simply to employ them on shore in curing and packing the fish caught by the regular force of the vessel, as it was cheaper to establish villages on shore, where the fish would be cured by the residents and the expense of doubly manning the ships thus be avoided. The desire to found fishing colonies in New England became strong, and the grant made by James I, in 1606, to the Plymouth company was largely with that idea in view. In a brief time the coast from Newfoundland to the capes of Virginia was planted with a succession of little villages of several different nationalities, the people of which were more or less engaged in the catching of fish.

So far as the English fishing merchants were concerned, their object in aiding the establishment of colonies in New England was to save the expense of the double manning of their ships and to secure permanent drying stations on shore, where their people and apparatus would be protected against the hostility of the Indians. But the planting of the new colonies had an effect not foreseen by them. The people left behind in the New World, finding the land unfit for high cultivation and able to live easily by following the trade they already knew so well, began to build boats and go fishing on their own account. A fisherman is always half a ship-builder by the nature of his calling. A few ship-carpenters besides had been sent over to the villages in Massachusetts by members of the home company, and the art of building sail-boats was almost the first industry after house-carpentry introduced into the colony. The result was unexpected, and the people of the Massachusetts towns soon owned a large number of fishing boats of their own construction. The country was covered with excellent timber, and vessels were cheaply built. One merchant was fishing with 8 boats at Marblehead as early as 1634, and Portsmouth had 6 great shallops, 5 fishing boats, with sails and anchors, and 13 skiffs in the trade as early as 1635. Canoes were owned everywhere. By 1645 they had sent a "ship and other vessels" from Boston to the banks to fish, Lechford stating in his "Plain Dealing; or, News from New England" that at this time the people of the colony "were building of ships, and had a good store of barks, catches, lighters, shallops, and other vessels". The English government was troubled by this multiplication of fishing craft, and in 1670 an order was issued by the lords of trade and plantations to capture and burn the boats and break up and destroy the boat fisheries of New England. This had some effect, but not much, as the fishermen went on building boats and taking fish; and as the years went by those who were prosperous built larger vessels and pushed out to the banks, while others went out for whales and seals, following their game from one latitude to another until they reached the impenetrable regions of the north and south poles. Vessels were sent out to New York and Virginia, to the West Indies and other islands of the Atlantic, and finally to Europe, to market the products taken from the sea, and their masters brought back the commodities of the lands they visited to sell at home. Afterward many of the vessels went regularly into trade, masters and men being recruited from the fishing fleet. A great and valuable foreign commerce was the result of their operations, and this, reacting upon the ship-building industry at home, made it an active and prosperous business within a hundred years of the time of the first permanent settlements.

While a few trading vessels were built at an early period in the history of the colonies, the number was not for fifty years large enough to give regular employment anywhere to a great number of men. The main stay of the industry, that which enabled men to learn and practice steadily the trade of a ship-carpenter, was the fishing business, and all the early builders learned their art in the construction of boats for that branch of the service. It was the fishing business also which, in large part, supplied the captains and crews of the trading ships, when any of that class were built.

The first vessels sent to America to fish were among the largest of their time in the merchant service of England, France, and Portugal; but, large as they were relatively, they were small compared with those which are sent out in this age for voyages across the Atlantic. As illustrating the size of those early vessels, it is stated that of the 1,232 sail which in 1582 comprised the whole marine of England not over 217 were over 80 tons actual burden; that is to say, not over 75 feet in length by about 23 feet in breadth, and about 10 feet deep in the hold. Fifty of the larger class were sent to Newfoundland annually, so that one-fourth of the whole merchant navy of England fit for distant voyages was employed in the American fisheries. In 1603 England had four vessels, each of which exceeded 400 tons burden. The ships of the discoverers of America were surprisingly small. Columbus made his first voyage in vessels the largest of which was between 150 and 200 tons burden. The Santa Maria was a decked vessel, and, in accordance with the models of that age, must have been about 100 feet long, 29 feet wide, and about 12 feet deep in the hold. The other two, the Pinta and the Nina, were "light barques", or "caravels", decked only at the ends, open amidships, but having cabins and quarters at the bow and stern for the crew and officers respectively. The foremast carried one large square sail; the mizzen carried a lateen sail, attached to a yard which was suspended from the mast by the middle at an angle of about 45° with the horizon; the sail was triangular in shape, and was the fore-and-aft canvas of barks and ships in the sixteenth century. The bowsprits on the vessels of Columbus probably carried no canvas; if they did, the sail was a square one, hung from a sprit-sail yard underneath the bowsprit, which raked high, so as to carry the sail up to where it would take the wind.

Gosnold's expedition in 1602 was made in the "small ship" Concord. Pring explored the waters of Maine in 1603 with the bark Speedwell, of 50 tons, and the Discoverer, of 26 tons. John Smith's fleet in 1606 was composed of a pinnace or long boat of 20 tons and two vessels of 40 and 100 tons respectively. The Mayflower, small as it was, was a large vessel for the times.

It is hard to identify the rig of these early vessels by their names. The term "ship" is now used to designate a vessel of three masts, square rigged throughout, and the term "bark" means a large vessel square rigged on the fore and main masts, but carrying only fore-and-aft canvas on the mizzen. Two or three centuries ago, whatever the size or rig of the vessel, it was called a "ship", in the general sense of the word, as often as by its own class name. There is an English official list of the vessels of the Cinque Ports made in 1587, in which the following expressions occur:

| | |
|---|---|
| Deal hath small barks from the burthen of 3 tons to 5 tons | 5 |
| Walmer hath small barks from the burthen of 2 tons to 3 tons | 4 |
| Ramsgate hath small barks from the burthen of 5 tons to 19 tons | 12 |
| Dover hath ships and small barks from the burthen of 12 tons to 120 tons | 26 |

In the list are also mentioned "Small boats of the burthen of 5 tons"; "one small bark of the burthen of 20 tons;" "small barks and boats from 2 tons to 25 tons apiece;" "small boats from 14 tons to 20 tons;" and "ships and small barks from 6 tons to 8 tons". In an old lawsuit, the record of which is still preserved, a small sloop was described variously as a "ship", a "boat", and a "vessel". In all vessels bearing more than one mast the mizzen-mast appears always to have carried a lateen sail, while those forward of it carried square sails. The difference between a "bark" and a "ship" seems to have been at first one of size only, the ship being the larger. When tonnage grew large, ships probably carried three masts, with two square sails on each of the forward masts and a lateen sail on the mizzen. A bark was a smaller vessel, usually with two masts, but sometimes three, with one or two square sails on the forward spars, as before, and a lateen sail aft. The tons of burden above referred to were the actual tons weight of cargo the vessels were able to carry.

The accompanying (Fig. 1) is the "light bark" or "caravel" of the fifteenth century, as shown by a drawing at Venice.

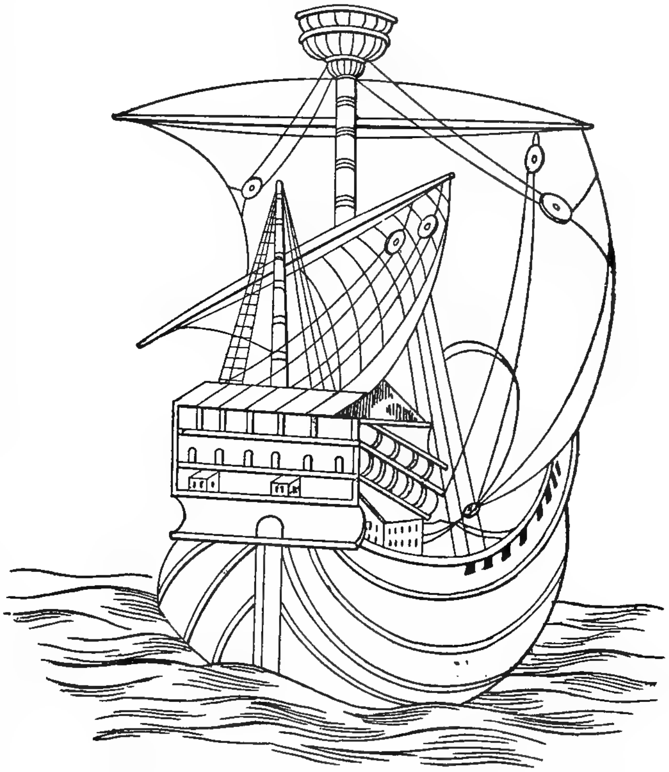
Fig. 1.—Caravel of the Fifteenth Century.

The boats carried by the vessels of that day were the pinnace, or long boat, and the chaloupe, or shallop, both open boats, mounting several pairs of oars, and fitted with small masts and sails, which could be put up at pleasure. The pinnace was long, sharp, and fast, often carrying 25 men, and was much used by early discoverers in exploring the coast. The shallop, a more or less capacious barge, was handy and safe, and was the more popular style of boat. Shipwrecked mariners often decked the pinnace and set sail in it for distant places. The shallop became the boat in common use for fishing and coasting in the early days of the settlement of America, though many widely different styles of boats grew out of it in the course of time.

It is now proposed to describe, as fully as this report will allow, the different classes of vessels used in America for fishing purposes, the kinds of wood put into them, the manner of building them, and the places where they are and have been built.

## NEW ENGLAND FISHERIES.

The first boats used by the settlers in fishing were wooden canoes, made by the Indians. In Maine these canoes were usually made of the bark of birch trees, sewed on ribs of ash wood, and made so light that an Indian would carry on his head for several miles one which would hold eight or ten persons, while in Massachusetts they were usually made from the trunk of a large tree. Wood (1634) says:

> Their Cannows be made either of Pine trees, which, before they were acquainted with English tooles, they burned hollow, scraping them smooth with clam shels and Oyster shels, cutting their outsides with stone hatchets: These boats be not above a foot and a halfe or two feete wide, and twenty foote long. Their other Cannows be made of thinne Birch rines, close ribbed on the inside with broad thinne hoopes, like the hoopes of a tub; these are made very light, a man may carry one of them a mile, being made purposely to carry from River to River and bay to bay to shorten land passages. In these cockling fly-boates, wherein an English man can scarce sit without a fearefull tottering, they will venture to sea, where our English Shallope dare not beare a knot of sayle; scudding over the overgrowne waves as fast as a wind-driven ship, being driven by their paddles; being much like battledoores; if a crosse wave (as is seldome) turne her keele upside downe, they by swimming free her, and scramble into her againe.

The majority of canoes would carry only four or five men; the larger ones, twenty, thirty, and even forty men; and they were round-bottomed and very crank. The bodies of the log canoes were straight, the ends sharp, and the fore foot and heel cut away as in a modern whale-boat. Their narrowness gave them great speed, and three men, with paddles, could drive them faster than a shallop could be propelled with eight oars. An Indian, by going into the woods and giving his time to it, would make a canoe in ten or twelve days.

When the English settled at Plymouth, Salem, Ipswich, Portsmouth, and other places on the New England coast they bought these strong and handy boats in large numbers, both for fishing in smooth waters and for crossing streams and visiting their neighbors, and nearly every family in towns like Salem owned its canoe, as every farmer to-day does his horse. Canoes were the universal oyster boats for the first fifty years on the whole American coast, and were so well adapted to that use that they are still so employed by American oystermen in many localities.

It is not probable that log canoes ventured more than 2 or 3 miles from shore, and then only in calm weather, as they could not be launched through the surf nor taken into very rough water. A larger class of boats was required for taking cod and for other work in the open sea. The first ones were ships' boats left behind by the vessels which visited the coast; but in 1624 boat-building began regularly at Plymouth, some ship-carpenters having been sent over for the purpose. Two chaloupes, or shallops, were built, one of them afterward making a voyage as far eastward as the Kennebec. They were open boats, like others of their class, having, however, a little deck amidships, to keep the crew dry. In 1625 one of these boats was sawed in two and lengthened 5 or 6 feet by putting in more frames amidships. A deck was laid the whole length of the boat, and she did the colonists good service for at least seven years afterward. A great many shallops were built in subsequent years, as there was need for them at Salem, Ipswich, Gloucester, Medford, Portsmouth, and the other settlements all along the coast. Some were used for trading purposes, but the majority were fishing boats. They usually carried one mast, with one sail hoisted from the deck; but in the larger ones, instead of fitting the shallop with a tall mast and a large sail, the owners usually followed the safer and more convenient plan of adding another mast with its own sail (Fig. 2). Two small sails were more easily handled than one large one, and in a fresh wind the after sail could be lowered and the boat allowed to scud under the foresail alone. The ancient shallop probably carried lug sails, as in the illustration herewith.

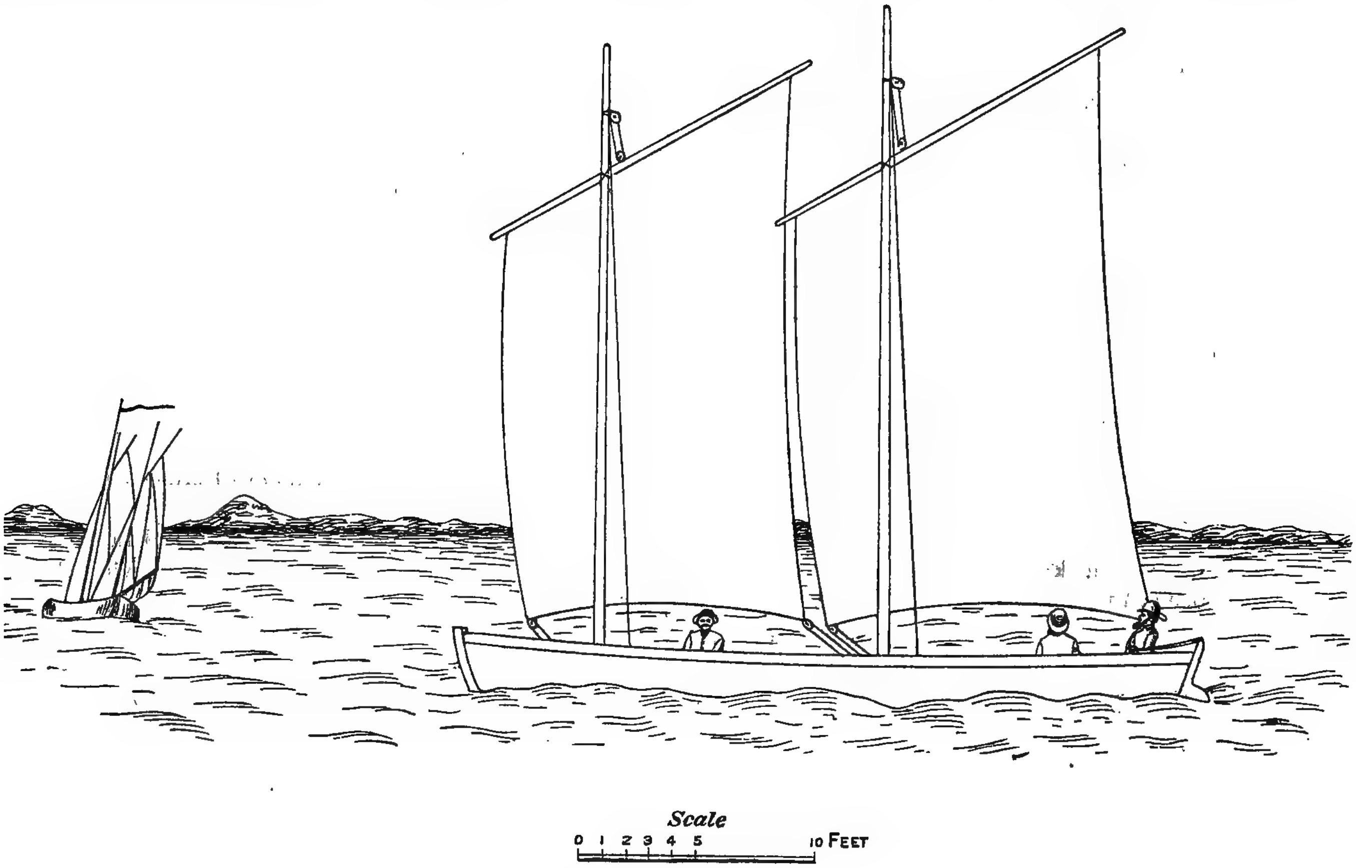

Fig. 2.—FISHING LUGGER.

A great many shallops were built in the winter time by the fishermen and their sons, who thus employed their idle season with useful work. The lumber for the boat was gathered little by little, a good deal being cut in the common woods and some picked up on the beach, so that it cost them next to nothing, and the boat, when built, was found to have cost them little more than the outlay required for nails, paint, iron fittings, blocks, cordage, and canvas. These boats were constructed in door yards, often in barns, and sometimes in the woods 2 or 3 miles from the water, whither they were dragged on sledges of timber. The home company sent over a number of shipwrights among their early dispatches of emigrants; many others came voluntarily among the crews landed from the large fishing vessels from England; and boat-building became an established industry in nearly every village in twenty years after the landing at Plymouth.

The first vessels sent from New England to the banks to fish set sail in 1645, and comprised "a ship and other vessels", their rig not known; but a style of smack which became popular as soon as something larger than the shallop was required was the "catch", or "ketch". The Dutch called them the "pinkie", a name borrowed from the Mediterranean and meaning a hull round at both ends, the outside planking ending on the stem and on the stern-post, in distinction from ships having a broad or "square" stern above the water, which were planked straight across. The "pinkie" hull was popular with the Dutch, and there is reason to believe that the hulls of the vessels in the northern fisheries of Europe were of that class. The first catches carried one mast amidships, with a large square sail. Afterward a small mizzen was added away aft, the mainmast being planted in that case one-ninth or one-tenth of the vessel's length forward of amidships. The mizzen-mast carried a lateen or a lug sail, which is a lateen with one-half of the forward part cut off. The mainmast bore two square sails, perhaps three. The popularity of the ketch was due to its simplicity of construction, as no ingenuity was required in framing either the bow or the stern and the planking was easily put on. It was a good sea boat, pretty fast and safe on account of its breadth of beam, easily handled, and, when required for the coasting trade, was useful for its great capacity, the bottom being broad and round. The probate records of Suffolk county, Massachusetts, indicate that ketches and shallops constituted the whole fleet of the fishing merchants up to about 1700. The ketches were 9 or 10 feet deep in the hold, drew 7 or 8 feet water, were decked throughout, had cabins aft, and were built of white oak, except the deck and cabin, which were of white pine, and the masts, which were usually of spruce. The broadest part of the hull was two-fifths of the vessel's length from the bow.

Salem was the principal center for the building of ketches, and it is said that the people of that town clung to the model and rig longer than any other community on the coast, using ketches both in fishing and in general trade. The average size was about 30 tons register, but a few were as large as 80 tons; the majority were below 30 tons, and cost about £3 5*s.* per ton to build.

The accompanying illustration (Fig. 3) represents an English ketch of 1692 with the bulwark pierced for eight light guns and the top sides curved home above the load-line, after the fashion of the times, so as to bring the weights further inboard, and thus maintain the vessel's stability.

Before the independence of the colonies the ketch had ceased to exist, and had become, through slight modifications of hull and rig, the brigantine of to-day—a class of vessel used only in trade.

Out of the old shallop grew two classes of small vessels which have remained in permanent use. In one of them the two small masts were retained, but were planted a step farther forward, the foremast being set not over 4 feet from the bow, and, in 30-foot boats, the mainmast 10 or 11 feet aft of the foremast, bringing it about amidships. A change took place in the sail. A part of the sail and of the yard forward of the mast was cut completely off, and the end of the yard was shaped to slide up and down the mast, the fore edge of the sail, or the luff, being attached to the mast by wooden hoops, which would also slide up and down with ease. The head of the sail was narrowed, and the foot was spread by means of a "sheet", attached to it at the lower after corner, carried aft and hauled taut. The boat remained open and without deck for many years, was round at both ends, being moderately sharp on the bottom, and the prow was often pointed. These changes in the fishing shallop culminated at Essex, Massachusetts, formerly called Chebacco, the story being that the first Chebacco boat, probably not much larger than the yawl of a modern schooner, was built in a garret, and was taken out of the house through a window and dragged to the water's edge by cattle. The shrewdness of the inventors of this new and handy rig brought a great deal of business to Chebacco, and the Chebacco boats, as they were called (or pinks, from the shape of the hull), became famous along the whole of the New England coast. First used in fishing at Sandy bay, these boats soon came into general use, the majority of them being built in the village in which they originated. They ranged from 3 to 5 tons burden at first, and their owners put out in them to the ledges and shoal grounds for cod, hake, and pollack early in the day, always to return at night; but in later years, especially after the independence of the colonies, they were built larger and decked, and were fitted with a cabin, sometimes being of 30 tons register. When they reached a large size the foot of each sail was fitted with a boom. The Chebacco boats were always framed and planked with white oak, cut from the abundant forests of that timber which grew all around the town, and nothing except heart of oak was used, all of the sapwood of every tree being sawed or hewed off and thrown away. Thus the boats were built of wood which would scarcely perish. The deck beams were usually of oak, but the deck plank and cabin were of white pine, and the masts of white pine or spruce. These boats were often built in the woods, or, at any rate, a long way from the water, and as late as the revolutionary war fishing boats of from 10 to 20 tons were thus built and were dragged to the river by cattle. Though built in Chebacco (or Essex), the boats were chiefly owned in Gloucester, and by 1792 this latter town had 133 boats of this class, registering 1,549 tons, in the shore fisheries; but by 1804 the number had increased to 200, with the tonnage nearly doubled. From 1800 to 1840 the boats were built for $18 a ton, a good price for the times, but much smaller than the builders got afterward. From 1861 to 1865 the price was about $65 a ton, but it is now about $40 a ton.

About 1820 the fishermen began to put bowsprits into the Chebacco boats, shearing off the pointed prow, and calling them "jiggers". The planking of the low bulwark of the boat was carried out beyond the sharp stern 3 or 4 feet and nailed to a short triangular stern-board, like that of a dory. This projection had a seat for the use of the crew, and the boom of the mainsail rested on it while the boat rode at anchor. Fishermen built "jiggers" of 40 tons register for mackerel catching, on account of the abundance of that fish at the time, the first great year being 1825, when one jigger, with 8 men, caught 1,300 barrels of fish; but when the mackerel began to disappear, which was about 1845, the large jiggers disappeared with them. Chebacco boats of moderate size remained in use for many years, but are now obsolete in New England. A few pinks, with bowsprits, are still to be seen occasionally at Gloucester, and especially in the waters around Eastport, Maine, and they are also to be seen, usually without decks and always without projecting prow, but in other respects like the Chebacco boats of the earlier times, at Block island, where they are almost the only style of boat employed (Fig. 4). Full in the forward body, a trifle leaner aft, sailing with a drag of from 2 to 4 feet, broad of beam, and carrying a great deal of stone ballast, they

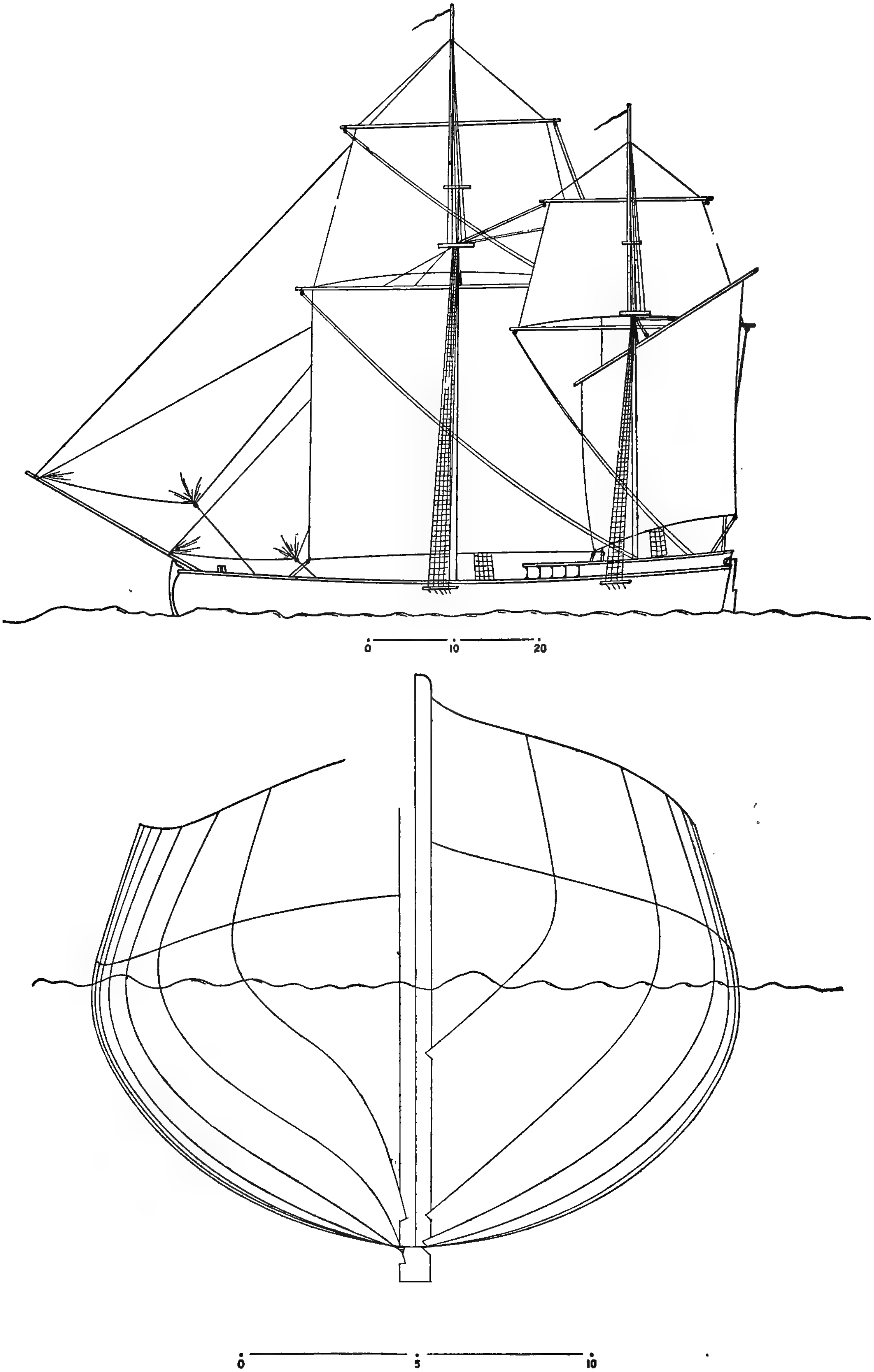

Fig. 3.—An English Ketch of 1692.

**Measurements.**—Length from rabbet of stem to rabbet of stern-post, 60 feet; extreme breadth, 19 feet; depth of hold, 7¼ feet; depth from plank sheer to top of keel, 8 feet. Displacement to 7 feet from top of keel, 138 net tons; coefficient of D., 53 per cent. Register tonnage by modern rule, about 60 tons. Cargo burden, about 80 tons. Fullest part of the body (or midship section), ⅜ length from bow. Weight of vessel, about 58 tons; draught, when light, above keel, 4 feet 2 inches. Center of gravity of vessel, light, 7 feet above the keel; center of buoyancy, loaded, 4 feet 6 inches above the keel, and 21 inches forward of middle of length. A crank vessel, requiring ballast or cargo to steady her.

are a cheap and excellent fishing boat, safe, comfortable, and almost non-capsizable. At Block island, lying 20 miles out to sea from Newport, Rhode Island, the little community of resident fishermen had 100 fishing boats and 200 men employed as early as 1800, as appears from a petition sent by them to Congress in that year, all under 5 tons each. It is probable that the islanders originally built their own boats from the timber which anciently covered their lands in a dense growth, but of late years they have been obliged to send to the mainland to buy, as the island has become entirely denuded of trees of all kinds. The cod banks being within two leagues of the shore, the men go out to them early in the day, returning at dusk, and, drawing up their boats on the beach, fasten them to poles planted in the sand, to protect them from the fury of the waves. The secluded life of the islanders prevented the newer fashioned boats from creeping in among them for any purpose (as in the case of most of the fishing islands on the northern coast) until about twenty years ago, when people from the mainland began to spend their summers there to enjoy the cool air and the surf bathing. They are now buying boats which are half sloop-yachts and half fishing boats (Fig. 5).

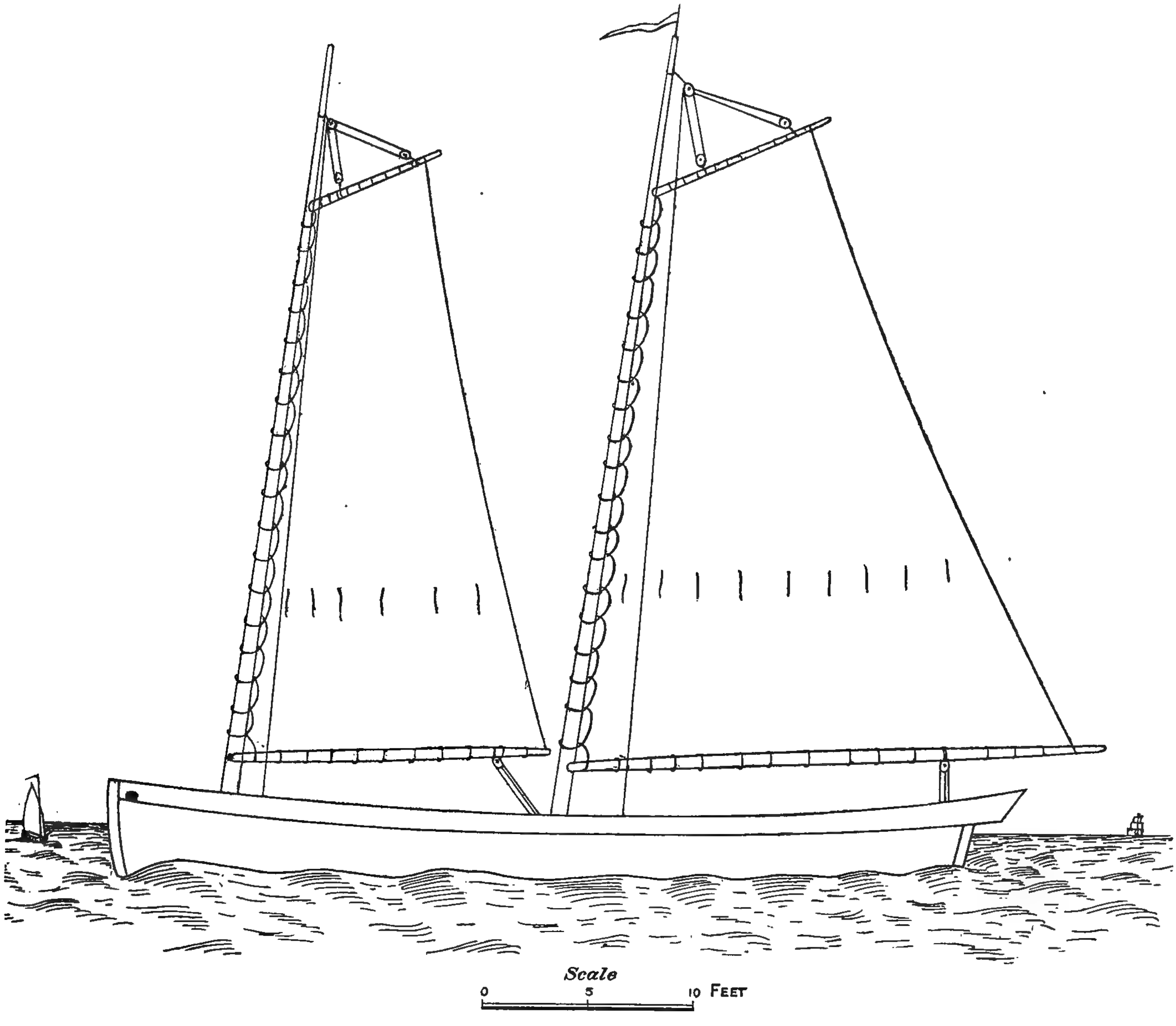

Fig. 4.—Chebacco boat, or Pink.

40 feet on load-line; 14 feet beam; 5½ feet depth of hold, registering about 20 tons. Sharp at both ends, with bulwark rising and projecting at stern.

The other style of vessel which grew out of the old "chaloupe", or shallop, was the modern sloop whose name is a contraction of that of the foregoing (Fig. 6). The sloop is a vessel with one mast, spreading a large fore-and-aft sail, the foot of the sail attached to a boom and the head to a gaff, and with a bowsprit spreading a large jib. This class of vessel appears to have been used in America originally for trading purposes; there was certainly a large fleet of them owned in the towns adjacent to Massachusetts bay, employed in freighting fire-wood, hay, and goods along that part of the coast. The hulls were built with broad decks, square sterns, and pretty full models. After the sloop came into existence it was extensively employed in the fisheries, and is now popular among yachtmen, the rig being generally regarded as the handsomest in existence for pleasure boats. When properly designed, the sails present the appearance of a large and showy triangle of canvas, reviving in outline and effect the old lateen sail. The sloop was in vogue at an early day in England, and may have come to America from that source. Square topsails were fitted to the larger sloops in England, and a picture of an English war fleet is extant in which there is a sloop with two square upper sails. In 1714 the Hazard, a sloop, was sent expressly from England to America to carry the news of the accession of George I to the throne and orders for the colonial government. This vessel, after crossing the Atlantic in safety, was wrecked on Cohasset rocks on the 12th of November and dashed to pieces. No papers of any consequence were saved, and of all her company only one man came to land alive. The rig of the sloop was a handy one for boats between 10 or 12 tons register and 30 or 40 tons burden, and came into favor rapidly after 1700, both for large fishing vessels on the New England coast and for trading purposes everywhere in America. Many of the "bankers", and all of the early mackerel boats, were sloops, and the first vessels with which whales were chased out to the Gulf Stream, and thence to distant latitudes, were of this class, the larger ones probably being fitted with a square topsail, to catch the air in light weather. The majority of sloops were not over 10 or 15 tons register, but some were as large as 30 tons. In the little fleet of 10 vessels hurriedly fitted out in Massachusetts, manned by fishermen, the smartest and ablest of sailors then, as now, and sent in 1745 to capture the great fort at Louisburg with its 200 cannon, 3 were Yankee sloops, and of the 34 vessels burned by the British in 1778 at New Bedford at the time of the capture of that town 10 were sloops. Many of the fishing sloops were very fast vessels, and they and their crews were accordingly much in demand during the revolutionary war for privateering, their exploits forming a romantic chapter in the naval history of the United States. The principal places at which sloops were built were Boston, Scituate, Salem, Charlestown, Gloucester, and Newbury, but the boat-yards all along the whole coast began about 1700 to devote considerable attention to this class of vessels, which, as before stated, were employed partly in fishing and partly in trading, entirely superseding in both employments the ancient "catch".

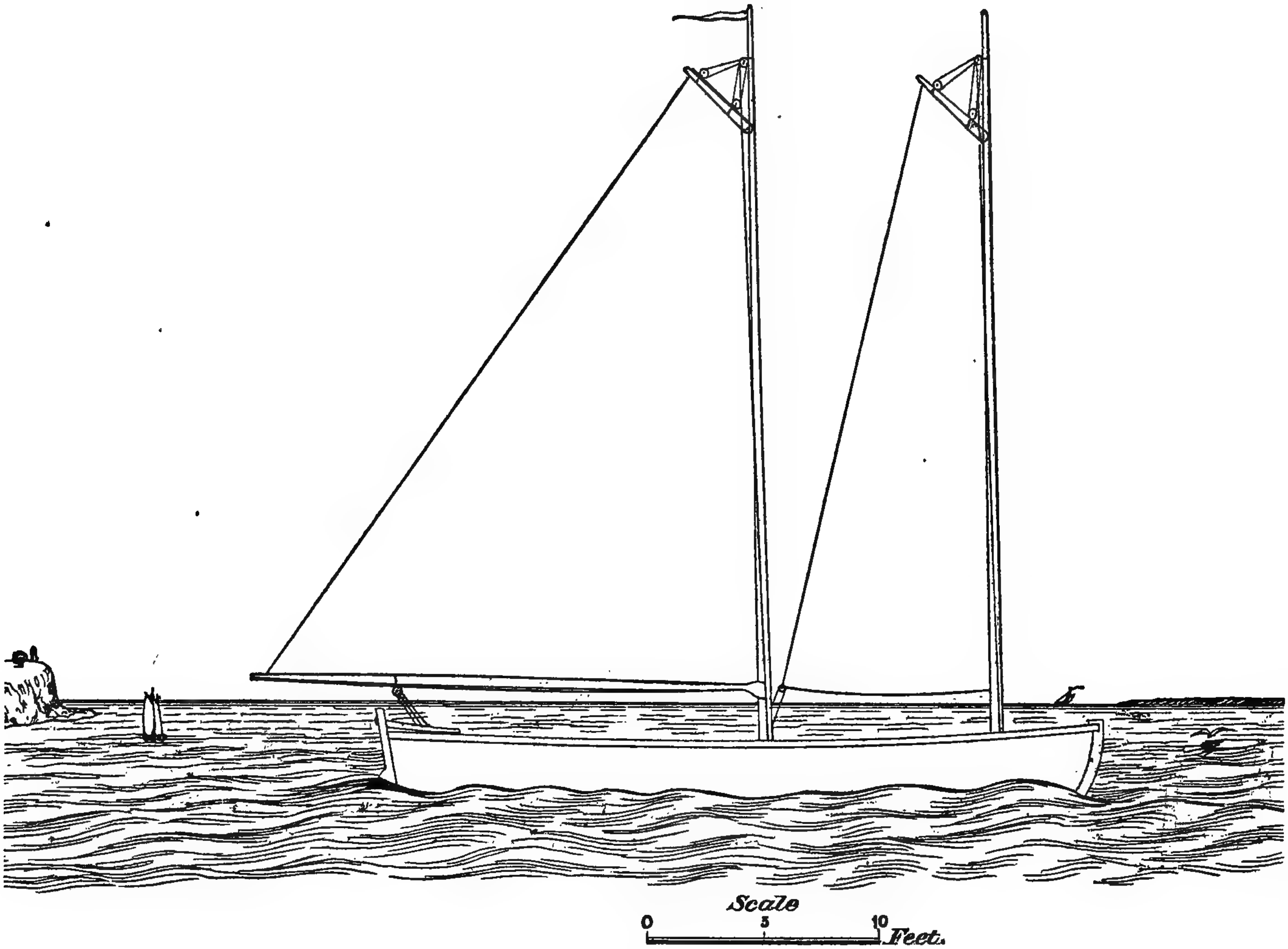

Fig. 5.—Block Island boat of 12 tons register.

Keel, 23 feet; length over all, 31 feet; beam, 11½ feet; depth from gunwale to floor, 4 feet 5 inches. Width of main thwart, 10 feet 8 inches; width at forward and after stroke thwarts, 8 feet 7 inches. Masts, 36 and 37 feet, 9 inches in diameter at keel, and 2 inches at head. Gaffs, 4 feet. Boom of mainsail, 23 feet. Foresail has no boom. No shrouds or stays to masts. Two tons of ballast. Keel, 4 by 12 inches. Frames, 2 by 4 inches, spaced 24 inches from center to center. Frames and planking, white oak. Foremast 4 feet from bow; mainmast 10 feet farther aft. These boats are open, but sometimes have a little cabin, which will shelter 6 men.

In after years the square topsail was given up and a gaff topsail was bent in its place, being a large triangle of canvas hoisted along the mast above the mainsail, and the jib was divided into two smaller head sails. A great number of sloops were built before the revolutionary war for the open sea fisheries, chiefly at Boston, Charlestown, Scituate, Essex, Salem, Beverly, Marblehead, Gloucester, Ipswich, New Bedford, Portsmouth, and the fishing towns along the coast of Maine. In the cod-fishery Massachusetts alone had 4,000 men and 28,000 tons of shipping before the revolutionary war, the fleet being largely composed of sloops. The great advantages of the sloop were its safety, and particularly its cheapness, arising from the small size of the vessels and from the abundance of native oak and pine near the fishing towns. The fishing vessels built in New England before the revolutionary war cost only one-half what the fir-built vessels of the Baltic did, and the result was that American fishing vessels continually increased in the cod and whale fisheries of the Atlantic, while European vessels continually decreased. Jefferson reported in 1791 that no other nation except the Americans could make a profit in the Newfoundland fisheries without national aid, and the governmental machinery was invoked to secure the widest possible market for American-caught fish.

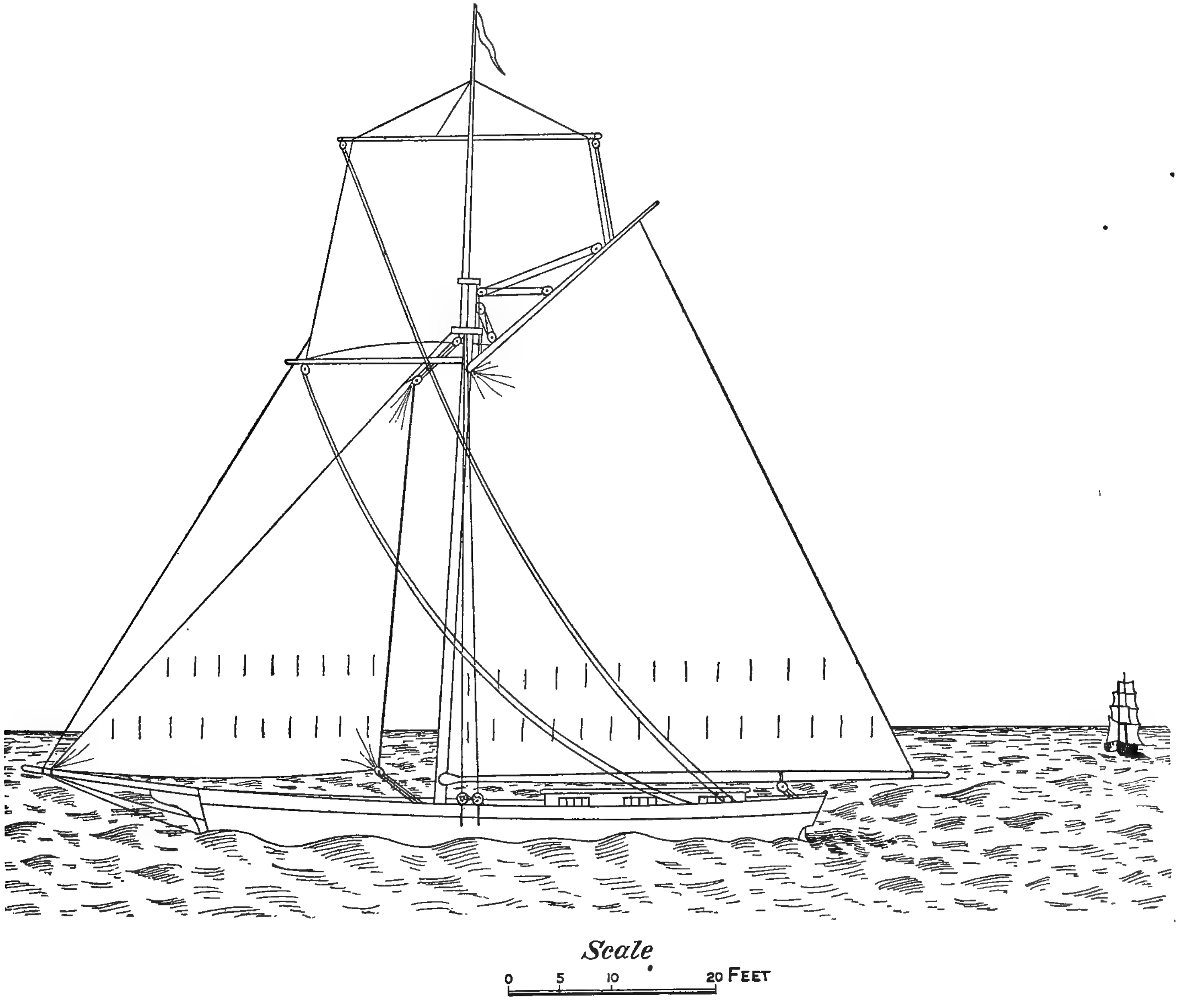

Fig. 6.—Topsail sloop, 50 tons.

Sloops were also largely built at and around New York city for shore fishing, and many are still employed there by the fishermen.

In 1745 Andrew Robinson, of Gloucester, built a vessel with square stern, which was fitted with two masts, bearing a sloop sail on each and a bowsprit with jib. She was sharp on the bottom and fast, and, on being launched, sped over the water so fast from the impetus gained by descending from the ways as to elicit from a bystander the remark, "See how she scoons." "Scoon" was a word used by plain people to express the skipping of a flat stone over the surface of the water when skillfully thrown, and the builder of the vessel, having been somewhat at a loss for a name for the new rig, seized upon the trifling incident referred to and replied, "A scooner let her be," and two-masted vessels, with jibs and fore-and-aft sails, have since been called by that name. The advantage possessed by the "schooner" (as the name is now spelled) is that the canvas of the vessel is divided into a larger number of sails, which are more easily handled than the large sails of a sloop could be, each containing the same amount of cloth. The schooner quickly superseded the sloop in the banks fisheries and in all others requiring voyages of any duration. Carrying twice as many men as a sloop, and making quick trips, a schooner could catch as many fish as two vessels of the other style, and were large enough to carry their own fish to foreign markets. Since the revolutionary war they have been the only vessels employed by Americans in the banks fisheries.

The American fisheries were annihilated during the revolutionary war, and the vessels were captured, the utensils and apparatus destroyed, the ship-yards closed, and both fishermen and carpenters were driven into other employments. The business revived promptly after the peace of 1783 both on shore and out to sea. By 1788 the New Englanders had an aggregate of 540 vessels, registering 19,200 tons, and 3,290 men in the deep-sea fisheries, and for more than half a century, interrupted only now and then by war or by small profits, the business went on increasing steadily. These statistics are from Jefferson's report to Congress in 1791.

The largest schooners were those sent to the Grand Banks, and for many years after 1800 about 70 sail of vessels were annually sent thither, chiefly from Cape Ann. The original "banker" was strongly and substantially built of oak. Her decks and cabins were of pine; her spars of either pine or spruce; her rigging and cables entirely of hemp. The ship-yard was usually located at the water's edge (although a vessel of 100 tons has been built 1 or 2 miles from the water and dragged on sledges over the snow in winter by 200 cattle to a spot suitable for launching), and the ways were planted so that the hull of the new vessel should just escape the water at high tide. The keel was laid of oak or other hard wood. Beginning at the fullest part of the vessel, the frames of the forward body were put in, going forward, and the stem, with its apron, knight-heads, and hawse timbers bolted together, was then raised to its place. The frames of the after body were then raised, and the stern-post, with the frame which belongs to that part of the vessel bolted to it, was fitted to its place. The keelsons were put in, the vessel was ceiled, planked, and decked, and in due time was launched, often with her principal spars in place. The only tools used in the ship-yard were those wielded by hand—saws, axes, hammers, augers, squares, chisels, and calking irons—the largest being the great saw, for cutting timbers lengthwise, worked by two men, one at each end, the timber being placed across two wooden horses, and one man standing on the top of the log, the other in a pit below the surface of the ground. All the beams, planks, keelsons, etc., were carried into the vessel on the shoulders of the men, but the masts were raised and set by means of an extemporized derrick. In model the vessels would be thought uncouth at this day. The bows were nearly as full as half of an apple, the bottom as round as the side of a barrel. They sat low in the water, and there were no bulwarks amidships other than the covering plank, with a chock, which rose in all about 15 inches above the surface of the deck. Aft there was a quarter-deck extending nearly half the length of the vessel and rising 4 feet above the main deck, reached by a flight of steps. The cabin was large, and, as this was before stoves were invented, was furnished with a large fireplace and chimney, the smoke sometimes going out by way of the chimney and sometimes through the open door of the apartment. The masts were rather short, and there was no topmast, except on the mainmast. The bowsprit was set high, sometimes at an angle of about 30°. The cutwater was a large and strong knee, securely bolted to the stem, and served as a means of securing the bowsprit in place, that spar being lashed to the knee with hemp or iron. There was not much beauty to the old-time "bankers", but they were staunch and durable vessels. Built for strength, well calked, and immediately repaired when showing a leak or weakness anywhere, they often lasted for forty or fifty years. The last of them owned at Gloucester was the Manchester, which, after long service on the banks, was sold to go into the coasting trade, and was a successful vessel in that business for more than twenty years. The bankers used to make about three trips a year, beginning in March and ending in November, and then either went into trade or were laid up for the winter.

The clipper schooner succeeded the banker. A few good years, in which fish were plenty and prices profitable, and the anxiety to make rapid trips and as many as possible in one year, led to great improvements in form. The body of the vessel was made leaner and sharper under the water, the bow longer and finer, the run cleaner, and the angle of entrance forward was sharpened from 85° to 45°. The spars were lengthened, and the schooner put under a heavier press of canvas. The clipper fashion is said to have been set at Essex, and the models of the carpenters of that town were so much admired as to bring a great deal of business to their yards. The Essex men have always shown originality in the shapes of their vessels, and have always led every other town upon the New England coast in the production of tonnage for the fisheries. Of the 475 schooners, sloops, and boats owned at Gloucester in the census year, 218 had been built at Essex, 133 only having been built by the Gloucester men themselves. The places where the rest of the Gloucester fleet of 1880 was built will appear in the following statement:

| | | | |
|---|---|---|---|
| Essex, Mass | 218 | Belfast, Me | 2 |
| Gloucester, Mass | 133 | Damariscotta, Me | 2 |
| Salisbury, Mass | 9 | Brunswick, Me | 2 |
| East Boston, Mass | 5 | Harpswell, Me | 1 |
| Newburyport, Mass | 5 | Yarmouth, Me | 1 |
| Danversport, Mass | 4 | Wells, Me | 1 |
| Chelsea, Mass | 3 | Portsmouth, N. H | 1 |
| Salem, Mass | 2 | Middletown, Conn | 3 |
| Quincy, Mass | 2 | East Haddam, Conn | 1 |
| Medford, Mass | 1 | Essex, Conn | 1 |
| Rockport, Mass | 1 | Chatham, Conn | 3 |
| Ipswich, Mass | 1 | Noank, Conn | 1 |
| Annisquam, Mass | 1 | New London, Conn | 1 |
| Duxbury, Mass | 1 | Bridgeport, Conn | 1 |
| Dorchester, Mass | 1 | East Haven, Conn | 1 |
| Wellfleet, Mass | 1 | New York | 3 |
| Bath, Me | 36 | New Jersey | 1 |
| Boothbay, Me | 13 | | |
| Kennebunk, Me | 9 | Total | 475 |
| Bristol, Me | 3 | | |

As soon as Essex and Gloucester had adopted the fast schooner every other fishing town along the whole coast did the same from necessity, and the new boats superseded not only the bankers, but also the pinks, for shore fishing; so that after 1850 a complete revolution was effected in the character of the fishing fleet of the whole Atlantic coast. Except on the Chesapeake, where a distinct class of vessels, peculiarly local, had been evolved, old fashions lingered only in a few scattered and out of the way places. The fast schooners added greatly to the prosperity of all the fishing towns; the American fishing fleet multiplied rapidly, and the capital invested in fast vessels yielded a far larger return than that put into the slower craft that preceded them. The vessels owned in large towns were provided generally by fishing merchants, who would put the profits of one year into a new schooner, to be added to their fleet the next, and who would fit out annually from three to twelve, and even as many as twenty vessels; but the masters of most of the schooners had shares in the craft they sailed, and hundreds of them came in course of time to possess and sail their own vessels. Builders, sailors, and merchants all became prosperous after the new impetus given to the business by the clipper class of schooners; the fishing towns were filled with neat and comfortable residences, owned by them; and their operations gave rise to shops, lofts, and mills, which made employment for thousands of men in the various arts that a large fishing fleet calls into action. Nearly all the fishing towns in New England made their own sails, rigging and cordage, anchors, and outfit, a contract for a new vessel, therefore, meaning work for nearly all the shops in town. The majority of the villages were supplied with small marine railways, on which regularly twice a year all the vessels of the town were hauled up out of the water for calking and painting and such other repairs as circumstances demanded; and thus there was work both winter and summer. This state of affairs continued, especially in New England, until the operation of the new fishery treaty with Canada brought a blight upon the business by admitting Canadian-caught fish to the United States free of duty.

The early schooners, both bankers and clippers, were from 20 to 40 tons register. The size increased with the growing accumulations of capital, and since 1860 the majority have been built of from 60 to 90 tons register, the fair average being about 75 tons, but many from 100 to 140 tons.

It is remarkable that, while the form and the rig of the schooners have been greatly improved, the manner in which they have been framed and built has scarcely changed in the last hundred years. The measurements, scantling, etc., of a 75-ton schooner are as follows:

DIMENSIONS AND SCANTLING.—Length, 76 feet, from the outside of planking at the bow to the after side of the stern-post, measured along the deck; breadth from outside to outside of planking, 22 feet; depth of hold, 7 feet 8 inches, and molded depth from under side of plank-sheer (top of beam), 8 feet 6 inches; keel, 70 feet long; molded with shoe of 6 inches, 18 inches, and sided 10 inches; stem, 12 feet long, sided 15 inches; stern-post, 10 feet long, sided 15 inches; knee to stern-post on keel, 4 feet 3 inches high, about 12 feet long on keel, and sided 10 inches; keelson, 10 inches square. The ceiling of the hold is 2 inches thick, except on the turn of the bilge, where a few streaks are laid 3 inches thick, and except just under the beams (the clamps), where they are also 3 inches. The outside planking is $2\frac{1}{2}$ inches, with 3-inch fender streaks. The beam knees are sided 5 inches and molded 10 inches in the throat. Beams are 9 inches wide, tapering from 7 inches deep in the center to 5 inches at the ends. Carlines are 4 inches by 6; decking, 3 inches thick. Frames, double, are 14 inches wide and 8 deep over the keel, the depth or molding of the frames tapering thence to the plank-sheer, where it is 4 inches. At the plank-sheer only one of the timbers of each frame rises to form the bulwark of the schooner, this timber, or stanchion, being sided 5 inches and molded 3; bulwark, 2 feet high amidships, 2 feet 6 inches forward; sheer of vessel, 22 inches.

SPARS AND SAILS.—Length of foremast, 69 feet; length of mainmast, 70 feet 6 inches; length of mast-heads, $6\frac{6}{12}$ and $6\frac{10}{12}$ feet; length of topmasts, 35 feet; length of poles of topmasts, 6 feet; rake of masts, $\frac{5}{8}$ inch to the foot; the masts bury below deck 8 feet 6 inches;

from knight-heads to center foremast, 21 feet; from center foremast to base of mainmast, 27 feet; from center mainmast to center of taffrail, 36 feet; length of bowsprit outboard, 21 feet; center line of bowsprit strikes stern-post above keel 4 feet; length of jib-boom outside cap, 13 feet; length of fore boom, 23 feet; length of main boom, 57 feet; length of fore gaff, 23 feet; length of main gaff, 25 feet.

The spars, with the bill for labor in making them, cost about $300.

Mainsail: Hoist, 46 feet; foot, 55 feet; head, 24 feet; after leech, 60 feet; containing 2,015 square feet of area and 410 yards of canvas.

Main gaff topsail: Hoist, 36 feet; after leech, 31 feet; foot, 24 feet; area, 350 square feet; canvas, 70 yards.

Foresail: Hoist, 46 feet; head and foot, 22 feet; after leech, 51 feet; area, 940 square feet; canvas, 190 yards.

Fore gaff topsail: Hoist, 36 feet; after leech, 34 feet; foot, 23 feet; area, 340 square feet; canvas, 70 yards.

Staysail: Fore leech, 15 feet; after leech, 36 feet; head, 31 feet; foot, 24 feet; area, 550 square feet; canvas, 115 yards.

Jib: Fore leech, 60 feet; after leech, 44 feet; foot, 46 feet; area, 840 square feet; canvas, 175 yards.

Flying-jib: Fore leech, 68 feet; after leech, 40 feet; foot, 32 feet; area, 350 square feet; canvas, 75 yards.

Jib-topsail, or balloon jib: Fore leech, 84 feet; after leech, 42 feet; foot, 50 feet; area, 805 square feet; canvas, 165 yards.

Riding-sail, or lug-sail: Area, 450 square feet; 90 yards of canvas.

Total sail area, 6,640 square feet, or 1,360 running yards of canvas, to which add about 60 yards for linings; cost of the suit, about $570.

[The sails vary in area somewhat on different vessels of the same tonnage, as the masts are planted at slightly different distances apart and the topmasts are shorter or longer, but the variation is seldom more than 50 yards of canvas either way.]

Blocks, etc.: 16 double and 46 single blocks; 24 6-inch and 8 4-inch dead-eyes; 36 21-inch and 16 10-inch mast hoops; 24 24-inch, 30 18-inch and 40 16-inch jib-hanks; 2 topmast balls. Average cost of blocks, etc., for a two-topmast schooner, about $140.

A schooner of this size will carry, in addition to what is mentioned below, two chains from 30 to 45 fathoms long each, if fitted out for mackerel fishing; but if fitted out for cod or halibut fishing she will have from 225 to 425 fathoms of best 8½-inch or 8¾-inch manila cable and three anchors, one of them being carried on deck for use in case one of the others should be lost. The following is the hemp standing rigging, the table giving the circumference and the fitted lengths ready to go on the vessel:

| | Lengths, in feet. | Circumference, in inches. | | Lengths, in feet. | Circumference, in inches. |
|---|---|---|---|---|---|
| Jib stay | 88 | 8¾ | Maintop-mast stay | 38 | 2¾ |
| Foremast shrouds, each | 54½ | 6¾ | Bowsprit foot-ropes, each | 24 | 2¾ |
| Mainmast shrouds, each | 56½ | 6¾ | Main-boom foot-ropes, each | 26 | 2½ |
| Bowsprit shrouds, each | 28 | 5 | Counter stay (foretop-mast) | 37 | 2½ |
| Spring stay | 25⅜ | 5 | Maintop gallant stay | 41 | 2 |
| Flying-jib stay | 108 | 4½ | Foretop gallant stay | 133 | 2 |
| Flying-jib guys, each | 35½ | 4 | Flying-jib foot-ropes, each | 15 | 2¼ |
| Foretop-mast back stays, each | 86 | 3 | Jib topping-lift | 36 | 3 |
| Maintop-mast back stays, each | 88 | 3 | Fore-boom topping-lift pendant | 24 | 3 |
| Foretop-mast shrouds, each | 32 | 2¾ | Main topping-lift pendant | 57 | 4½ |
| Foretop-mast stay | 129 | 2¾ | Main-boom topping-lift pendant | 30 | 4½ |
| Maintop-mast shrouds | 32 | 2¾ | Flying-jib topping-lifts pendant | 15 | 3½ |

The following are the circumferences and lengths of the manila running rigging:

| | Lengths, in feet. | Circumference, in inches. | | Lengths, in feet. | Circumference, in inches. |
|---|---|---|---|---|---|
| Main sheet | 132 | 3 | Flying jib sheets, each | 60 | 2¼ |
| Cat stoppers | 27 | 3 | Fore staysail halliards | 120 | 2¼ |
| Main topping-lift runner | 18 | 3 | Topsail sheet | 114 | 2¼ |
| Fish-hook | 12 | 3 | Crotch tackles, each | 48 | 2¼ |
| Fore and main lanyards, each | 30 | 3 | Main topping-lift, fall | 96 | 2¼ |
| Fore-peak halliards | 318 | 2¾ | Topsail halliards | 114 | 2 |
| Fore-throat halliards | 264 | 2½ | Main-peak downhaul | 126 | 1¾ |
| Fore sheet | 96 | 2¾ | Fore-boom topping-lift | 156 | 2 |
| Main-peak halliards | 324 | 2¾ | Fore-peak downhaul | 60 | 2 |
| Main-throat halliards | 270 | 2½ | Topsail back | 60 | 2 |
| Jib halliards | 180 | 2½ | Reef tackle | 96 | 2 |
| Jib sheet | 60 | 2½ | Main-peak whip | 144 | 2 |
| Jib downhaul | 87 | 2 | Fore-peak whip | 138 | 2 |
| Main-staysail halliards | 165 | 2½ | Jib-peak whip | 138 | 2 |
| Main staysail sheet | 60 | 2½ | Jib-topsail halliards | 258 | 1¾ |
| Main-boom tackle | 108 | 2½ | Jib-topsail downhaul | 108 | 1½ |
| Flying-jib halliards | 198 | 2¼ | Jib-topsail sheet | 72 | 2½ |
| Flying-jib downhaul | 105 | 1¾ | Topsail clew-line | 138 | 1¾ |
| Jib topping-lift | 156 | 2¼ | | | |

Weight of tarred hemp, 1,330 pounds; weight of manila cordage, 890 pounds. Cost, about $440, including rigger's bill of $100 for fitting and setting up.

The practice has been in vogue for the builder to contract to furnish only the hull and the spars of the vessel, the sails being furnished by another contractor. The cordage is bought by the owner from the manufacturer or from a ship-chandlery store, and is fitted to the vessel by a rigger, whose bill is almost exclusively for labor, and the chains and anchors are bought from either a shop or a store. The fine carpentry work on the cabins is done by a joiner; the iron ballast, often costing $500, is purchased from the mill, and when the sails, rigging, cabins, chains, anchors, and ballast have been purchased the main features of the outfit of a fishing schooner have been provided, the rest of the outfit consisting of a large lot of small articles, costing in all from $400 to $600.

Many of the fishermen sail with no foretop-mast, this being thought to be a snugger and safer rig, the rolling and pitching of a fishing boat being severe upon all the top hamper. In such cases the "top bills" of the vessels are lessened somewhat.

The following statement, taken from the books of a leading sail-maker in a fishing town in New England, shows the yards of canvas in schooners of different sizes, the first cost, the yearly amount spent for repairs of sails, and length of time the suits of sails last:

| In what fishery. | Tonnage of schooner. | Yards of canvas in sails. | Cost of suit. | Yearly amount for repairs. | Life of a suit of sails. |
|---|---|---|---|---|---|
| | | | | | *Years.* |
| Halibut, the year round | 95 | 1,350 | $600 | $100 | 2 |
| Mackerel and herring, the year round | 93 | 1,338 | 600 | 70 | 2½ |
| Halibut, the year round | 83 | 1,380 | 570 | 100 | 2½ |
| Mackerel and herring, the year round | 83 | 1,380 | 570 | 50 | 2½ |
| Mackerel, the season | 80 | 1,349 | 650 | 50 | 3 |
| Bank fisheries, the season | 75 | 1,360 | 570 | 100 | 3 |
| Mackerel and shore, the season | 72 | 900 | 470 | 80 | 2 |
| Bank fisheries, the season | 65 | 850 | 570 | 83 | 3 |
| George's banks, the season | 60 | 800 | 500 | 70 | 2 |
| Do | 56 | 750 | 450 | 60 | 2½ to 3 |
| George's banks and shore, the year round | 48 | 700 | 340 | 50 | 2½ to 3 |
| Shore, the year round | 40 | 640 | 300 | 40 | 2½ |
| Do | 32 | 550 | 250 | 40 | 2½ to 3 |
| Do | 28 | 500 | 240 | 30 | 2½ to 3 |
| Do | 26 | 460 | 200 | 30 | 2½ to 3 |

The differences between vessels of nearly the same size are due to the lack of foretop-mast on some of them, and to the use of light canvas in some cases and of heavy canvas in others.

The manner of building a 75-ton schooner in the New England yards is as follows: All the plank, and a good deal of the square lumber, such as is used in keelsons, beams, and stern-posts, are bought from the lumber-yard in the town, or in the most favorable market near by and sent to the town by coasting vessel or by railroad. The frame timber is obtained in two ways: Either it is bought at the nearest saw-mill in the flitch, that is, in heavy plank sawed only on two sides, the bark of the tree remaining on the other two edges, and drawn to the yard on wagons or sleds, according to the season, when the crooked pieces of the frame, stem, etc., are hewn from it with broadaxes; or the cheap pine board patterns of the crooked pieces are given to a contractor, who makes a business of getting out frames in the woods in Delaware, Maryland, or Virginia. In that case the contractor goes to the scene of his operations in the winter time, fells the trees, hews the frames from the trunks on the ground on which they fall, marking each separate piece when finished, and brings the whole frame to the yard in New England by coasting vessel in the spring. The contractor pays about $3, but sometimes from $4 to $6 per thousand board feet for the white oak standing in the woods, and it costs him about $9 a thousand to fell the trees and hew out the frames, besides an additional charge for hauling out of the woods. Freight to the north is about $7 a thousand, and by the time the timber is delivered in the ship-yard the frame has cost the builder about $34 per thousand board feet. The white pine used for decking and houses costs him about $35 a thousand, and the pitch-pine, for beams, keelsons, and other uses, $25 a thousand.

The keel is stretched on a series of blocks made of cheap timber, and such of them as have to be split out are usually hemlock or spruce. The declivity toward the water is usually about five-eighths of an inch to the foot. A keel 73 feet long would be made of two pieces, with the ends united by a horizontal beveled joint, or scarf, about 6 feet long, strongly bolted with round iron. Owing to the fact that single sticks of timber of the right curvature long enough to reach from the keel to the main rail cannot be obtained for the ribs of the vessel the frames have to be made of several pieces. A frame is composed of eleven pieces, the first being the "floor timber", 7 inches wide and 8 inches deep, tapering toward the ends, which is laid across the keel, extending each way as far toward the bilge as the natural crook of the log from which it is cut will allow. Abutting against each end of the "floor timber" is another curved stick, or "futtock", which carries the sweep of the frame farther on upward, and against the end of that another futtock, or "top timber", as in the illustration on page 16, which carries it to the plank-sheer on either side of the vessel, the frame tapering gradually from the keel to the plank-sheer. This collection of pieces makes one-half of the frame. In front, and strongly fastened to them by treenails of oak or locust, are the pieces composing the other half of the frame, which break joints with the pieces first mentioned. There are, first, two "navel timbers" abutting over the keel; then a "futtock" adjoining each navel timber; then a "stanchion", which rises to the main rail and supports the planking of the bulwark of the vessel. As the frame is thus double, it measures over the keel 14 inches by 8. The pieces are laid together and treenailed on the ground, and the completed frame is then raised to its place by a derrick and held up by shores. The arrangement of the frame is shown in Fig. 7.

In a schooner of 75 tons there are about 27 frames, spaced 24 inches from center to center, the first one being set up about 6 feet from the stem at the water-line. After these frames are set up, and each is fastened to the keel with 1-inch iron bolts about 2 feet long, the stem, with the hawse timbers and knight-heads bolted to it solidly, is raised and bolted to the keel. Then the stern-post is set up, the deadwood is placed at the stem and stern, upon which the extreme forward and after frames, or "cants", are stepped, and then the keelson is laid, bolts 1 inch thick and about 20 inches long are driven through each frame into the keel, and these bolts often go clear through the keel and are clinched on the under side by spreading the ends with a hammer. The forward cants are usually four or five in number, and are of the same size as the frames of the "square body", so called; but the bottom ends are tapered to suit the model of the vessel, and are bolted with ⅞-inch iron to the deadwood. There are five or six after cants, which are secured in the same way. After the frames are all up, three sets of ribbons, or strips of wood, are run around the vessel lengthwise and nailed to the frames, to hold them steady and in proper position while being planked, one of these ribbons being fastened at the head of the navel timbers, another on the bilge, and the third at the gunwale. The planking and ceiling generally go on at the same time, but in many cases the ceiling is put in first, and is fastened with spikes. The planking is fastened to the frames with oak or locust treenails, 4 in each frame, one-half of the treenail going through frame and ceiling, and is clinched at each end by driving wooden wedges into the treenail. The ends of the planking are fastened by two 5-inch spikes of galvanized iron and one ⅝-inch galvanized iron bolt, going through, and clinched inside over an iron ring. Each plank of the "bends" is bolted to every set of timbers, this being called "bend bolting". The beams are put in about 4 feet from center to center, and are bolted to the clamps, or piece of thick ceiling, with ¾-inch iron, there being four ¾-inch bolts through each lodging knee into the beam and about six through the body of the knee into the side of the vessel. The deck planking is laid nearly straight fore and aft, but aft it follows the sweep of the sides of the vessel somewhat. The decking is 3 inches thick, 5 or 6 inches wide. Two 5-inch spikes are driven through each plank into every beam, the heads countersunk, and the holes plugged with wooden plugs set in white lead. On the top of the main rail, at the bow, is placed a wooden chock 5 inches high, tapering to 3 inches aft, and 5½ inches thick, tapering to 4 inches aft. This chock extends from the bow to the fore-rigging. The taffrail varies from 14 to 18 inches in width on the main rail; the top rail is 9 inches wide. The houses are the last thing built. The whole of the top and outside of the vessel is duly planed, the deck oiled, the hull calked and painted, and the schooner is then launched (Figs. 8 and 9). At present, it is more frequently the case that fishing schooners are launched before the spars are set.

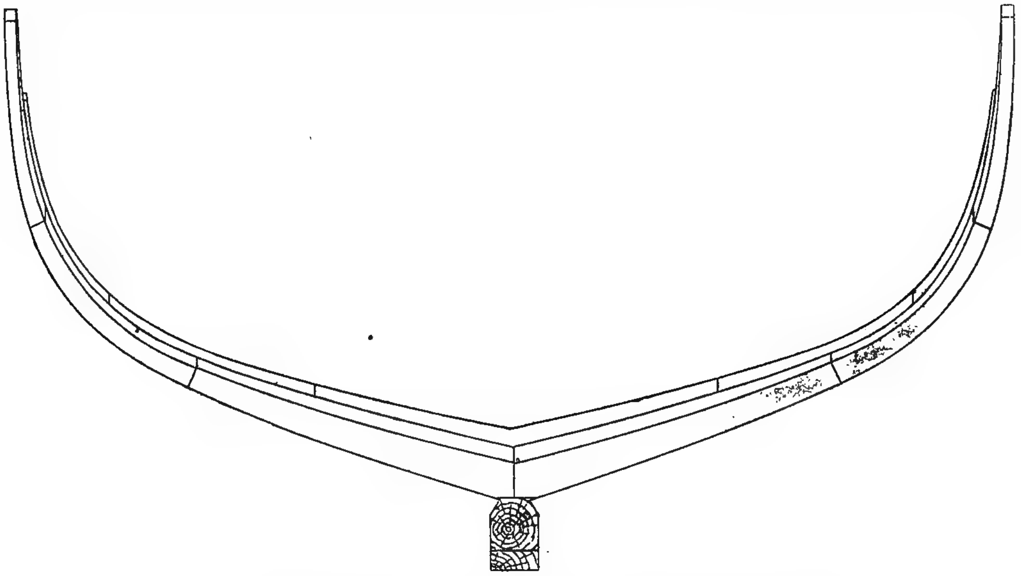

Fig. 7.—Midship frame of a 75-ton fishing schooner.

If there are ship-chandlery stores and sail and rigging lofts in the town the new schooner is placed alongside of a wharf and fitted out at once, but in many towns near cities as large as Rockland, Portland, Gloucester, Boston, and New York the schooner is placed in tow of a tug and sent to the city, where she gets her spars, sails, rigging, anchors, hawsers, boats, and all the paraphernalia of her outfit. It costs from $50 to $100 to tow a new schooner to the nearest large city, but, as a rule, outfits can be purchased there relatively so cheap as to warrant this expense. The use of the steam tug has within the last twenty-five years extinguished the sail and rigging lofts, anchor shops, and chandlery stores of a large number of vessel-building towns along the Atlantic coast by concentrating the outfitting business in the large cities.

From first to last, about thirty distinct trades are concerned in the collection of the material for a fishing schooner and the construction of a vessel. The largest part of the cost is for material. Fishing schooners were built in the census year for from $55 to $65 per register ton. The cost of a 75-ton vessel was about $5,000; the amount paid out in the ship-yard for labor of building was about $1,900.

The outfit of such a vessel for a five-weeks' mackerel trip for a crew of master and 14 men is:

1 seine, costing $850.
40 hogsheads of salt, $70.
1 seine-boat, $225.
400 barrels, $400.
4 barrels of flour.
2 barrels of beef.
100 pounds of pork.
120 pounds of sugar.
25 gallons of molasses.
½ barrel of beans.
25 pounds of dried apples.
25 pounds of cornmeal.
10 gallons of kerosene.
10 pounds of coffee.
50 pounds of lard.
60 pounds of butter.
10 bushels of potatoes.
1 bushel of pease.
10 pounds of rice.
50 pounds of oatmeal.
Other small stores, costing about $40.

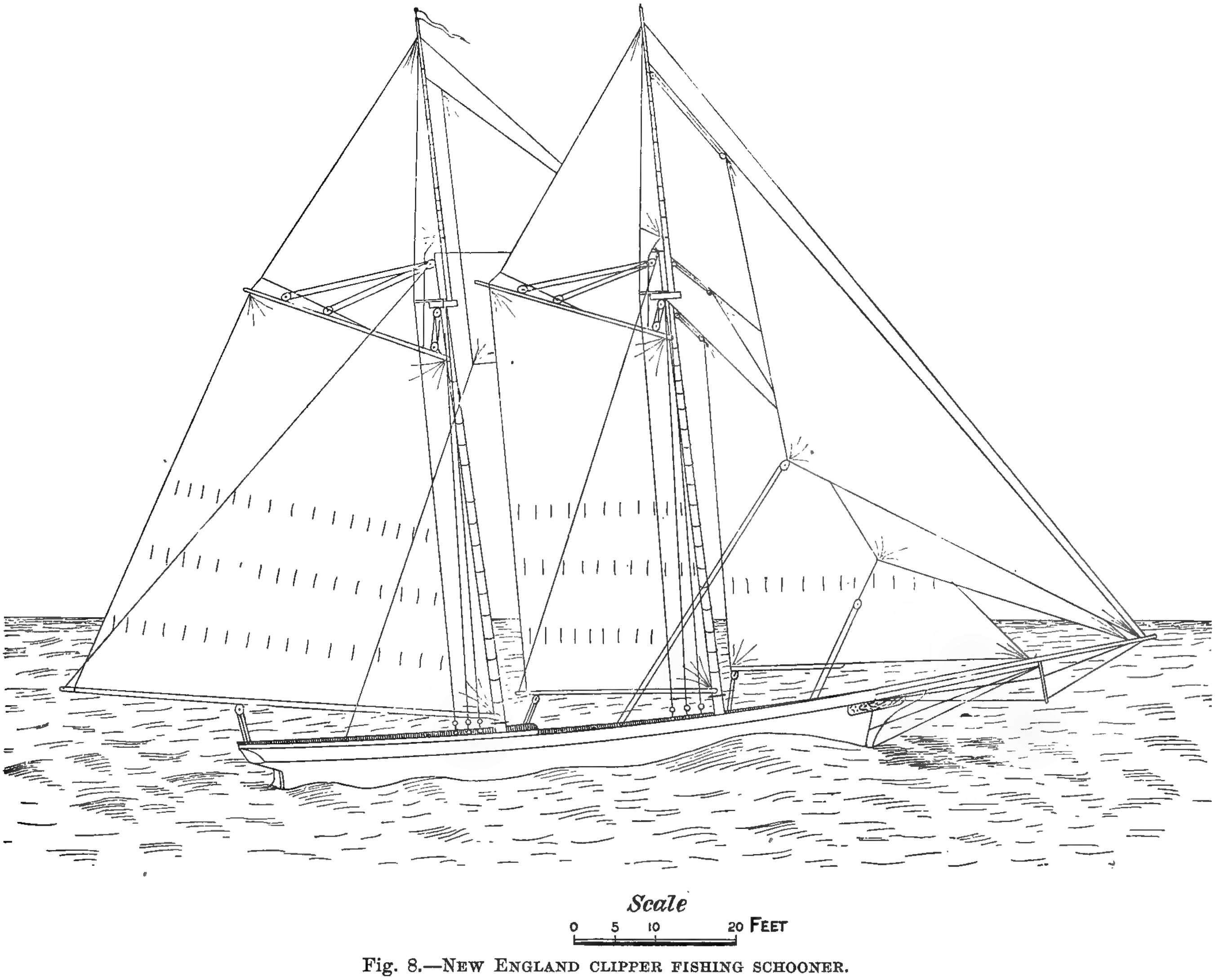

Fig. 8.—New England clipper fishing schooner.

75 tons, 76 feet long, 22 feet broad, and 7⅝ feet deep in the hold. Draught, forward, about 4 feet + the keel; aft, about 6 feet + the keel. Coefficient of D., to 6 feet from keel amidships, 0.39; to 5 feet from keel amidships, 0.33. Total displacement to 5 feet draught above keel, 89 net tons. Angle of entrance at bow, 40°.

It ought perhaps to be stated that the shallowness of the clipper schooner and the smallness of its under water midship section are doubtless the causes of a large proportion of the terrible losses of life and capital that yearly afflict the fishing communities of New England, especially Gloucester. Captain J. W. Collins, with others, have been trying for some time to induce the people engaged in the business to build deeper vessels for the winter fisheries.

The fishing smacks built on the Connecticut coast for the Long Island and New York fisheries are clipper schooners carrying light poles for topmasts, but often with no foretop-mast at all (Figs. 10 and 11). They usually have no jib-boom. The rig is adopted for its convenience, but, as a rule, the vessels do not remain out over night.

However, they are able vessels, and sometimes are out a week without making harbor, especially in the spring and summer time. They are of smaller tonnage than the New England schooners, though deeper, and usually range from 20 to 45 tons register. Usually they have a well amidships, into which the fish are thrown, to be brought to market alive. A fair specimen of this class is the Elisha A. Baker, built in 1848 at New London, which is 65 feet long over all, 17 feet 10 inches broad on the beam, and has an 8-foot hold. Amidships, the well is 18 feet long and 5 feet high, with access into it through a 4-foot hatchway on the deck, covered with a wooden grating, the curb of the well lengthening fore and aft, so as to make an 8 by 4 feet opening. There is a bulkhead across the vessel in the middle of the well, while on top, and under deck, is an ice-house extending the whole length of the well. Forward of that is a little bait pen, and still further forward, reaching to the bow, is a forecastle and bait room 5 or 6 feet high, under which ballast is stowed. The mainmast steps on the after end of the well. The steerage is just aft of the mainmast, and the cabin, 12 feet long, aft of that, with a companion-way at its rear. The stove is in the forward end of the cabin, and ballast is stowed under the floor of the cabin. At the mainmast the deck rises 6 inches for a quarter-deck. The stern-post rakes about 4 feet to the head of the rudder-post, and the stern overhangs 6 feet from the cross-seam. A smack of this class has a broad keel and draws about 7 feet forward and 8 feet aft. It generally carries a yawl at the stern and two dories on deck.

A large number of these little smacks are owned in New York city and vicinity by fishermen who bring their fish to Fulton market for sale. They are now generally built all along Long Island and in Connecticut, and being made of oak, locust, and the best pine, they do good service for from twenty to forty years. Formerly they were built in the ship-yards of New York city, where large numbers of smacks, both sloops and schooners, of great beauty of model have been constructed. Forty years ago the smacks of New York city were built with a tumble home to the top side, as in the illustration, and the bow raked sharply. The sides are now perpendicular amidships above the water, as in New England. The high price of labor in New York city has driven the business of building them out to country towns, as before stated. The smacks add little to the tonnage of the merchant marine of the United States, but their number is so great that they give employment to large numbers of carpenters on shore and of sailors on the deep. Any man who can build one of them right can build a good wooden ship of 2,000 tons register; and as long as they are built in large numbers the United States will not lack a handful, at least, of competent carpenters and builders.

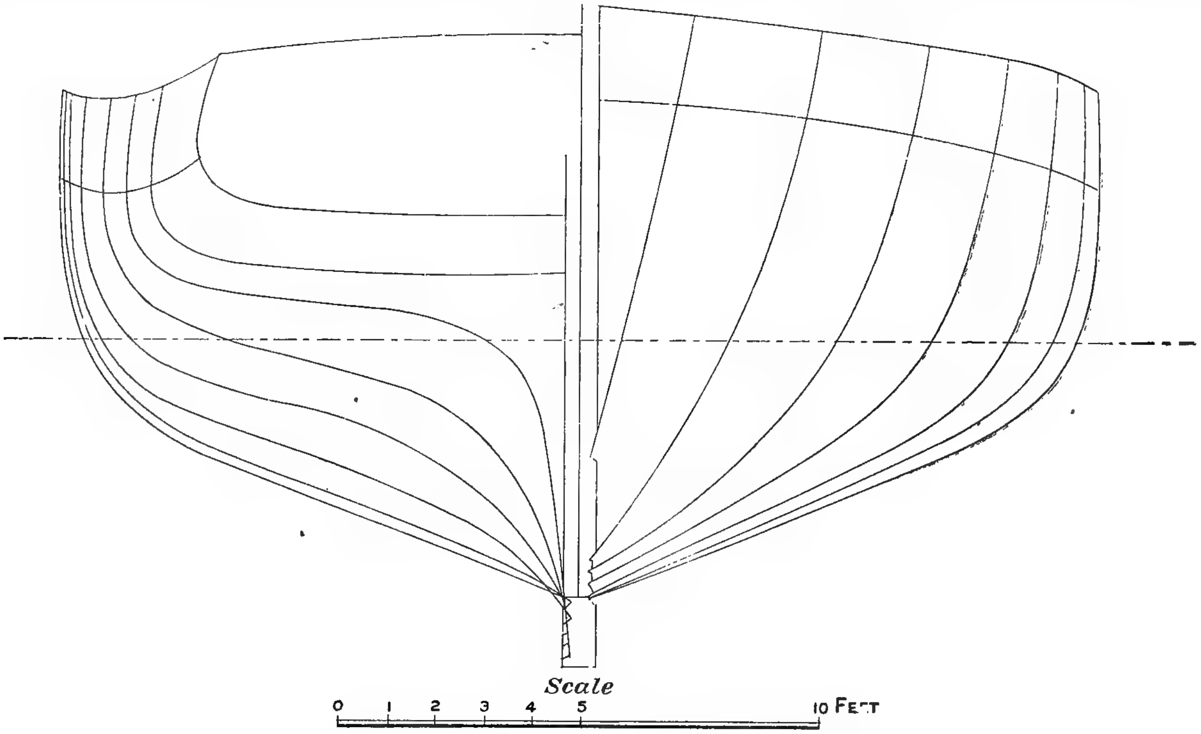

Fig. 9.—Lines of the fishing schooner.

In place of the schooners used on the New England coast for the capture of menhaden to make into fish-guano and oil there has been employed during the last five years a number of small-sized fishing steamers. These fishing steamers are sloop-rigged, but carry tug-boat engines and screw propellers. Seven were built at Boothbay and Kennebunkport, in Maine, and Noank, Connecticut, during the census year, ranging from 80 to 145 tons register. The hulls cost from $5,000 to $7,000, and the boilers and machinery from $6,000 to $10,000 each. The machinery, with propeller, weighs about 30 tons. Steamers have virtually superseded sailing craft in this particular employment.

A brisk business is done in New England in building boats for fishing schooners. Formerly fishing was done entirely with hand-lines over the side of the vessel, and then the schooner only needed a yawl; but the method has changed during late years, and now the crew take along a number of small boats, and when they reach the cod grounds they scatter away in them from the vessel, each boat on "its own hook", and after a load is obtained the boats return to the schooner. This new method has developed the business of boat-building immensely, not only making a demand for what is needed to fit out new schooners, but also supplying the shop steadily with large orders in behalf of vessels already in commission. Fishing on the banks is a stormy and perilous occupation, as a great deal of heavy weather is encountered and the decks of the schooners are often swept clean of nearly everything on board by huge seas. There is a continual loss of boats in that and other ways, and the result is that a schooner seldom sets sail from the home port for a fishing trip without first having to buy from one to five or six boats for the occasion.

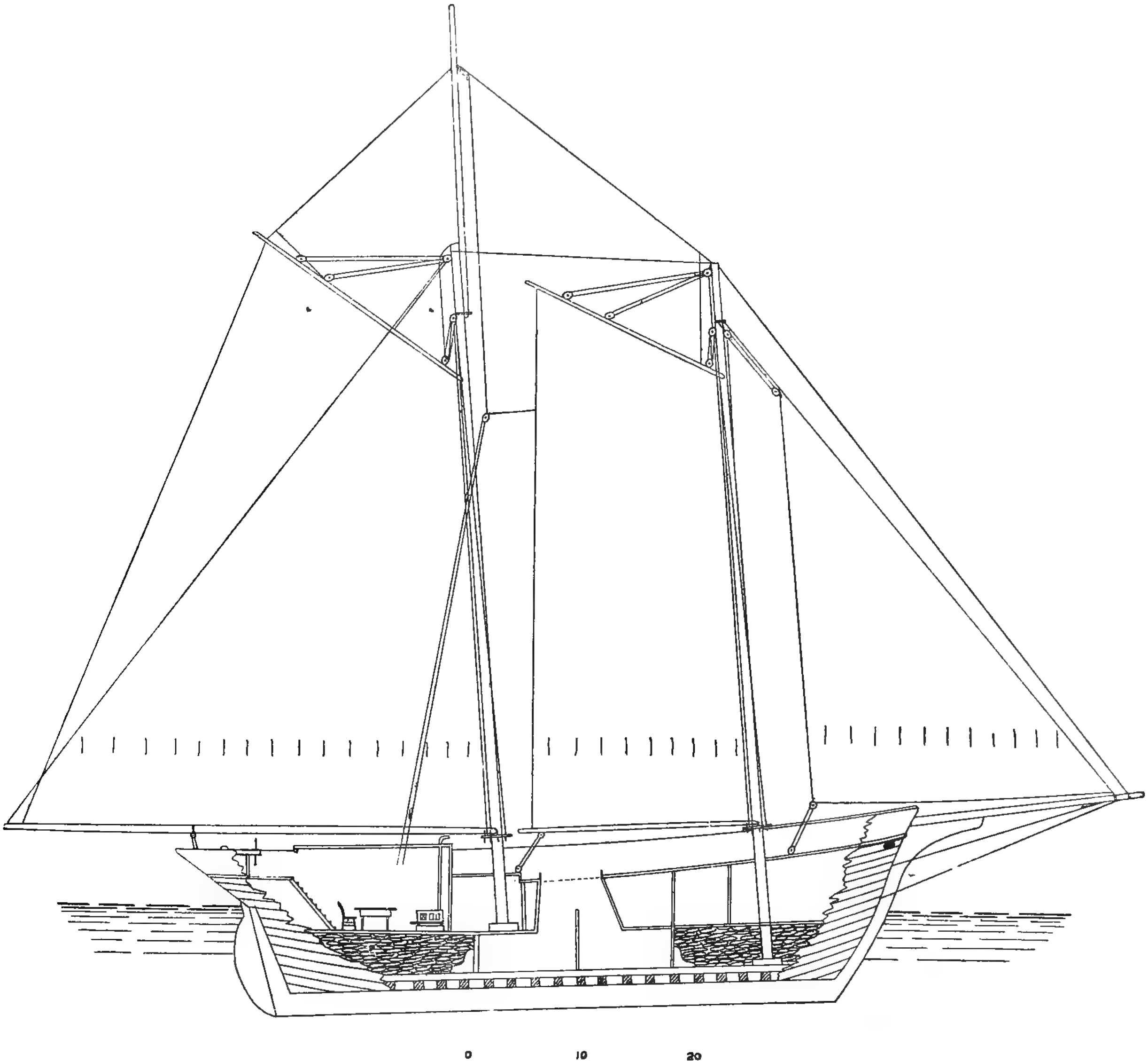

Fig. 10.—NEW YORK FISHING SMACK, 45 TONS REGISTER.

The boat now used is the "dory" (Fig. 12), a Yankee invention of most excellent qualities. It is built in five different sizes, designated by their length on the floor, viz: 12, 13, 14, 15, and 16 foot boats. The different sizes are used in different fisheries, the small sizes being used for hand-line fishing, the others for haddock trawling, and the largest of all for halibut. The boats carried by any one schooner are usually of the same size, for the reason that when the thwarts are removed the dories of a special size will stow away within one another in a "nest". Five or six boats will thus occupy on deck no more space than one boat. Sometimes one larger or one smaller dory is carried, and in that case it has to go at the top or the bottom of the nest. Experience has taught the best shape and sheer for a dory, and this admirable boat has reached almost perfection of form. The boats are swift, easily handled, capacious, and safe, and, if properly handled, are hard to capsize. Occasionally one will be tripped by a wave, but such an occurrence is rare; and there have recently been three instances in which some daring sailors crossed the Atlantic ocean to England in one of them.

The regular builders of dories are found at Cundy's Harbor and Portland, Maine; Seabrook, New Hampshire; and Salisbury, Newburyport, Essex, Beverly, and Gloucester, Massachusetts; but numbers of them are built in a small and scattered way all along the New England coast down as far as New York city by farmers and fishermen. The principal center of this industry is Salisbury, Massachusetts, where there are seven shops, each producing from 200 to 650 dories every year. About 200 are built at Gloucester yearly, 75 in Portland, 75 in Cundy's Harbor, and from 20 to 50 in each of the other places named. The large builders have the advantage of being able to buy a car-load of lumber at a time, by which means they get it cheaper and can sell their boats at a lower price. At Salisbury, in the census year, the stock for a dory did not cost more than $12 on the average, the expense of labor in building being $5 or $6. The boats sold for $18, $20, and $25 each. The business in the shop is organized in a way not seen in any other branches of boat-building, except in the few establishments (not exceeding twenty in the whole country) where ships' boats are built on a large scale. Each man has a special task to perform, as the getting out the boards for the floor, the planks for the sides, the frames, or other pieces, the fitting of the several parts of the boats into place, or the painting and finishing. Each one is paid by the piece, and the result is seen in a degree of rush and hurry in the large shops not noticed in other branches of the art. The boats are built in winter time, and the active work of the men serves to keep them warm in spite of the rather excessive ventilation of the barn-like buildings.

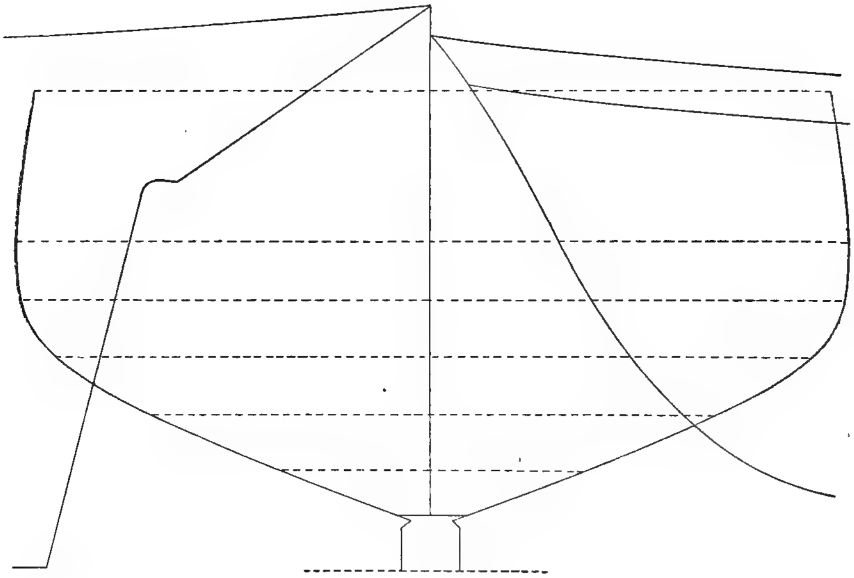

Fig. 11.—Outlines of midship section, bow, and stern of the sloop-smack "Prouta", built in New York in 1842.

The frames of the dories are spaced from 27 to 30 inches apart. They are of white oak, and are cut from natural crooks when the stuff can be obtained; but owing to the difficulty of obtaining the large supply of natural elbows required a patent iron dowel has been invented for uniting two sticks of oak into an elbow, and frames thus united are almost exclusively put into boats in the large shops. In making the dory the first step is to cut out the floor of the right length, width, and outline from two or three $\frac{7}{8}$-inch white-pine boards, grooved and jointed at the edges. The boards are driven tightly together and fastened by laying floor strips of oak across them midway between the places for the frames and nailing them strongly to the boards. As the bottom of the boat is to be given 3 or 4 inches sheer, the next step is to lay the floor on a row of blocks having just the sheer required. It is held in place firmly by poles reaching to the ceiling of the room. The frames having been meanwhile made, are put into position on the floor of the boat and nailed. The stem-post, with its knee, is placed, as is also the narrow V stern-board and its knee. The planking is of white pine about five-eighths of an inch thick, and is cut from planed boards with the aid of a wooden pattern or mold, the edges being beveled so as to lap. There are three streaks on each side of the boat. Builders are guided by personal taste in deciding whether to make the upper of the three planks of the side or the bottom one the widest, the practice varying; but a wide upper streak is held to make a handsome boat. The lower board is the first one put on, and is held to the frames by carpenters' set-screws until fastened. The other boards are then put on in order, being nailed to the frames, the stem-post, and stern-board, and to each other where their edges lap. The boats have about 14 inches sheer, but when built for use near shore and in comparatively smooth water they can be somewhat less crooked on top than that.

Thirteen-foot dories have two thwarts, with parting boards or bulkheads under them, to keep the fish from shifting about, and one pair of oars. A narrow batten, or "rising", is fastened to the frames for the thwarts to rest upon. Fifteen-foot or trawl dories have three thwarts and three parting boards, with two pairs of oars. The space aft of the after parting board is occupied by buoy lines, anchors, etc., and the seats are usually on the first, second, and third timbers. The bow and stern rake considerably. The top length of a 13-foot boat is 15½ feet; of a 15-foot boat, 19⅓ feet. The sides flare from 12 to 15 inches amidships. Dories are very light for their size, the 13-foot size weighing about 180 pounds, the 14-foot 190 pounds, and the 15-foot 250 pounds. They float like an egg-shell on top of the water, drawing from 3 to 5 inches only, and it is possible to load them down to within 6 inches of the gunwale in safety.

A variety of other boats are built along the New England coast for fishing, some to go with vessels, others for alongshore use, primarily intended for rowing, but often having also some sort of a small fore-and-aft sail, with a pole for a mast that can be unshipped and taken down readily. The shore boats are for lobstering and fishing with hand-lines, seining, etc. They are regularly framed keel boats, usually open, and are sometimes clinker built and sometimes sharp at both ends. The seine boats are always sharp at both ends; they are rather full on the floor amidships, are well modeled at the ends, and are given a good sheer. On the coast of Maine some of the shore boats have a little cuddy forward, in which is placed a stove, to keep the men warm in winter, and also to prevent the lobsters from freezing until they can be brought to shore and sent to market. The general model of the open boat is a legacy from early times. It came into existence at a very early period, owing to the exigencies of the peculiar calling in which it is employed, which has compelled the shore fishermen to adopt a boat suited to flat beaches and having the properties of light draught, buoyancy, stability, and stowage capacity for fishing apparatus and fish. The object of building the boats with sharp ends is to enable fishermen to launch and land through the surf with facility and to handle the boat in rough water with safety. The New England fishermen of to-day have been accustomed to this general model from childhood, and they pin their faith to it with the utmost tenacity. It is the model which forms the basis of the admirable boats used in the United States life-saving service. The crews of the life stations have been largely recruited from the sea-coast fishermen, and the bureau at Washington gives them the model they know so well and can handle with such remarkable skill. Whale and seine boats are the largest of this class of boats used in the fisheries. The seine boats of Gloucester are extremely handsome specimens of workmanship, and are now built 36 and 40 feet long; but the usual size is 34 feet long, 7 feet 10 inches wide, and 33 inches deep. They are fuller than a whale-boat, and can carry a net 200 fathoms long and 1,000 meshes deep. Extensive use is made of this class of boats in shore fishing. They consume a great deal of material in building, namely, 600 board feet of cedar, 230 feet of oak, 250 feet of white pine, 70 pounds of iron nails and bolts, 75 pounds of iron fittings, and 35 pounds of paint, and are expensive boats, costing from $200 to $250. The model bears so close a resemblance to that of the whale-boat that the one illustration, given elsewhere, will do for both.

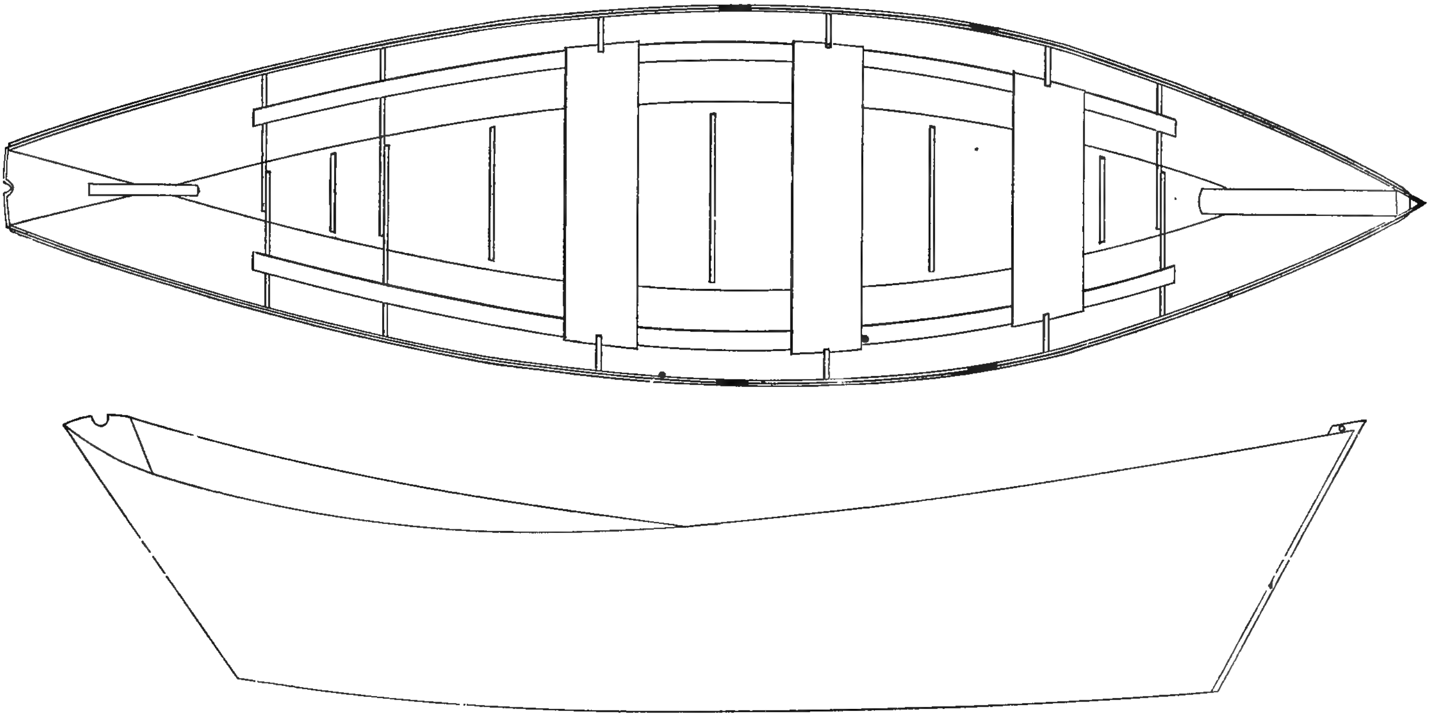

Fig. 12.—15-FOOT FISHING DORY.

19 feet 4 inches long over all; 22 inches deep; 31 inches wide on the floor; 5 feet 3 inches wide across the gunwales; 14 inches flare. Weight of boat, 250 pounds. Will float at 3½ inches draught of water. At 9 inches draught will carry 1,200 pounds; at 13 inches draught, 2,000 pounds.

Many keel-boats were formerly built in New Hampshire and elsewhere for Labrador fishing, but the business has declined of late years. In one shop in Seabrook, New Hampshire, that used to build a hundred boats per annum, only five were constructed in the census year.

On the Connecticut shore a large fleet of small flat-bottomed fishing boats are employed, called "sharpies", which have a family resemblance to the dory. These are fully described under the heading of "Oyster boats".

WHALING VESSELS.—The whale fishery was actively pursued in Europe before the settlement of America, the Biscayans and Basques being the first to capture this gigantic fish. Their earliest exploits were on their own coasts; but, becoming expert in handling the whale, they followed their game to the north of Europe by the middle of the fifteenth century, and in 1578 they had 25 large sailing vessels in the business. The Dutch, following the example of the Biscayans, also went into the business, and about 1650 had 200 vessels in this fishery, while the people of Hamburg had 350. The English also sent out whaling vessels, and by the time the coast of New England was settled the commercial value of the whale was thoroughly understood. The early visitors to America had a sharp eye to business opportunities, and finding that the whale was a native of the American coast they made repeated mention of the fact in the several reports of their voyages.

The first whaling in America was limited to securing such specimens of the fish as had died a natural death and had drifted ashore, cape Cod, the Massachusetts coast northward, Nantucket, Rhode Island, and Long Island being the principal localities where this business was carried on. Drift whales, as they were called, were always the property of the public, and the colonial government, the township where the whale came ashore, and the finder of the game divided the oil, etc., equally. The active pursuit of this profitable fish began, however, within twenty years after the landing at Plymouth. The first organized work appears, from the report of Mr. Starbuck, published in 1878, to have taken place on the eastern end of Long Island, at Southampton. Encouraged by the example of the Indians, who occasionally put out from the shore in their log canoes and attacked a whale with spears and arrows, the settlers built boats suitable for the purpose and chased every whale blowing in sight of land that it was possible to get. On Long Island, and afterward at Nantucket, a regular lookout was kept on shore. A mast was set up, and a watch kept from a platform built upon it; boats were kept in readiness to launch; and when a whale was seen to spout an alarm was sounded by shouting or by blowing a horn, and the boats were manned and launched and sent out in eager pursuit of the game. In calm weather these boats would sometimes venture almost out of sight of land—a dangerous proceeding, as it often proved—and many times they could scarcely reach the shore again. On one occasion 30 boats were out from Nantucket for whales when it began to blow and snow, and it was only after long and hard rowing and a desperate struggle with wind and tide that they reached land again in safety.

The boats first used were shallops, built after the fashion of ships' boats, but sharper. The first requisite in a whale-boat was speed, with its consequent ease in rowing, and the object was gained by making the shallop long and narrow, with keen ends and a sharp floor. The bow raked considerably, after the universal fashion of the day in vessels large and small, and the stern was sharp, but had a post or skag, on which the rudder was hung. It is probable that by the year 1700 this boat had reached nearly the form it keeps to-day; and by the time of the revolutionary war, large and a double-ender, it was a style of boat famous for its speed, lightness, and capacity. The accompanying cut (Fig. 13) is of a boat built in 1789 which nearly resembles the whale-boat of to-day.

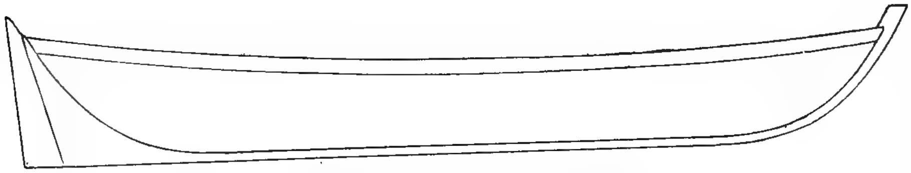

Fig. 13.—WHALE-BOAT OF 1789.

Whale-boats played a part in the war for independence, their size and speed making them useful to the Americans for warlike service, short expeditions, and quick surprises. The British took pains to destroy as many of them as possible in their raids on the Rhode Island, Massachusetts, and Long Island towns, and Sag Harbor, Newport, Warren, Rhode Island, Martha's Vineyard, Nantucket, and New Bedford suffered heavily from the capture and burning of large numbers of whale-boats, as well as of whaling vessels.

Living on an island, the people of Nantucket were obliged by necessity to own shipping for communicating with the main land. As early as 1694 they were buying sloops of from 15 to 25 tons measurement in Scituate, Salem, and Boston, and later at Newport and other towns in Rhode Island, the sloops thus obtained being used in cruising a little off shore for whales as early as 1712. In 1715 Nantucket had six small sloops, which in that year got 600 barrels of oil and 11,000 pounds of bone, worth £1,100. The catching of a sperm whale excited the people of Nantucket greatly, and they began at once to "whale out in the deep" with larger vessels for that species of the fish. Sloops of 30 tons were fitted out for cruises of about six weeks each, carrying two whale-boats, one with which to chase the fish, the other for use in case of accident to the first boat, and with only hogsheads enough in the hold to contain the blubber of one whale. Whenever a prize was caught they sailed for home again, and, unloading the sloop, they left the blubber ashore to be tried and immediately put to sea again. The people of Nantucket soon took the lead in whaling, it being their only means of support, and by training they became more expert and successful than their neighbors on other coasts. Sloops were also sent out from cape Cod, Sag Harbor, Boston, New Bedford, Rhode Island, Martha's Vineyard, New York, and Williamsburg, Virginia, along from 1750 to 1760, and from 1760 to 1775 whaling vessels grew in size and multiplied rapidly. It is not known definitely when the schooner was first employed in whaling, but that style of vessel was adopted as soon as whalers began to visit the West India islands and remained longer than six weeks at sea, as it was then necessary to have something larger than a sloop of 30 tons. Schooners are mentioned as early as 1760, and they soon superseded sloops for distant voyages. A number of brigs were added to them as early as 1770, and small barks were soon added. Voyages were then from two to ten months in duration. In 1770 Nantucket had 120 sail of from 75 to 110 tons register engaged in whaling. This fleet had grown in 1775 to 150 vessels of from 90 to 180 tons. In all the colonies at the outbreak of the Revolution there were owned 360 whaling vessels, registering 33,000 tons and employing 4,700 men at sea, besides the large number of people on shore who were building them, fitting them out, and repairing them. The vessels in the Greenland fisheries were of about 65 tons register, and it cost to build and fit them out about $3,000 each. The larger schooners, and the brigs and barks that sailed to the south Atlantic, were of 140 tons register on the average, and cost $6,500 each. The Revolution nearly destroyed the whale fishery of America, and in 1788 there were only 80 whaling vessels in the United States. This did not crush the spirit of the whalemen, however, and after the war the first vessel that carried the American flag into Great Britain was the Yankee whaler Bedford, which sailed up the Thames to London. After 1812 the business revived and increased steadily in importance until 1858, when there were over 700 American whaling vessels at sea, of 198,000 tons register, employing 17,000 men. The greater number of the vessels were rigged as barks and ships, and were each of 400 tons register; the others were brigs and schooners, the sloop having ceased to be used as a whaler shortly after the revolutionary war. Owing to the large size of these vessels, they were unable to enter many harbors where whalers had been fitted out in previous years, and the business had become concentrated at New Bedford, New London, and Sag Harbor, where the water of the harbors is deep. There was afterward some whaling from New York.

Whaling boats and vessels have been built chiefly at Nantucket, Newport, New Bedford, New London; Sag Harbor and Greenport, on Long Island; Provincetown, and Boston, and at a number of small villages along that coast which have carried on whaling to a small extent. Within the last 40 years the larger whaling vessels have frequently been built in Maine, and they are now built in Maine almost exclusively, chiefly at Bath.

Whale-boats continue to be built in New London, New Bedford, and Fairhaven, and at Provincetown and other places on cape Cod. The form and all the details of these craft have been closely studied, and the experience of 220 years has led to the production of a class of boats equaled nowhere in the world for their strength, lightness, speed under oar or sail, and seaworthy qualities. The model is substantially the same wherever in America the whale-boat is built. The early boats could not have been longer than from 15 to 20 feet. They were carried on the deck or at the davits of sloops and schooners, and 15 feet was probably the most convenient size. In later days they grew to 25 feet, barks and ships having from four to six of these boats at the davits when on the fishing grounds. They were narrow, and could have been placed inside of one of the boats now used. The whale-boat of to-day (Fig. 14) is either 28 or 30 feet long, 5 feet 8 inches or 6 feet wide across the gunwales, and from 24 to 26 inches deep amidships, with 16 inches sheer. It is sharp at both ends, with hollow lines forward and aft and a rather flat floor amidships; is fitted to be rowed with five or six oars, and is steered with an oar, put out aft over the stern. Formerly it carried a pole mast 12 feet long, with a small sail about three cloths wide; but now that the fish have become shy and are easily frightened by the splashing of the oars this boat is handled chiefly with the aid of the sail. It carries a 24-foot mast, mounted upon a hinge, so as to be conveniently raised and lowered, and has from 35 to 55 yards of canvas. A sprit sail is sometimes used, but as a rule the whale-boat has a regular sloop sail, with the boom reaching out over the stern, and sometimes a jib and a gaff topsail are added. Now that sails are employed so largely, the model of the boat has been altered slightly to correspond, and it has been widened several inches and made a trifle more full forward, so as to bear up under a press of canvas. A great many boats are also fitted with a center-board about 8 feet long and a rudder, which can be easily removed when desired. When under sail a boat is ballasted by five or six men sitting on the weather gunwale. Thus fitted out, a whale-boat can live in any weather, almost beat a ship for speed, and can cross the Atlantic ocean in perfect safety. It costs $90 or $100 to build a whale-boat, the material costing $45 or $50, and from 20 to 25 days of labor of a single man is required for its construction. To rig the boat costs $30 or $32, viz: 5 oars, $8 50; 24-foot mast, with sail, $8; mast hinge, $4; mast fasteners, $3 25; rowlocks, $6 50; jib and topsail, about $3 more. A large and specially fine whale-boat complete has cost as high as $212.

The stem, stern-post, keel, frames, and gunwales are of white oak; the thwarts, 5 or 6 in number, and the seats at each end, are of white pine; the planking is of white cedar, half an inch thick; and the keel is 9 or 10 inches wide amidships when pierced for a center-board, tapering to 4 inches at the ends, and is 2 inches thick. The keel is laid on building blocks on the floor of the boat-shop, and the stem and stern-post, with aprons, are fitted to their places with a scarf on the keel and secured in an upright position temporarily by wooden shores from the ceiling of the shop. Several molds of cheap 1-inch pine boards are then set up at intervals along the keel, the profile of each being a fac-simile of the section of the boat at the point where it stands. The molds are kept in place by narrow ribbons or battens (extending the whole length of the boat), which are nailed to them and to the stem and the stern-post. The outside shape of the boat is thus reached in skeleton form. The frames are not put in first, as in vessel building; they are put in last. The planking goes on first. Two gunwale streaks of oak are first put on each side of the boat, each one lapping over the streak below it, after which five or six streaks of cedar planking are placed on each side of the boat, completing the shell from keel to gunwales. The edges of these lower streaks abut squarely against one another, and are fastened, after the molds are removed, by running a batten 2 inches wide on the inside of each seam the whole length of the boat and fastening the edge of each plank at each seam to the batten by a row of nails driven clear through and clenched on the inside. The shell is completely built and nailed before the transverse frames are put in, and the battens serve the double purpose of calking each seam and of forming a light and admirable system of longitudinal frames. Planks long enough to reach the whole length of a 30-foot boat cannot often be obtained; and if they could, it would make a great waste of material to cut them out from the boards, as each streak has to have a certain amount of curvature to fit conveniently to the curved surface of the boat. Each streak of planking is therefore made of two pieces, lap-jointed, the joints of one streak being carefully arranged so as to come nearly in the middle of the streaks above and below it. The ends of the planks are strongly nailed to the stem and stern-post, and the garboard-streak is well fastened to the keel.

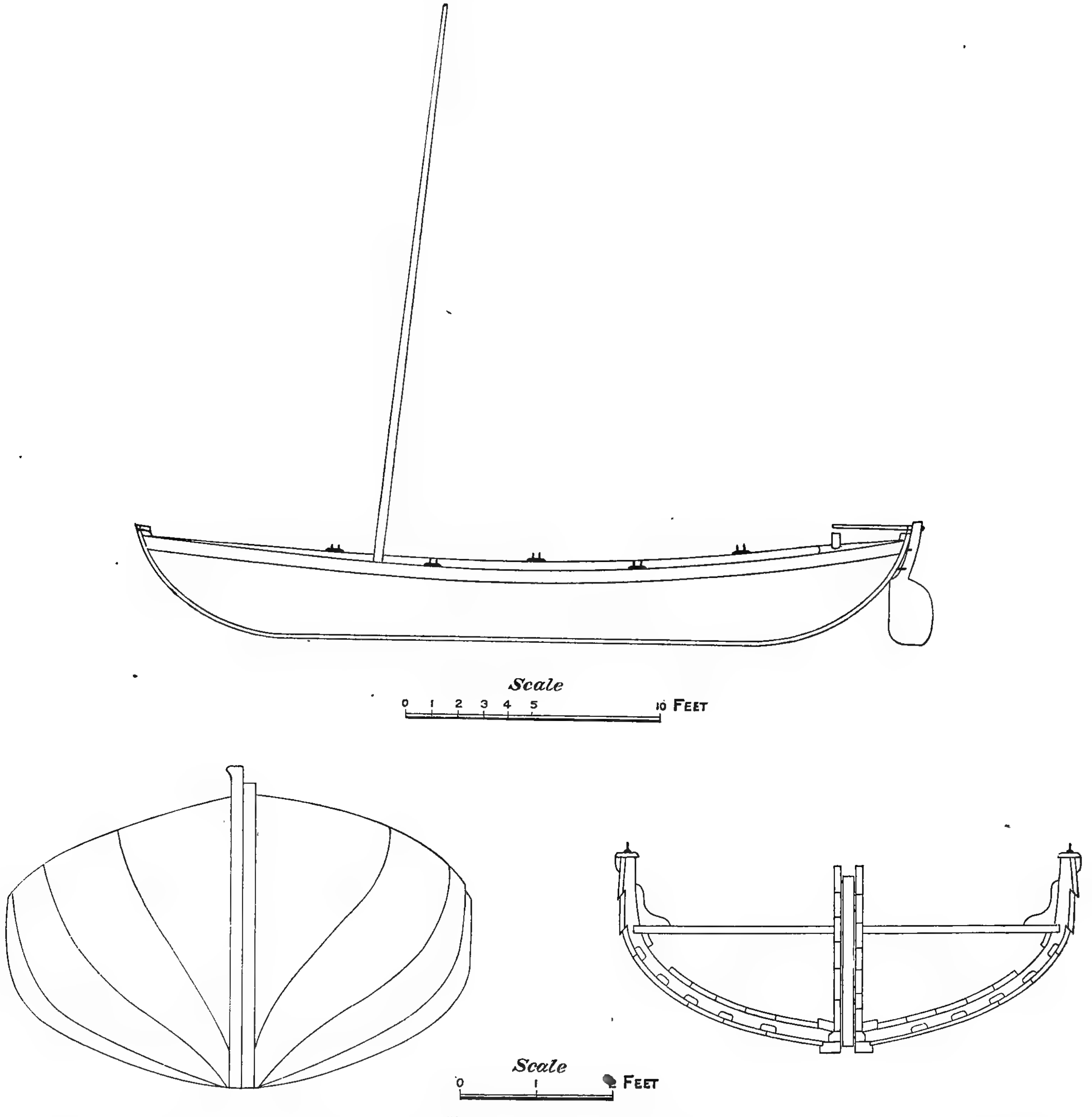

Fig. 14.—Whale-boat.

30 feet long by 6 broad and 26 inches deep; 30 inches molded. Displacement to 19 inches draught of water above the keel, 7,100 pounds. Weight of boat with fittings, about 1,100 pounds. Coefficient of D., 43 per cent; angle of entrance at bow, 33°.

The frames are put in next. They are single frames, extending in one piece from keel to gunwale, and are made of oak, bent to the right curvature on molds after being thoroughly steamed. The outside edge of each frame is notched, so as to fit over the batten and laps of the planking. They are fastened with copper or composition nails, driven through the planking and clinched on the inside over disks or rings of the same metal. The frames are spaced from 9 to 18 inches apart, and a light keelson of oak is laid to cover and secure the heels of the frames. The boat is floored across the bottom and part way up the sides with pine. The thwarts, of pine, are then laid; the ends rest on a batten nailed to the frames, and are also secured with small cedar knees. If there is a center-board, the well for it is made in the same manner as all other center-board wells, large and small. An upright post is set in each end of the slot through the keel and nailed in place, and is then planked up the sides to the top of the posts. The mast step, rail, oar-locks, the bit of decking at the bow, the snubbing post, rudder hangings, and other finishing touches, are then added, and the boat is complete. From 150 to 200 board feet of oak, from 550 to 700 feet of cedar, and about 200 feet of pine, with 18 or 20 pounds of nails and 20 pounds of iron fittings, are required for the building of a whale-boat. The lumber wastes from one-fourth to one-third in cutting up. The boats are painted either a white or lead color.

The business of boat-building requires but little capital, a cheap shed near the water and $100 worth of tools and apparatus being all that is required. At the same time the business is a profitable one, and in every town that built whale-boats during the busy period, when over 3,500 hung at the davits of the whaling fleet in the service and several hundred new ones were called for every year, the builders were a prosperous class of men. William Smith, of New Bedford, and others each built from 100 to 120 boats a year, employing several of the finest mechanics, and not only paid high wages to the men, but received for their own work the very best compensation. The reduction of the whaling fleet to about 170 vessels, carrying not over 900 boats and requiring not over 150 boats yearly, has extinguished a large number of the boat shops which were active 30 years ago, and left those which are still open struggling to get along in a business in which there is sharp competition and little more to be made than a moderate day's wages all around.

In whaling vessels, as in boats, speed has always been desired; but seaworthiness has been the prime requisite, and schooners, brigs, barks, and ships have all been built with the latter quality chiefly in view. Large capacity has never been demanded, and whaling vessels have seldom exceeded from 250 to 400 tons register. Before the last war the whole fleet did not contain more than 20 vessels that approached 500 tons each, and it is believed that there was only one, the ship George Washington, which was as large as 600 tons. Those now employed are each under 500 tons, the size preferred being from 300 to 400 tons (Fig. 15). The problem which has occupied the builders has been how to make a strong, dry, seaworthy, good-going vessel, looks and every quality not specially needed in the whaling business being passed by. Above water the hulls have accordingly had a clumsy shape, owing to the large square stern, the full, round, flaring bow, and the large cut-water and figure-head; but under water they have always been of a well-considered and often extremely good model, sometimes quite sharp, both on the floor and at the ends, and never very full, a little narrower than merchant freighting vessels, deep, with the broadest beam, well forward of amidships, averaging two-fifths the length from the bow. Of late years lighter sterns, handsomer bows, and smaller cut-waters have been introduced; and the whaler has become as neat looking a vessel as any in the merchant navy, while retaining its satisfactory speed and good qualities in a sea way.

The New London, New Bedford, and Sag Harbor builders have always prided themselves upon the staunchness and durability of their vessels, as no material except the best was ever put into them. Whalers were usually constructed of oak throughout, except the beams, decking, and houses; and timber or planking with a flaw of any kind was instantly thrown away. Every bolt, rope, sail, seam, or part of the vessel on which its strength and safety and the lives and success of the crew depended has always been attended to with a degree of care not known in any other branch of the ship-building industry. The calking of the seams of the hulls was done with peculiar thoroughness, and the system of "heaving down" the vessel—that is, pulling her over on one side so as to strain open the seams on the other, which were then thoroughly calked, the hull being afterward coppered—was often practiced at New Bedford. The George Howland and the Roman were vessels thus treated, and it is said they sailed for 18 years without recalking. The length of life of the whalers has been remarkable, forty years being a usual and sixty not an uncommon age for them to attain; but they have been known to do good service for over seventy-five years, the ship Maria, of 202 tons, built in 1782, being one of the vessels of noted longevity.

The following specifications will show the scantling, etc., of a whaling bark of 310 tons, two decks, now in the service, a fair specimen of its class:

Length on deck, 115 feet. Breadth from outside to outside of planking, 27 feet. Depth of hold, 16 feet. The keel is of rock maple, in two lengths, sided 13 inches, molded 29, with a 3-inch shoe in addition. Stem, stern-post, apron, knight-heads, transom, and counter timbers of the best white oak; stanchions the best white oak, and to be made half tops. The floor timbers of the frame, white oak, with some maple; first and second futtocks and half of the forward and after cant frames of white oak, the remaider being of hackmatack; top timbers one-half oak, the others hackmatack. The frames are sided over the keel 22 inches and molded 13, being spaced 6 inches apart; at the gunwale they were molded 6½ inches, diminishing to that point by nearly a true taper. Keelson, 14 by 14 inches, with a rider keelson 12 by 12 inches and a sister keelson each side of the main 6 by 10 inches, all well bolted through frames and into the keel with 1¼-inch galvanized iron bolts, and through the scarf of the keel with yellow metal bolts. The outside planking was of pitch-pine, except where a twist occurs, when the best oak plank was used. Garboards, 5, 4, and 3 inches thick; bottom plank, 3 inches; wales, 4 inches.

fastened at the butts with metal bolts, and elsewhere with oak and locust treenails, those of locust driven clear through and wedged at both ends. Ceiling of pitch-pine, 3 inches thick on the floor, 5 inches on the bilge; two sets of clamps, 5 inches thick, under the lower deck beams; ceiling of sides to the main deck $3\frac{1}{2}$ inches, with two streaks of $4\frac{1}{2}$-inch clamps under the main-deck beams. Water-way on the end of the lower deck beams 8 by 10 inches, and on the upper deck 8 by 12. Lower deck beams, pitch-pine, 10 by 13 inches, secured at the ends by one hackmatack hanging and two horizontal or lodging knees, sided 7 inches. Lower deck plank 3 inches, same wood as beams. Main-deck beams, 8 by 12 inches at center, 7 inches thick at the ends, secured with three hackmatack knees at each end. The beams abut against a timber at each end, are bolted to the clamps, and are spaced about 56 inches apart. Knees are bolted heavily to beams, clamps, and frames adjoining. Main-deck plank, 3-inch white pine, of the best quality, the seams calked and pitched, with two spikes in each

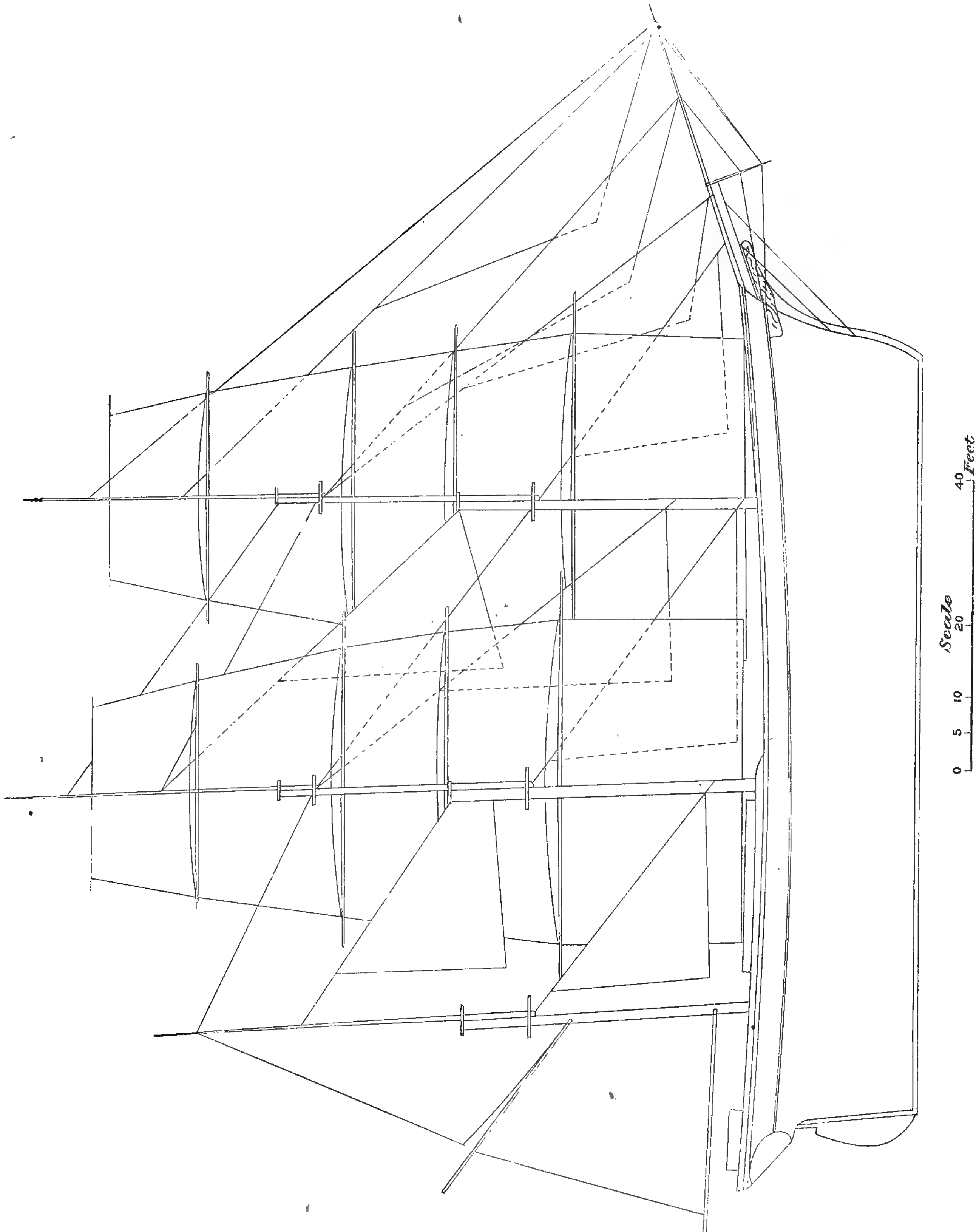

Fig. 15.—Sail plan of a 300-ton whaling bark, New Bedford, 1882.

beam, the heads countersunk and the holes filled with wooden plugs, set in white lead. Plank-sheer and main rail, 4½ inches thick, with "monkey" bulwark on top of rail. The bulwarks to be tight forward, but with gangways amidships, as is usual in whalers, and lower bulwark boards, hung on composition hinges. A small top-gallant forecastle deck at the height of the main rail, for working the anchor, etc. A forecastle house for the crew and cook at the the foremast, with a hurricane deck for the boats. The cabin aft, with skylight. Cut-water and billet-head of modern style; square stern, with spread eagle for ornament. Windlass bitts, 9 feet long, with 24-inch patent windlass gear; ends straight, with iron whelps. The hull to have two coats of good black paint. Two 8-inch stern and five 6-inch quarter lights. The vessel to be thoroughly salted from plank-sheer to light water mark with rock salt between the timbers before leaving the stocks. Two 1½-inch iron anchor chains, 90 fathoms each, weighing together 8 tons net. Three anchors, 2,000, 1,600, and 250 pounds weight respectively. Rudder hangings, plates for bobstays and cabin stairs, and rail for cabin gangway of composition and brass. Wheel steering apparatus. The sails of the bark include four headsails (jibs and staysails); a lower, top, top-gallant, and royal sail on the fore and the mainmast, respectively: a spanker and gaff topsail on the mizzen-mast; a maintop-mast, a maintop-gallant staysail, and a mizzen-topmast staysail. The shrouds and great stays of 3½-inch wire rope; the running rigging of best manila. The vessel to be delivered to the owner complete, except the sheathing and coppering of the hull below the water-line, the boats, and the apparatus for trying out the blubber of the whale.

In the main, the scantling and fastening of the vessel are much heavier than would be required in the merchant navy to obtain on the books of the American Shipmasters' Association the class of A1, the highest given by the surveyors of the association.

All whalers are coppered to the load-line, the metal covering the keel, rudder, stem, and stern-post, as well as the planking, the object being to protect the bottom of the ship from the attacks of the teredo (a worm which burrows through the wood and completely honeycombs it with cells), and also to prevent it from becoming incrusted with barnacles and shells, which would greatly retard its motion through the water. The gradual corrosion of the metal by salt water causes the barnacles to shell off as fast as they become attached and keeps the bottom of the ship smooth. It was not until the latter end of the last century that copper was introduced as a means of protecting the immersed part of the hulls of vessels, and the expense of pure copper soon led to substituting in its place an alloy called "yellow metal", which was cheaper and answered the purpose as well. Zinc has also been used; but yellow metal has always been the preference of whalers. The metal is rolled in sheets 48 inches long and 14 inches wide and of a great many different thicknesses, about ten in all, although five only are used on whalers, the thicknesses being indicated by the weight per square foot, a whaler taking 18, 20, 22, 24, and 26 ounce metal. The process of putting on is as follows: The bottom of the hull is first made smooth; and if it is an old vessel, the worn copper is stripped off with chisels and adzes, the sails removed, and the surface of the planking is scraped clean, the old metal and nails being sent off for sale. The hull is then either sheathed with a light planking, or is covered with cement or graved with tar and papered or felted. The oldest fashion with whalers was the use of cement. Sheathing was also in vogue, and is still common; but papering or felting is the new idea, and is extensively practiced, as it is claimed that worms will not go through paper. The sheets of metal are meanwhile being prepared by punching either two, three, or four rows of holes along their edges for nailing them on. The heaviest thicknesses are put on at the bow as far back as the foremast at the load-line, but no farther aft at the keel than the forefoot. The metal of the next weight goes on aft of that, the after boundary of this thickness being a line from the mainmast at the load-line to the heel of the foremast at the keel, and grows lighter yet as the men work aft along the hull. The rudder and keel are both covered with heavy metal. The sheets lap one inch. A bark of 310 tons requires about 1,025 sheets of metal, weighing 6,300 pounds, and 770 pounds of composition nails; cost of metal in the census year at New Bedford, 16 cents per pound; cost of suit, including nails, $1,130; average cost of cleaning off the old and putting on the new metal, about 35 cents a sheet, or $358; but this varies with the amount of tarring and felting required by the fancy of the owner, as it is often as high as 45 cents a sheet.

The weight of copper required to sheathe a whaler varies a great deal. A vessel which is likely to be gone more than two years will take heavy metal, while those sent out for light service, or which are being economically equipped, are clad with lighter suits. The following suits were put on different whalers in the census year:

| Weight of metal. | BARKS. | | | | SCHOONERS. | | |
|---|---|---|---|---|---|---|---|
| | 440 tons. | 420 tons. | 310 tons. | 380 tons. | 180 tons. | 130 tons. | 66 tons. |
| | No. of sheets. | No. of sheets. | No. of sheets. | No. of sheets. | No. of sheets. | No. of sheets. | No. of sheets. |
| 18 ounce | 300 | 246 | 275 | .......... | 125 | 169 | .......... |
| 20 ounce | 300 | 241 | 275 | .......... | 146 | 97 | .......... |
| 22 ounce | 260 | 289 | 175 | 200 | 120 | 53 | 350 |
| 24 ounce | 298 | 181 | 175 | 200 | 96 | 100 | 200 |
| 26 ounce | 250 | 18 | 125 | 200 | 156 | 82 | .......... |
| 28 ounce | .......... | .......... | .......... | *a* 450 | 110 | 90 | .......... |
| Total number of sheets | 1,408 | 975 | 1,025 | 1,050 | 753 | 591 | 550 |
| Weight of metal in pounds | 8,839 | 5,946 | 6,300 | 8,130 | 5,221 | 3,835 | 3,654 |
| Average weight per sheet in pounds | $6\frac{3}{10}$ | $6\frac{1}{10}$ | $6\frac{1}{7}$ | $7\frac{3}{4}$ | $6\frac{9}{10}$ | $6\frac{1}{2}$ | $6\frac{5}{8}$ |

*a* 150 each of 28, 30, and 32-ounce.

The following is the weight of the different thicknesses of yellow metal and the number of sheathing nails to the pound:

| METAL. | | | NAILS. | |
|---|---|---|---|---|
| Weight per square foot. | Weight of sheet. | | Length in inches. | Number to the pound. |
| *Ounces.* | *Lbs.* | *oz.* | | |
| 14 | 4 | 1 | ⅞ | 230 |
| 16 | 4 | 11 | 1 | 190 |
| 18 | 5 | 4 | 1⅛ | 186 |
| 20 | 5 | 13 | 1¼ | 160 |
| 22 | 6 | 7 | 1⅜ | 112 |
| 24 | 7 | 0 | 1½ | 105 |
| 26 | 7 | 9 | 1¾ | 74 |
| 28 | 8 | 2 | 2 | 64 |
| 30 | 8 | 12 | 2½ | 51 |
| 32 | 9 | 5 | 3 | 35 |

Whalers usually, but not always, go out with two suits of sails. A 200-ton schooner carries about 1,900 yards of canvas, the suit being worth $900, and a bark of 425 tons about 2,900 yards, worth $1,400. A suit is expected to last two years, and every whaler is expected to spend either $500 for the repair of sails or $1,300 for a new suit, $500 for repair of rigging, besides about $1,400 for recoppering, every time she returns from a two years' voyage, to say nothing of the carpenter work, boat work, etc., which must be done. Whalers are engaged in rough and perilous service, and come back storm-beaten and battered, bringing a vast amount of work for the shops in their native town and rich cargoes of oil and whalebone with which to pay the bills.

Within a few years steam has been employed in whaling with great advantage, in imitation of the Canadians, who have transformed nearly their whole sailing fleet into steamers during the last fifteen years. In July, 1879, the propeller Mary and Helen was launched at Bath, Maine, for Captain Lewis, of New Bedford, being the pioneer of its class. This vessel was 138 feet long on deck, 30¼ feet beam, and 16⅔ feet deep in the hold, registering 420 tons, and was rigged with a full suit of sails, having 2,850 yards of canvas, but carried coal bunkers and a small engine, with a screw propeller capable of driving her at the rate of from 6 to 8 miles per hour. The hull was made a trifle fuller to bear the increased weight. The Mary and Helen was built of oak, yellow pine, and hackmatack, cost $65,000 when ready for sea, and was a successful vessel. With her steam-power she could push her way among the ice floes, and was not dependent on a favorable wind while cruising in the fishing grounds. In June, 1880, the steam bark Belvidere was launched from the same yard in Bath for the same owners. She was 140½ feet long on deck, 31¼ feet beam, and 17 feet deep in the hold, registering 440 tons, and was furnished with a condensing engine, cylinder 22 inches, with 28 inches stroke, and a boiler 12½ feet long and 7 feet diameter, carrying 60 pounds of steam. The first ship was sold to the government for Arctic exploration, and a second Mary and Helen has been built during the present year to take her place. The new bark is 151 feet by 31 fect by 17 feet, registering 508 tons. She is built of white oak, pitch-pine, and hackmatack, has four sets of heavy pointers in the bow, braced across the vessel with heavy timbers, to strengthen her against the shock of ice floes, and carries the usual small propeller engine, and also two donkey engines in the forward house for handling the anchors and for general hoisting.

## OYSTER BOATS.

As oystering is an inshore occupation, it only requires a small class of boats. The universal oyster boat was originally the Indian canoe, which was made from a white-pine log. In the beginning the early Americans simply imitated the example of the Indians in taking shell-fish, and oysters and clams were so abundant on the coast of Massachusetts, Rhode Island, and Connecticut that canoes were extensively employed by the white men in collecting them from the date of the very first settlement. This was especially the case on Narragansett bay and along the northern shore of Long Island sound, and the canoe was a good boat for the purpose, on account of its ability to withstand rough usage.

Roger Williams says that canoes were occasionally made by the Indians from the trunks of oak or chestnut trees, these being probably the larger and stronger ones. He says:

> I have seen a native go into the woods with his hatchet, carrying only a basket of corn with him and stones to strike fire. When he had felled his tree, being a chestnut, he made a little house or shed of the bark of it; he puts fire, and follows the burning of it with fire in the midst in many places. His corn he boils, and hath the brook by him, and sometimes angles for a little fish. But so he continues burning and hewing until he hath within ten or twelve days, lying there at his work alone, finished, and, getting hands, launched his boat, with which afterwards he ventures out to fish in the ocean.

The Indian canoes were round on the bottom, partaking closely of the shape of the tree, and rarely carried sail. The white men improved the model as well as the methods of making, and generally used the trunk of the pine, on account of the superior lightness of the wood and straightness of the tree. With them the boats were made by hewing out the trunks and shaping the ends with axes, and many of them were used at New Haven to accompany the lighters and sail-boats which brought up the goods from trading vessels arriving at the mouth of the river. Their value is not known, but about 1640 the fine for stealing one was 20 shillings. With the clearing of the timber the use of canoes disappeared on every part of the New England coast, except in Connecticut, where they were favorites with the oystermen for 150 years after the time of the first settlement. Flat-bottomed skiffs came into use along with canoes after a while, but the latter have been built for use at the mouths of the Connecticut and Quinnipiac rivers down to within twenty years of the present time. When pine trees grew scarce builders went to the headwaters of the Connecticut river and made canoes in the winter time, rafting them down stream in the spring, Zebina Allen being noted for the large number that he made and brought down in this way. When that source of supply failed, one of the builders, Mr. John Smith, sought the banks of Cayuga lake, in New York, where large and tall pine trees were abundant, and returned every fall for a number of years with a fleet of from 20 to 30 canoes, which he sold at prices ranging from $30 to $75. Sometimes he made two trips a year, employing a number of men in the business. These canoes were of the shovel-nosed type, so called from the shape of the wooden shovel used in handling grain and flour. They were flat on the floor, having great stability, and were accordingly furnished with one or two light pole masts and sails. The average size was 28 feet in length, 36 or 39 inches beam, and 18 inches in total depth, the wood of the bottom being 3 inches thick, the sides 2½ inches. They were always made from single sticks of white pine, floated at 3 inches draught of water, and were able to carry two men and a ton of oysters in the shell at 9 inches draught. Owing to the flat bottom, and to the fact that three-fifths of all the wood of the canoe was in the thick floor and kept the center of gravity low, they were pretty stiff under a light leg-of-mutton sail. A few dozen of these boats are still seen at Fair Haven, on the Quinnipiac river, some of them being 35 feet long. When under sail they carry a lee board, which is dropped over the side just aft of the mast thwart, and is held by a rope and shifted every time the boat is put about (Fig. 16).

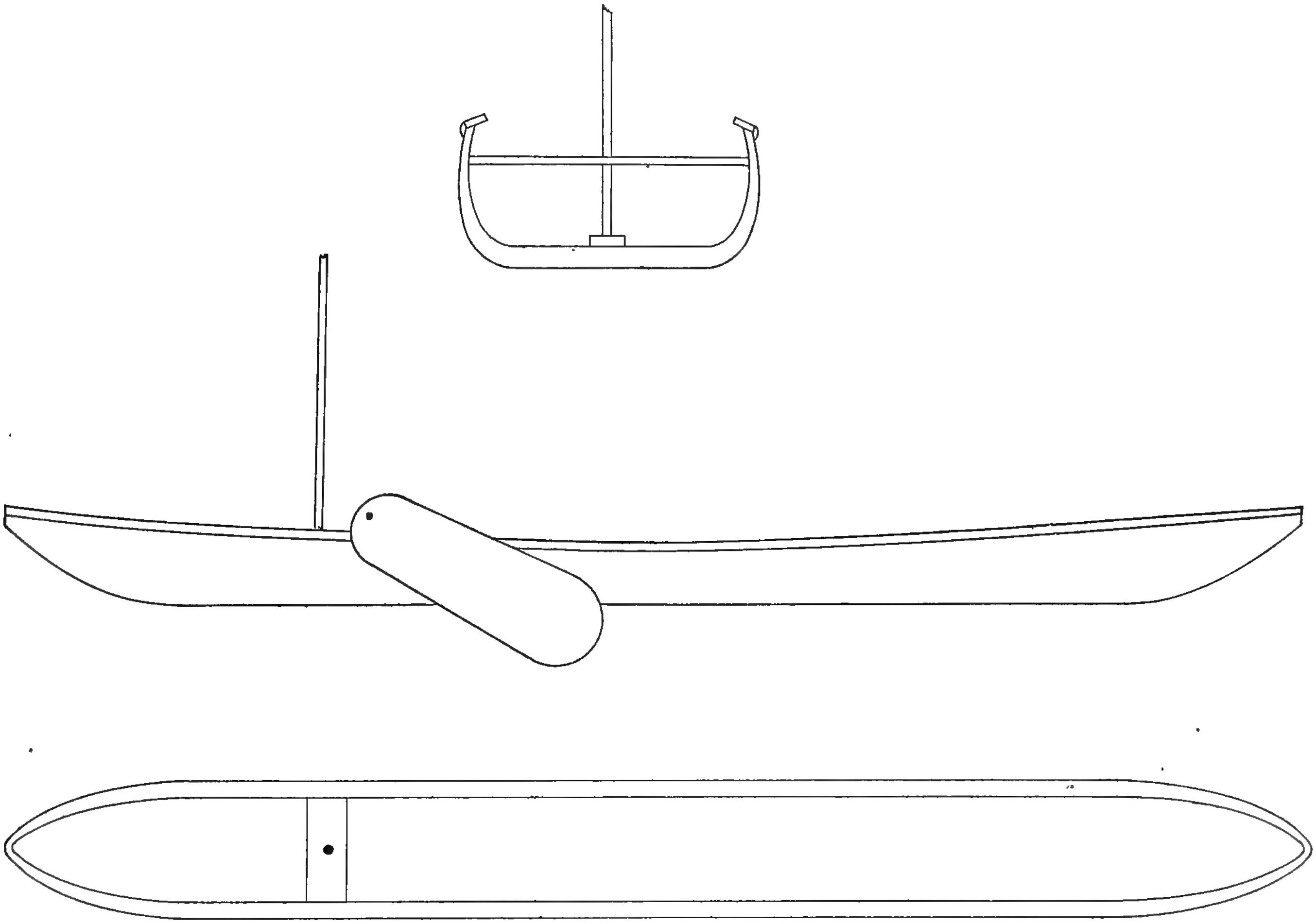

Fig. 16.—Connecticut canoe.

28 feet long, 3 feet wide, 15 inches deep inside.

The flat-bottomed skiff followed the canoe. The clumsy shape of the original skiffs is suggested by the name of "New Haven flat-iron boats". They were pointed at the bow, were as broad aft as amidships, and were flat on the floor, with upright sides, having a little outward flare, two or three rowing thwarts, and rowlocks and rudder. They were easily constructed, were cheap and serviceable, and any boy who had learned to handle a hammer, brad-awl, and saw and to drive a nail straight could make one, no other tools being needed. The boards were brought from the lumber yard and were put together on the floor of the owner's woodshed or barn during the season when open-air occupation was light. A great many of these boats were owned by those living near the river side or the coast at an early day, and were used both for fishing and for carrying goods and passengers. When canoes became expensive the skiff came into favor, and as soon as the growth of the oystering business made it necessary to have boats of large size and broad beam an improved skiff became the popular model in Connecticut. The "flat-iron boat" was cheap and safe and drew very little water, which is all that can be said in its favor, as the broad, square stern neutralized the effect of the pointed bow and made rowing a difficult and tiresome occupation. The boat was short and had little capacity; but the remedy for these defects was found in increasing the length and in giving the bottom a gradual round upward at the stern, so as to permit the displaced water to flow in behind the boat easily, as it does behind a keel vessel with a good run, without retarding the forward motion in the slightest degree, and sometimes the floor forward was given a rise of 3 inches to help the speed. The sharper bow and the round upward of the floor at the stern have given this peculiarly American boat its good qualities and its name. It is now universally called the "sharpie" (Figs. 17 and 18), and is so good a fishing boat and so fast a yacht that it has been adopted in a great many other localities throughout the United States where the waters are tolerably smooth and a safe, comfortable, and capacious boat is required. The sharpie is at present the oyster boat of Connecticut, and is also a favorite for all general pleasure rowing on the rivers and lakes of that state. The regular boat-builders at Groton, New London, Norwich, Essex, and other places on the Connecticut river, and at Fair Haven, New Haven, Bridgeport, and South Norwalk, make as many as from 10 to 50 of this class of boats a year. A large number are also made by fishermen, one at a time, for their own use, and many are also made every year by young men for pleasure rowing and sailing, some getting out the stuff themselves from the lumber yard of the town, others sending to New York for it. If the immediate construction of a large number of sharpies were demanded by a sudden emergency Connecticut would be found to contain hundreds of young men (mechanics, clerks in stores, students, and others) who could at once build large and excellent boats; in fact, all through the United States the amateur boat-builders are by no means an unimportant element in the population.

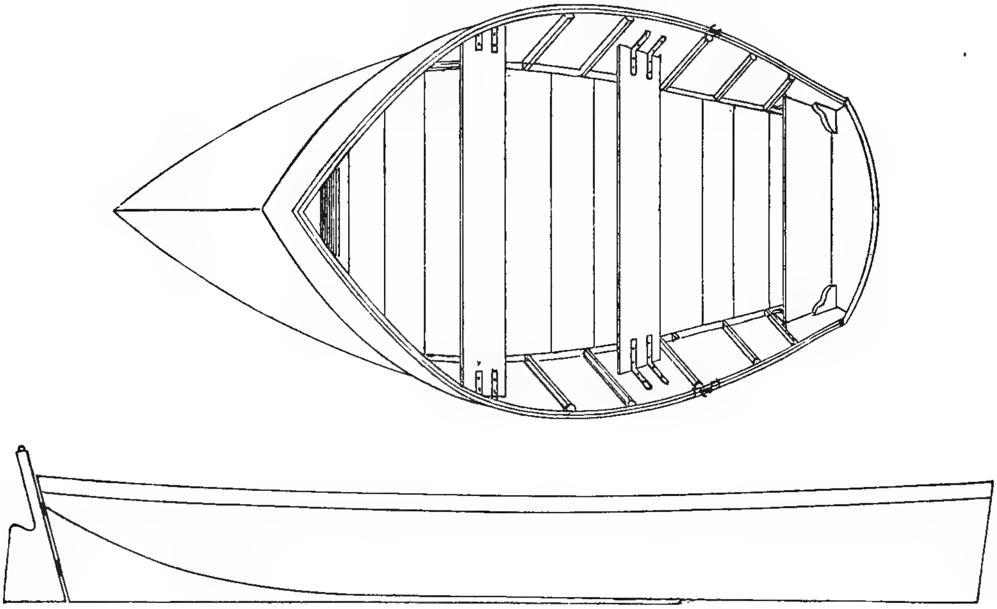

Fig. 17.—Rowing sharpie in Connecticut.

The small sharpie for rowing is from 12 to 15 feet long, about 3 feet wide, and 18 inches deep, and has three thwarts. It will carry 3 or 4 men, and costs $20 or $25 to build complete. The bottom is made of 1-inch white pine, the sides of $\frac{5}{8}$-inch pine or cedar, the thwarts of 1-inch pine. The stem, 3 by 4 inches; bilge streak, 1 by 2 inches; frames, 1 by $\frac{3}{4}$ inches; and skag, $\frac{5}{8}$ inch thick, are made of white oak; the knees are of oak or cedar. These boats weigh from 150 to 200 pounds, and about 200 board feet of stuff is cut up in making them. The only tools required by the builder are a hammer, brad-awl, hand-saw, tenon-saw, jack-plane, smoothing-plane, rule, square, bevel, and perhaps a screw-driver, and the addition of a putty-knife and a paint-brush would make the kit complete.

The larger sharpies require no greater outfit of tools on the part of the carpenter, but they do call for more judgment in regard to the keenness of the bow, the rounding up of the stern, and the location of the various parts. Boats from 20 feet in length upward are usually made for sailing. The size used by oystermen would average about 30 feet in length; they vary, however, from 20 to 40 feet. The breadth of the boats is from 0.17 L. to 0.25 L., and the depth amidships about 0.11 L. in small boats and 0.06 or 0.08 L. in large ones, the proportions varying slightly with the fancy of the owners, some wanting large and capacious craft, others fast craft. In the latter case the beam is made narrower. A sailing sharpie carries a pole mast, and if more than 20 or 25 feet long two pole masts, without shrouds, except in a very large one, when one small wire shroud is rigged on either side of each mast. A center-board is generally fitted into a large boat, as also a narrow strip of decking, or wash-board, along by the gunwales, with a low hatch-coaming on the inner edge. The sails are narrow or pointed at the top, and are spread at the foot by sprits in the smaller boats, but by booms in the larger ones. The sides flare 10 or 12 inches. In small boats the sides are each made of one plank; in deeper ones, of two planks, the sheer being given by the addition of a third and narrow streak forward and aft. They are made throughout of white pine, except the framing pieces, which are of oak or chestnut. The floor is invariably planked across the boat. The capacity and small draught of the sharpie are astonishing, a large one, with the addition of a cabin, and with everything on board, seldom drawing over 3 inches forward and a foot aft. Sharpies are admirably adapted for floating over the bars and

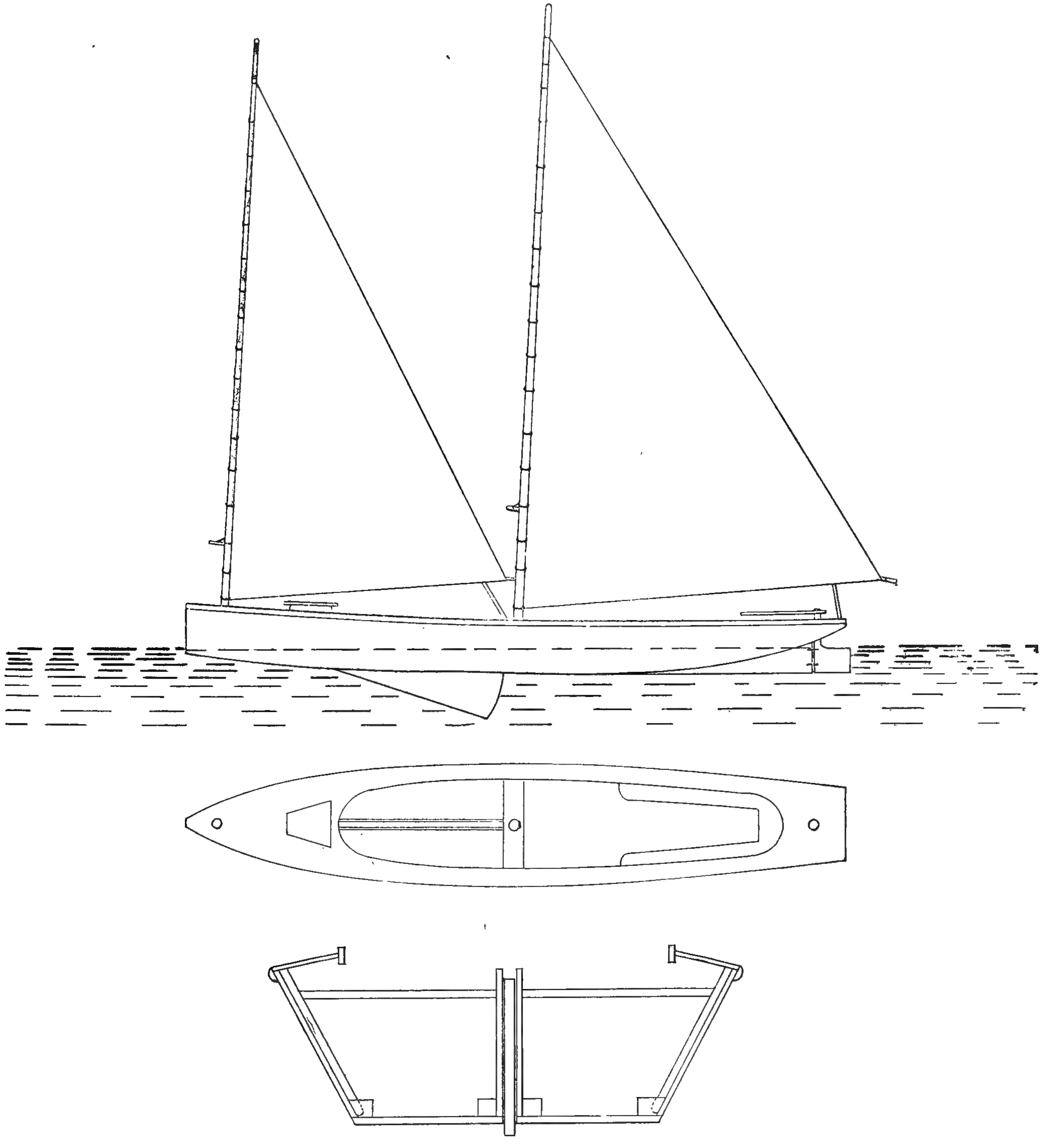

**Fig. 18.**—Sharpie 35 feet long, 6 feet wide on top, 4 feet wide on the floor, and 2 feet deep amidships.

shallows of the rivers and coasts of Long Island sound, and are stiff and seaworthy boats. They have been sent out for long cruises, and one drawing 12 inches has sailed in safety to the West Indies. Their speed under sail is one of their good qualities, and when matched against the deep-draught sail-boats and yachts which continually cruise through Long Island sound in the summer time they rarely fail to beat a rival of the same length. The sharpie is pre-eminently an oyster boat, but its speed has led to its introduction into yacht races and to its being now generally debarred from admission into such contests. Many experiments have been made with the model, and light-draught schooners, intended to run in the shallow rivers of the southern states, have been built of 200 tons register for the lumber and other trades; but for large vessels the model has failed to do what was expected. It is now generally understood that a sharpie should not be built more than 50 feet long, but the best results are obtained from 35-foot boats (Fig. 18).

Large sharpies cost from $200 to $400. A schooner-rigged boat of this class, built for racing on the Shrewsbury river, in New Jersey, fitted with cabin and berths, cost $500, the high price being due to the furniture in the cabin. For sharpies used in oystering the cost seldom exceeds $200. The principal place where the sharpie can be seen is is at Fair Haven, Connecticut, where at nightfall in the oyster season nearly 200 of them can sometimes be seen alongside of the wharves.

On the New Jersey coast there is nothing built except fishing and oyster boats, with occasionally a coal barge, from Staten island to the region of Barnegat and Absecom. At Amboy a great many oyster skiffs are employed by the fishermen of that busy locality, and probably 125 of them can be seen every day at nightfall gathering about the landing places on both sides of the Kill at that point. Two or three boat-shops are steadily engaged in their production. Unlike the Connecticut skiffs, these boats are regularly framed, and have a strip of flat bottom, tapering to a point at each end, with clinker-built sides nailed to frame timbers inside, placed about 20 inches apart, the sides being full and round and the stern perpendicular but V-shaped, as in a yawl. There are three sizes of these oyster skiffs, 18, 19, and 20 feet respectively. This is the length of the bottom. The boats over all are 4 and 4½ feet longer. The beam is about 6 feet, and the depth from 20 to 22 inches. The planking is pine or cedar, strongly fastened with copper rivets through each lap; the frames are roots of the white oak tree, selected as having the proper curvature naturally, squared and fitted to their places; and the bottom is floored over and the thwarts made removable, so that a large pile of oysters in the shell can be heaped up in the boat amidships. Most of the skiffs have a pole with small fore-and-aft sail, the mast being planted a little forward of amidships, but not in the bow. When there is a sail, there is generally a center-board also. About 250 feet of cedar are cut up for the planking and flooring. The boats cost $90 and $100 each, and one man with an assistant can make twenty of them in a year. The building of new boats and the repair of old ones is a pleasant and profitable local industry.

Farther down the New Jersey coast the fishermen use a light-draught sail-boat, which, like the dory and the sharpie, is an American invention, and goes by the name of the cat-rigged boat (Fig. 19). In England it is known as the Una boat, from the name of the first specimen of its class seen in England—a yacht built at New York and sent over in 1852. These boats are more complicated in their construction than any others in the oyster service on the northern coast. As a rule, they are built by regular carpenters; nevertheless, in New Jersey, as in New England, amateur boat-builders are numerous, and probably one-third of all the petty craft that sail in and out of the shallow harbors of this part of New Jersey, cruising with the guests at the beach hotels in the summer months and diligently employed in gathering oysters in the fall and winter, are the product of those who build chiefly for themselves. It is the saying in New Jersey that the first thing a boy learns is how to use a gun and go hunting; the next, how to sail a boat; the next, how to build one. A great number of these excellent cat-rigged craft have been made by mere boys, with the occasional advice of older heads.

The frames are cut from cedar roots. There is an abundance of material remaining in the woods, and the roots, being crooked, tough, and light, are desirable for the purpose named. With ax and spade a young man will in one day provide himself with the material necessary to frame a 24-foot boat. He digs out the stumps, sends them to the saw-mill, and has them cut into from three to eight slices, paying ten cents a cut. The stuff for the planking is bought from the nearest saw-mill, and is usually cedar, but sometimes it is oak. The keel and center-work are of oak; the decking of pine. Cedar planking cost $30 per thousand board feet during the census year—an average price—but during the war the price was $55. About seventy-five days' labor is consumed in building a 24-foot boat. The model of the hull is flat and full, the bow sharp, the beam broad, the run lean, and the stern above water is almost perpendicular, V-shaped, and broad on deck, being about two-thirds the width of the main beam. On deck the vessel is about the shape of a flat-iron. The proportions of the boats are, L. by 0.40 to 0.45, L. by 0.10 or 0.125 L. The narrower beam is adopted where speed is wanted. Each boat carries one mast, which steps right in the bow and stands perpendicular, rather inclining to rake forward, if at all, and spreads one large sloop sail, the boom extending several feet over the stern; it is decked over forward, leaving just enough of the center-board projecting beyond the deck to allow of its being worked. The decking is continued aft along the sides of the boat in a strip from 12 to 18 inches wide, and covers a few feet of the stern, leaving a large elliptical cockpit in the after part of the boat, with seats around the side for the passengers, and protected by a 6 or 8 inch coaming from the wash of an occasional wave. Several hundred pounds of ballast, in the form of stones, bars of iron, water casks, or bags of sand, are placed under the flooring of the cockpit and along by the sides of the center-board, and sometimes, but rarely, a cabin is built forward and partly over the cockpit.

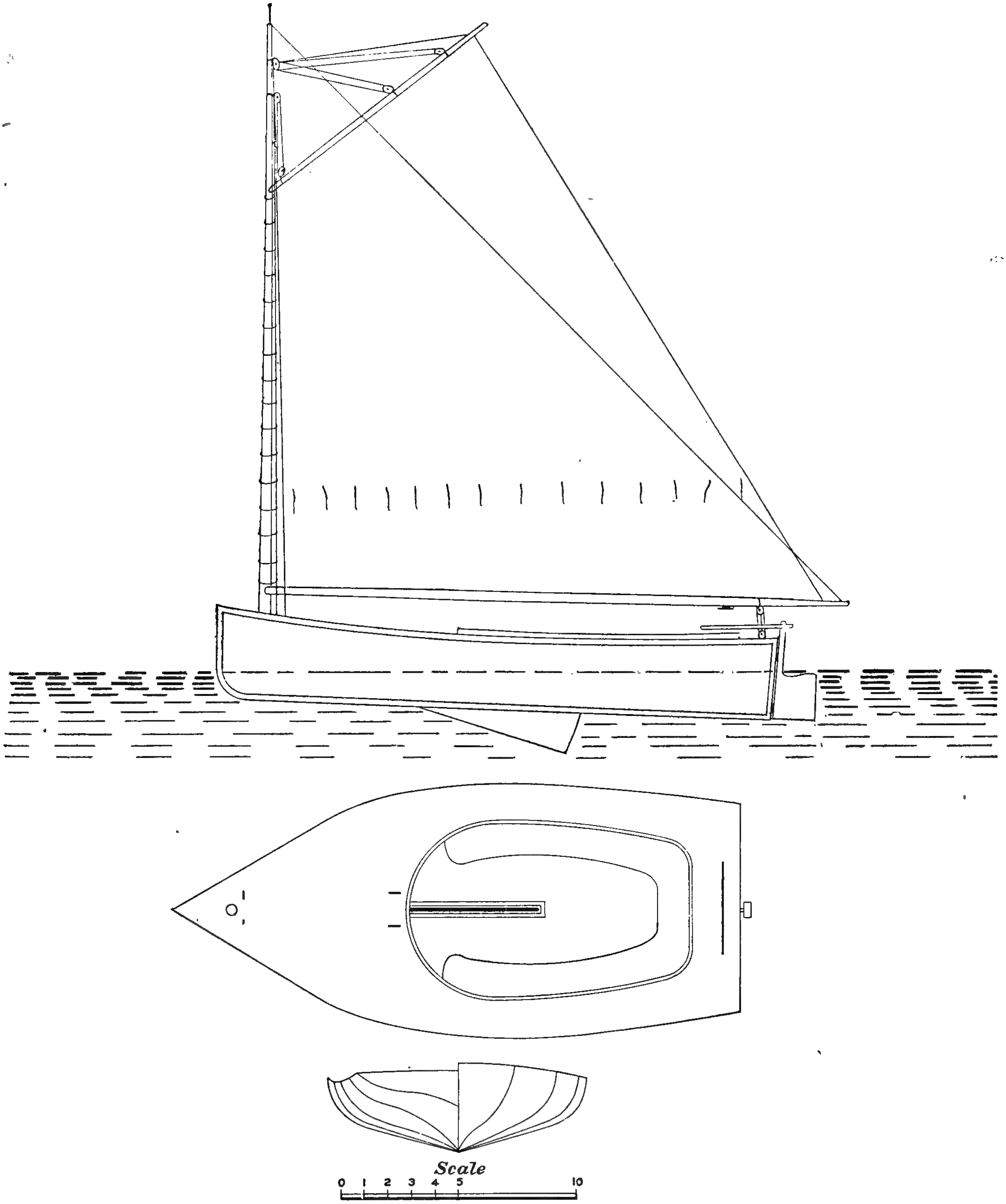

Fig. 19.—CAT-RIGGED BOAT.

**24 by 11 by 3 feet. Broadest beam, $\frac{1}{10}$ L. aft of middle. Weight of boat, 1¾ tons. Will carry 3½ tons on 18 inches average draught of water, and 4½ tons on 2 feet average draught. Coefficient of D. to 2 feet from keel, 37 per cent.; of load water-line, 65 per cent.; of midship section, 56 per cent. Angle of entrance of load water-line at bow, 55°; of run, 75°; angles of entrance of vertical planes, from 9° to 12°; of run of same, 10° to 13°. Spreads 75 running yards of canvas.**

As already stated, the principal incentive for the building of these boats is the profitable oyster-fishing on the New Jersey coast; but of late years another has presented itself in the desire to sail on the part of the hundreds of people who frequent the beach hotels in the summer time for the invigoration which the cool air and salt water bring. No craft that skims the water equals the cat-rigged boat for either employment, as it can go almost straight in the eye of the wind, and for shallow waters and crooked channels is unsurpassed. In light airs it will speed by large yachts spreading clouds of canvas, and can beat up against the tide, by keeping close inshore, as no other sail-boat can do. It is manageable in squalls, is seldom capsized, and can carry heavy loads with very slight additions to its draught of water. In New Jersey it is the fashion when an oyster-boat has proved to be fast under sail to enter it in the yacht races in New York harbor, in order to make a record for its benefit; and then, should the boat win, its value, which is only $250 for oystering, would at once rise to $400 or $600 for yachting, and its owner would promptly find a purchaser at a high price.

The construction of a cat-rigged boat is ship-building on a small scale, and the man who can make one understandingly is fit to contract to build a vessel of large tonnage. The ordinary size is 24 feet over all, 11 feet beam, and 3 feet deep, being a little below 5 tons register, and consequently escapes the payment of custom-house fees. There are several hundred men on the sea front of New Jersey (farmers, carpenters, and fishermen) who have all the skill and knowledge which are needed for making this class of boats, and these constitute a reserve force from which good ship-carpenters could be recruited in time of need.

A good year in oystering is always followed by a busy year in the building of these handy and serviceable boats in New Jersey. During 1881 there were being built 8 at West Creek, 7 at Tuckerton, 4 at Greenbank, and others at various places in that region. In the vicinity of Atlantic City and Cape May, and around in the Delaware river, there were many other places at each of which 1, 2, or more boats were being made by both amateurs and regular builders.

The fishing vessels of Chesapeake bay employ large numbers of people on shore and a great deal of small capital in both new and old work. About 175 oyster boats are produced on the shores of the bay yearly, and there are 20 marine railways, costing from $3,000 to $4,000 each, for hauling the vessels out of the water for painting and repair, each doing from $2,000 to $5,000 worth of work yearly. Many of the boats, and indeed all the framed ones, are made in the yards of professional builders; but it is surprising to notice that, after all, about one-half of the whole number annually produced are to be credited to private builders, fishermen mostly, who make their own boats, either in the woods or in their own back yards. Give a fisherman a boat, and let him spend three or four years sailing it on the bay, gathering oysters and fish, loading his boat until its capacity is tested, going with his catch to market, hauling his boat out on the bank two or three times a year, painting it, calking the cracks, repairing it when injured, seeing it, in fact, in all possible lights, and comparing notes with his neighbors, and when the time comes for him to get a new boat the chances are that he will make the boat himself, knowing by that time all there is to know about how to do it; but if he should have it built for him, it will generally be because he is prosperous, and would prefer to spend his time in some other way than in boat-building.

It is on the Chesapeake that the log canoe has retained its greatest popularity in the United States, the preference for this style of boat dating back to the first settlement of the states of Virginia and Maryland. When John Smith arrived in 1609 with the pioneer colony he found the rivers and the bay swarming with dug-out canoes, which the Indians used for fishing, travel, and warfare. In his "Travels and Adventures" Smith says:

> Their fishing is much in Boats. These they make of one tree, by burning and scratching away the coales with stones and shels till they have made it in forme of a Trough. Some of them are an elne deep and fortie or fiftie foot in length, and some will beare 40 men, but the most ordinary are smaller, and will beare 10, 20, or 30, according to their bignesse. Instead of Oares, they use Paddles and stickes, with which they will row faster than our Barges.

It was easy for the colonists to buy these boats from the Indians by trading, and they purchased them in large numbers for fishing and for traveling by water, as did their countrymen in New England in other years. The upper Chesapeake region was settled by colonists from England about 1635, and the lower part of the bay by people from the James river about 1650. The islands on the Maryland shore became densely populated early in the history of settlement, especially Smith's, Deal's, and Tangier's islands. From the necessity of their position the people were obliged to have the means of crossing the water, and from the earliest times they bought or made for themselves wooden canoes, each hewn from the trunk of one tree. Almost every family owned one, two, and even three boats, and the men were out in them the greater part of the time, taking the daily meal of fish for the family, traveling to and fro, or sailing off to market somewhere with a canoe loaded down with oysters and fish. A great deal of general trading took place in these boats. The inhabitants of the islands went to church in them on Sundays, and in fact the whole population, white and black, were used to owning and handling canoes, and knew how to make them.

Pitch-pine timber has always been abundant on the bay, particularly on the southern part, and it is from this tree that boats have been made. The supply has lasted for 250 years now, and there are still enough large trees to make all the canoes that are needed. Canoes played a part in the revolutionary war, and from that day to this there has never been any other kind of boat used on the Chesapeake for small fishing and oystering.

The durability of a pitch-pine canoe is great, one well made from a sound tree lasting from 30 to 50 years if cared for and painted every year.

The ordinary canoe is 20 feet in length, 4 feet wide across the gunwales, and 18 inches deep inside. It is made from a single log, is straight in the bow, but is pointed at both ends. Formerly 30-foot boats, 5 and 6 feet wide, were also made in one piece. The famous "Methodist canoe", which carried "the parson of the islands" for so many years while visiting the members of his congregation, was one of these boats. The tree from which this canoe was hewn was too large to be useful at a saw-mill, and an Annamessex man finally bought it for $10 and felled it himself, the job occupying nearly three hours. Two logs were cut from the tree and hauled to King's creek, and then towed around to Annamessex, each log making a canoe, the larger one being the boat above referred to. Few of these big trees now exist, and therefore the larger canoes have to be made of more than one stick. When three logs are put into the boat, one is carved to make the keel, floor, stem, and stern, the other two forming the sides to the gunwale. Many are made of 5 and even 7 logs each, and others are carried up on the sides by adding two or three streaks of narrow and heavy plank, which are bolted through into the sides of the canoe. The 35- and 40-foot boats, which have from 6 to 11 feet beam, are generally carved from 5 or 7 logs, with top streaks as above described, the different logs being joined to each other by wooden keys and dowels and by treenails and iron bolts driven in edgewise. None of the smaller boats are decked, but all have an 8- or 12-inch wash-board, with a narrow coaming the whole length of the boat along each gunwale. This top work is supported by light knees spaced from 4 to 6 feet apart; and sometimes short crooked pieces, cut to fit the curvatures of the surface, are nailed along the bilge inside, to strengthen that part of the boat. A 35- or 40-foot boat generally has a short length of decking in the bow, and sometimes a small house. The thickness of the walls of a canoe is as follows: In a 30-foot boat, about 3 inches on the bottom, 2¼ or 2½ inches on the bilge, and 1 inch at the gunwale, gradually thickening toward the ends; in the bow, 3½ or 4 inches on the bottom, 2½ to 3 on the bilge, and 2 at the gunwale. In a canoe of smaller size the thicknesses would be in proportion. In a large 7-log canoe building at Point Lookout, Maryland, in the census year, 40 feet long, 11 feet wide at the main beam, and 3½ feet deep amidships, the wood was 5 inches thick near the keel, 4 inches in the bilge, and 2½ and 2 inches at the gunwale, being a little heavier toward the bow. In a large boat there is often, but not always, a center-board, but there is seldom a center-board in a boat of less than 30 feet in length.

In rig these canoes are the most unique and interesting in the United States. A 20-foot boat carries one pole mast, with triangular sail forward of amidships; all others two masts, with triangular sails, the foremast being the tallest and raking 1¼ inches to the foot, the mizzen, which is two-thirds the length of the other, raking 1¾ inches to the foot. A 20-foot boat has no jib, but in a longer one there is often a 12-foot pole bowsprit, stuck up in the bow at an angle of 40°, with a horizontal line, carrying an odd-looking triangular jib, which is spread by a halliard tied to the mast about three-fourths of the way up from the gunwales (Fig. 20.) When the bow is decked over there is a short horizontal bowsprit with a long and narrow jib. The main and mizzen sails are spread by a sprit, and are furled by taking out the sprit and wrapping the sail around the mast. The rig is a safe and handy one. The center of effort is very low, and a canoe is consequently seldom capsized.

The model gives both speed and capacity. These canoes are very nearly flat on the floor amidships, and a 30-foot boat, weighing 2,000 pounds, will skim over shallows in safety, drawing, with keel, only 12 inches of water. The water-lines are hollow forward and aft, the after body being lean enough to give a drag of 6 or 8 inches. The keel is deepest at the bow, tapering from 5 to 8 inches at the fore-foot to 2 inches at the stern. The broadest beam is usually a trifle forward of amidships; but many place it in the middle of the length, and a few a trifle aft of the middle.

The builders hew out their boats with no other guides than the eye, sometimes aided by a rough draft on a piece of paper, and use no other tools than the ax, adze, square, callipers, two-foot rule, plane, auger, and hammer. A 20-foot boat costs from $50 to $60; but the price increases rapidly with the size, 40-foot boats costing $500 and $600 each.

A great many canoes are now made by farmers and their boys for other purposes than fishing. Near the cities of Baltimore, Annapolis, and Norfolk, and near many bay towns reached by steamboats, there are numerous farms devoted to the raising of melons and vegetables. Boats must be had to carry the produce to market, and rather than buy one the proprietors of these farms will often build; and it often happens that some smart farmer's boy, having thus become initiated into the art of canoe building, will continue the industry as a regular calling. It is usual for the builder of a canoe, professional or amateur, to go into the woods, select his trees, and buy them standing, paying a fixed sum per log, per cord, or per thousand board feet. Logs cost from $3 to $5 each, and the sum of $35 will buy all the trees needed for a 40-foot boat, worth, when finished, from $400 to $500. All the value over $35 is given to the boat by felling the trees, hauling them to a convenient stream, towing them down to the boat-yard, and then expending upon the materials the time and labor of the builder and his men. Sometimes the canoe is carved out of the felled trees in the woods and is hauled down to the water's edge when finished. The outside of the boat is first roughly formed with the ax; the inside is then carved out, the pieces are joined with keys, bolts, spikes, and treenails, and the thwarts, etc., fitted to their places.

A quaint and serviceable oyster boat has been evolved from the canoe by enlarging it, adding a long-pointed prow, and decking it over from end to end, leaving a large hatchway amidships, into which the oysters are thrown, and a smaller one aft for the steersman. There is no bulwark except a simple chock, or water-way, bolted to the top of the gunwales. This boat is the "bug-eye" (Fig. 21), a craft which has now grown so large that it cannot always be

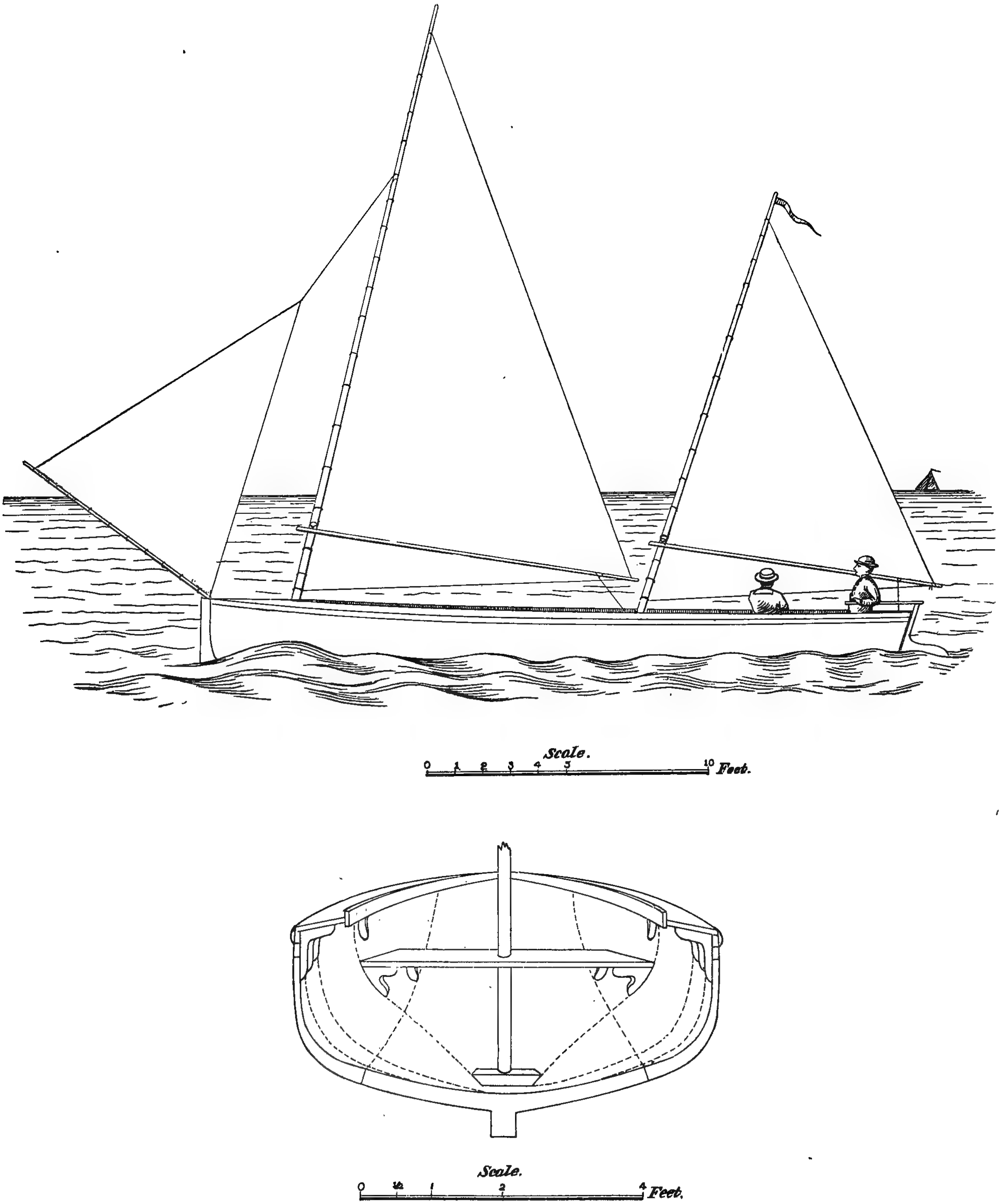

Fig. 20.—Chesapeake bay canoe.

30 feet long, 6 wide, and 2½ deep to top of keel amidships. Coefficient of D. to 18 inches from keel, 44 per cent.; of L. × B. × D. to 2 feet, 51 percent. Weight, 2,000 pounds. Boat will float light at 8 inches draught above keel, and on 18 inches draught will carry 2½ tons. Spreads 65 running yards of canvas. Angle of entrance at bow of load water-plane, 45°; of the planes below, 25°.

made of logs. A large number of "bug-eyes" are in use on the Chesapeake which are regularly framed and planked like other sailing vessels. The 5 and 7 log canoes—at any rate, all above 40 feet in length—are all called "bug-eyes", from their size, but the name itself comes from a peculiarity of the framed boat. The hawse timbers and knight-heads are carried up above the plank sheer, and when painted red the hawse holes look like eyes and the long prow like the beak of some strange insect or bird. In all matters of form and rig the large boat follows closely all the peculiarities of the canoe. With its large center-board, however, it can sail closer in the wind. The latter boat does better with the wind on the quarter. A few years ago some adventurous Chinamen came to America in a native junk, and the strange rig excited amusement wherever it was seen; but the Chesapeake bay "bug-eye", though a better boat than the junk, is equally as curious and interesting a craft as that which came from the celestial empire.

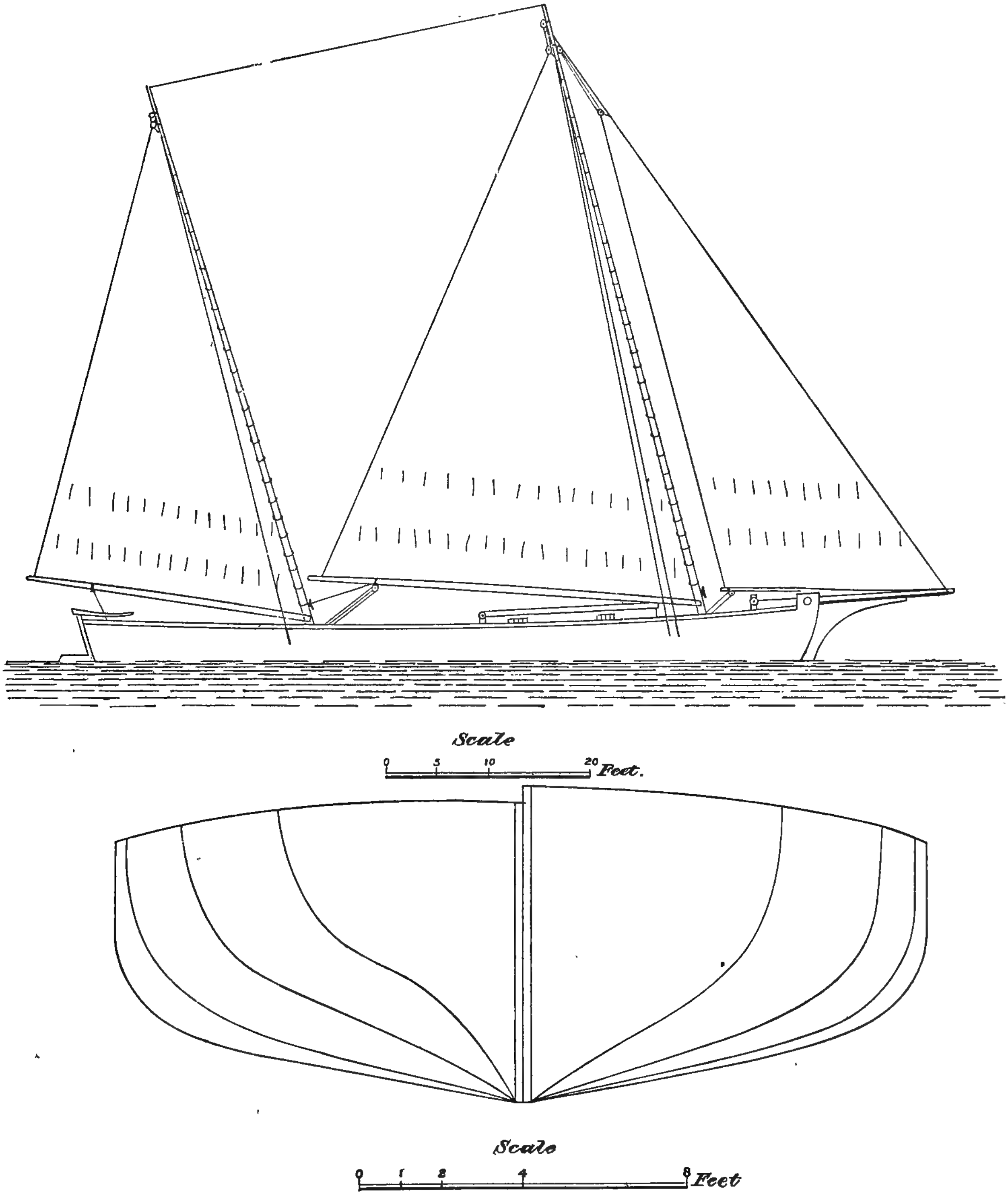

Fig. 21.—Bug-Eye.

72 feet long, 20 feet wide, and 5½ feet depth of hold amidships; molded depth, 6½ feet. Displacement to 4 feet above the keel, 84 tons; $2\frac{1}{10}$ tons per 1 inch of immersion above that plane; coefficient of D., 45 per cent.; coefficient of load water-line, 0.72 per cent.; of midship section, 0.76 per cent. Angle of entrance at bow, 65°; below, 50°; angles of run, 55° and 25°.

The average proportions of "bug-eyes" are L. by 0.27 L., by 0.08 L. The boats vary somewhat, however, as will be seen by the dimensions of the following four:

| | Length. | Width. | Depth. | Tonnage (approximate). |
|---|---|---|---|---|
| | *Feet.* | *Feet.* | *Feet.* | |
| Raven | 48 | 13 | 3⅝ | 8½ |
| Minnehaha | 56 | 11⅓ | 2¾ | 8 |
| Virginia G. Holland | 60 | 18 | 5 | 25 |
| Bug-eye now building at Solomon's island, Maryland | 72 | 20 | 5½ | 45 |

The increased tonnage of the larger bug-eyes is due in part to the houses built upon them. Bug-eyes made from logs carry 200 or 300 bushels of oysters each and cost from $600 to $800, while the framed boats cost from $1,500 to $2,500, according to size. Fishermen much prefer those hewn from logs, if they can be obtained, as the hulls are heavier and have greater stability with a smaller quantity of ballast. Each has to carry 2 or 3 tons of ballast, and sometimes more.

The bug-eyes are increasing in size year by year; and it is a singular fact that just as the old "pinkie" sail vessel, inherited from the Europeans, has disappeared from New England, owing to a preference for other boats, a new, original, and purely American "pinkie" has sprung into existence on the Chesapeake, bidding fair to come into great and extended popularity.

The new vessel now building at Solomon's island is of the largest size yet built. As above stated, it measures 72 by 20 feet, being 5½ feet deep. The keel is 64 feet long. It is 14 inches square at the center-board, tapering to 4 inches at each end. The frames are hewn from flitch oak timber 3½ inches thick, the double frame measuring 7 inches by 6 over the keel, tapering to about 3 inches at the gunwale. The keelson is of white oak, 4 by 6 inches, and white-oak boards 2 inches thick are used for planking and ceiling. The deck-beams are of pitch-pine, 5 by 7 inches, spaced 2 feet apart; the decking of 2-inch pitch-pine. There are no bulwarks to a bug-eye, but the boat in question has a wide 4-inch waterway of pitch-pine spiked on top of the frames at the gunwale, with a log or chock, 4½ inches by 6, bolted on top of it. The center-board is 16 feet long. Twelve feet from the bow stands the foremast, 68 feet long, with a 38-foot boom to the sail. The mizzen-mast is 60 feet long, and there is a 14-foot bowsprit, with jib. This vessel is designed to carry 1,400 bushels of oysters, or about 75 tons of cargo, on a draught of 5 feet of water forward and 5½ feet aft.

Oyster canoes are built on nearly all the peninsulas jutting out from the woodland counties of Maryland and Virginia into Chesapeake bay and on the fishing islands. The principal counties are Dorchester, Worcester, Somerset, and Wicomico, in Maryland, and York, Mathews, and Northumberland, across the bay. At Crisfield, in Somerset county, a little fishing town built on a solid bank of oyster shells about 50 rods wide by 150 rods long, there are more than 1,400 fishing vessels owned, 700 of them being canoes not large enough to register at the custom-house. The Crisfield boats have nearly all come from the rivers of the lower Chesapeake. The canoemen are numerous in the vicinity of York, Gloucester, and Pocoson, Virginia. The Pocoson builders make the finest models.

It is a fact of interest that the colored men of the Chesapeake bay region are becoming large owners of oyster boats.

## FISHING BOATS IN THE GULF.

The fishing interests of the lower Atlantic coasts, though not so important as those north of the capes of Virginia, nevertheless employ a large number of small vessels. These consist of small sloops and schooners, built for light draught, and large enough to meet the needs of the local markets. In Florida dug-out canoes are seen on many of the rivers. The majority of the 1,058 fishing boats of the state are to be looked for principally at Key West and Cedar Keys and all along the tier of islands that skirt the lower coast. At Key West there are owned about 100 vessels ranging from 5 to 25 tons, costing from $500 to $4,000 each, employed in the sponge business; about 25 vessels of from 35 to 50 tons for deep-sea fishing, with sharp bottoms and wells to carry the fish alive to market, costing from $4,000 to $8,000 each; and about 300 boats of less than 5 tons register, for sponging and other fishing, costing from $100 to $500 each. In addition to this fleet there are about 25 vessels used in farming; that is to say, in freighting the produce of the coast and river farms to market. At Cedar Keys, Apalachicola, and other points similar but smaller fleets are owned. The smallest boats are either cat-rigged or canoe-rigged, and the Chesapeake cut of sail and jib is often followed; the fishing boats which venture much out into the open sea are, however, as a rule, either sloop or schooner rigged, and the larger ones are all fitted for sailing to Havana with their cargoes. These boats meet with much heavy weather, and, on the other hand, are frequently becalmed, and they need both to be good sea boats and to be able to spread enough sail in light airs to carry them as fast as may be under such circumstances. The schooners carry no foretop-masts, imitating in this respect the fashion preferred among fishing smacks at New York. The sponging and farming vessels are usually flat on the floor amidships, with sharp entrance and run, and have center-boards; all the rest are sharp built throughout, are all fast sailers, and resemble northern boats in most respects.

The ship-building business in Florida and along the Gulf coast is confined almost entirely to this class of vessels. As is common on all fishing coasts, much of the building and repairing is done by non-professional carpenters; but there are also a considerable number of regular and skillful carpenters, who find constant employment in their trade all through the fishing regions. The reason why these men do not build large vessels is not for the lack of the requisite skill and experience nor the absence of good framing timber, for excellent vessels can be made entirely of pitch-pine, with live oak for the principal pieces. Vessels can be cheaply built, too, on that coast, owing to the low cost of native timber, the drawbacks to extended ship-building being the preference of insurance companies for white-oak framing timber and the fact that shipping enterprise has not yet fully awakened among the merchants of the South.

A number of varieties of wood little known in the north are put into the fishing vessels of the Florida coast. The frames are usually made of Madeira wood, a light, tough, lasting timber that grows on the keys, and cannot be found so good or in such abundance any nearer to Florida than the Bahama islands. Horse-flesh dogwood, mastic, live oak, and pitch-pine are also put into vessels. The planking and decking are generally of pitch-pine, worth $25 or $30 per thousand board feet; but spruce is preferred for spars. Florida-built boats last about 30 years; with good care, longer.

The proportions of the average boat in Florida are L. by 0.35 L., by 0.11 L. depth of hold; but the beam varies from 35 to 45 per cent. of the length, according to the fancy of the owner. The following are a few of the size built in the census year, the dimensions being those for custom-house tonnage:

SLOOPS.

| Length. | Breadth. | Depth. | Tonnage. |
|---|---|---|---|
| *Feet.* | *Feet.* | *Feet.* | |
| 39.0 | 13.6 | 3.6 | 13.00 |
| 26.2 | 11.5 | 3.1 | 5.13 |
| 14.2 | 11.8 | 2.6 | 5.90 |

SCHOONERS.

| | | | |
|---|---|---|---|
| 31.8 | 15.40 | 3.80 | 10.00 |
| 39.6 | 15.00 | 4.40 | 13.10 |
| 46.8 | 19.90 | 4.00 | 10.80 |
| 30.7 | 10.75 | 2.75 | 5.75 |
| 37.6 | 13.00 | 4.25 | 12.77 |
| 37.5 | 14.60 | 6.00 | 16.80 |
| 32.4 | 10.70 | 3.30 | 6.17 |
| 28.5 | 10.30 | 3.00 | 5.80 |
| 37.5 | 15.60 | 4.80 | 15.36 |

Farther down the Gulf, especially in the vicinity of New Orleans and on the lakes and rivers surrounding that city, a popular boat with fishermen is the lugger (Fig. 22), and this is the only locality in the United States in which that ancient style of boat is still employed. The cause of this is doubtless the fact that the oyster, fish, and fruit trades demanded the employment of small boats; and these trades are largely carried on by men of Spanish and Italian descent, who have brought to America their ancient ideas and fashions. In modern ship-yards on the Calcasieu, Pascagoula, and other rivers of that region, on Lake Pontchartrain, and at Shieldsboro', Mississippi, large numbers of these little vessels are built every year, some of them large enough to register; but at New Orleans the preference is for Louisiana-built boats, there being an old law which exempts them from tolls and wharfage dues. The framing timber is sometimes but not often live oak, but red cypress and pitch-pine are preferred for the whole vessel. The cypress is light, tough, and durable, and is worth about $22 per thousand board feet; pitch-pine about $25 a thousand.

In model the luggers are sharp, and are mostly keel-boats with a yawl stern. The yard is hung at about one-third of its length on the mast, and experience teaches exactly the right proportions of the sail to go forward and abaft the mast. The yard is secured to the mast by an iron ring, and is hoisted by a halliard, rove through two double blocks, one at the mast-head and one at the yard.

The following are the custom-house dimensions of some of the large luggers built in the census year:

| Length. | Breadth. | Depth of hold. | Tonnage. |
|---|---|---|---|
| *Feet.* | *Feet.* | *Feet.* | |
| 32.6 | 10.6 | 3.1 | 5.31 |
| 37.9 | 11.4 | 3.4 | 7.29 |
| 36.1 | 12.1 | 3.4 | 7.42 |
| 35.1 | 10.7 | 3.2 | 5.42 |
| 39.8 | 12.4 | 3.6 | 8.35 |
| 37.7 | 12.2 | 3.2 | 7.20 |

Four schooners were built in Louisiana in the census year of from 8 to 35 tons register.

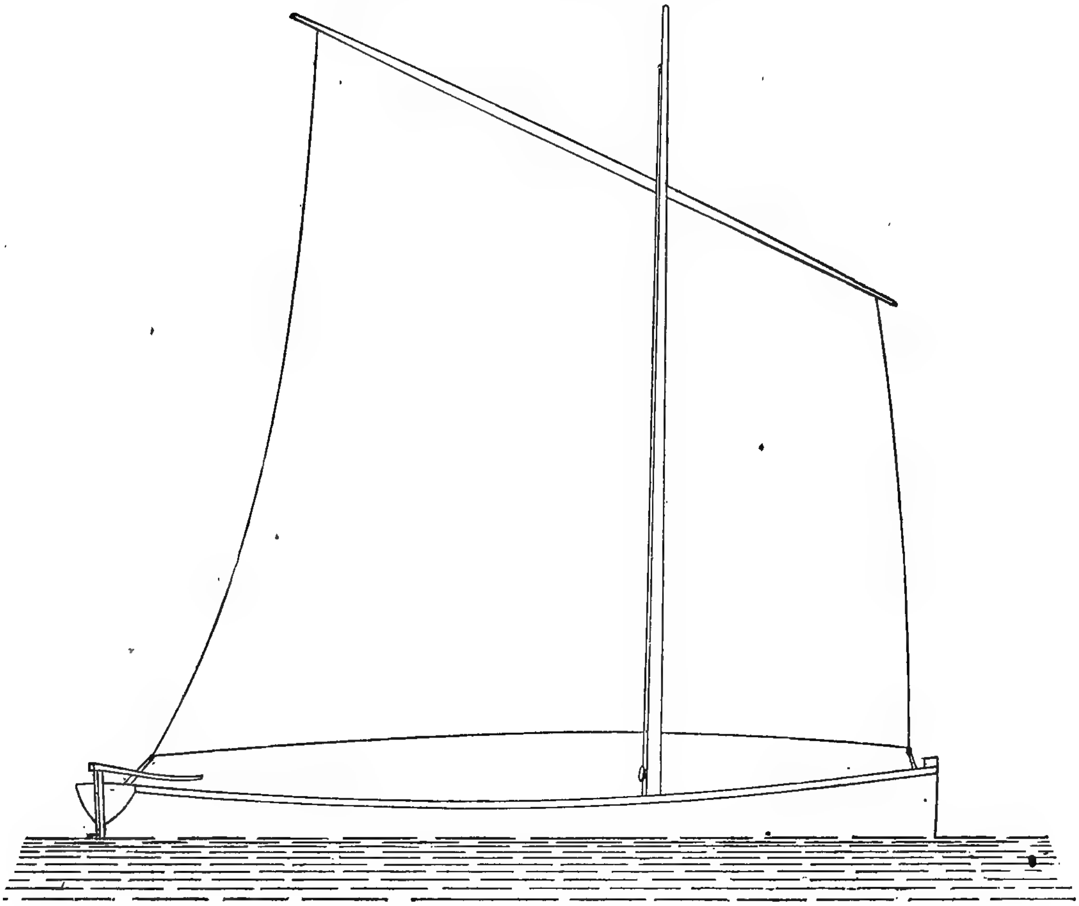

Fig. 22.—Lugger of the Louisiana coast.
35 feet long, 10½ feet beam, 3¼ feet deep inside.

## ON THE PACIFIC COAST.

The lateen sail is seen in America only on the Pacific coast, where it has been introduced by people from Mexico and Central America. The small fishing business of San Francisco is carried on almost exclusively by men of foreign birth, who have brought with them a unique and beautiful style of boat rigged with one mast and a lateen sail (Fig. 23). About fifty vessels of this class are employed in San Francisco bay, each of them just below the size which would make it liable to a tonnage tax, namely, less than five tons. They are from 20 to 35 feet long, have a beam one-third their length, and are from 2½ to 4 feet deep. The model is the nearest approach to a Norwegian pilot-boat of anything built in America for practical use. It is peaked at both ends, and is very sharp on the floor, with hollow water-lines forward and aft and a deep, thin keel. The stem and stern are both perpendicular. The boat is decked and has two hatches, the larger one amidships, into which the fish are thrown, being closed with a hatch-cover when necessary. The apparatus and the "confusion" of small things used by the men are stowed under the forward deck. Aft there is a small hatch, or well, in which the steersman sits. The mast is from 12 to 20 feet in length, and is planted a little forward of amidships, raking sharply forward, after a fashion peculiarly and solely its own. A long, slender yard spreads the sail; but when 30 feet in length the yard is made of two poles, spliced or lashed together at the end. A halliard is tied to the yard somewhat forward of the point where the sail will balance, being about two-fifths of its length from the forward end, and is carried through a sheave in the head of the mast. There is sometimes a bowsprit run out horizontally through a hole in the low forward chock, or gunwale, which is secured with staples, and in this case the boat carries a narrow jib. Rowlocks are placed on each side for 4 or 5 oars. With from 800 to 1,500 pounds of stone ballast aboard in the after hold such a boat dances lightly over any wave, and is good, fast, and seaworthy.

On the Sacramento and other salmon rivers of California quite a different style of boat is in use. There are about a hundred scows on the Sacramento river with houses upon them, in which the fishermen live with their families; but the flat-boat is the popular style, being the old-fashioned fishing punt in principle, flat on the floor, rising at the ends, with the bow and stern square across. The gunwale plan is a rectangle with slightly rounding sides. For description of the flat-boat, refer to the chapter on the vessels of the Mississippi and Ohio rivers.

To complete the review of the fishing vessels of the ocean coasts of the United States the canoes (Figs. 24, 25) of the far Northwest may be mentioned. These are the native boats of the Indians of Puget sound and Alaska, and

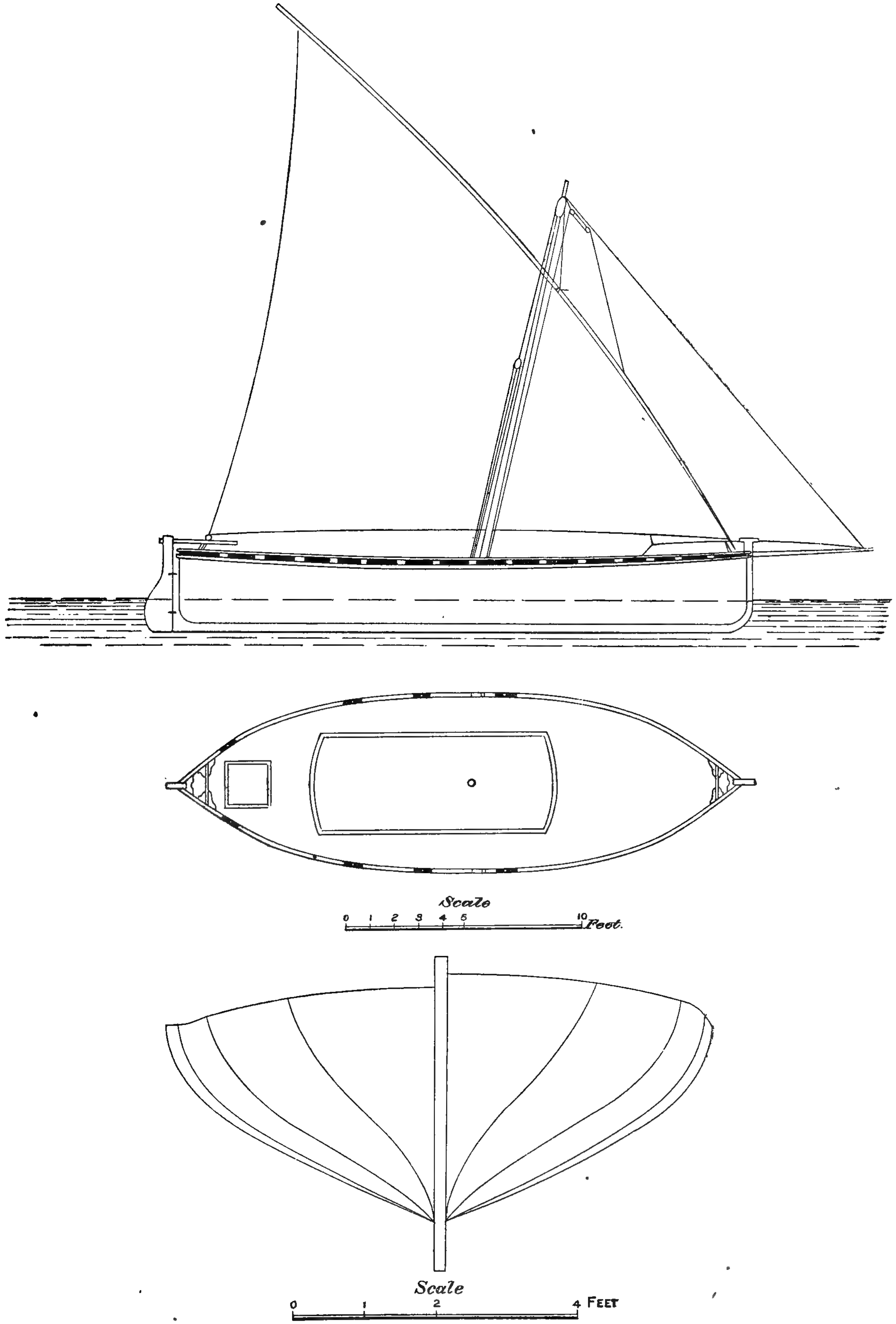

Fig. 23.—SAN FRANCISCO FISHING BOAT.

24 feet long, 7¾ feet wide, and 2¾ feet deep. Weight of boat with outfit and ballast, 2,500 pounds. The boat will float at 14 inches draught above top of keel, and will carry from 1 to 1½ tons of general cargo. Angles at entrance and run, 60° ; on the load-line, 30° below ; coefficient of D. to ⅗ of depth, 34 per cent.

figure conspicuously in all the boat fisheries of that wild region. The immense war canoe at the Centennial Exhibition, decorated with grotesque images of hideous gods and animals in red, green, blue, and black paint, and now permanently placed in the Smithsonian Institution, in Washington, came from this region, and has the general appearance of all Indian canoes. Its dimensions are: 59 feet in length, 8 feet beam on the gunwale, 4 feet 8 inches in width on the floor, and 3 feet depth amidships. Only war canoes are decorated with painted pictures, however, the fishing boats, as a rule, being simply painted black outside, with green or brown, or no paint at all, inside, while the channel in the peaked prow and the eyes in the prow and stern are painted red. The striking peculiarity in the form of the canoes is the long projecting prow, which bears a quaint resemblance to the outstretched neck and head of a deer. Sometimes the stern is equipped with a similar projection, but usually it is cut off short perpendicularly.

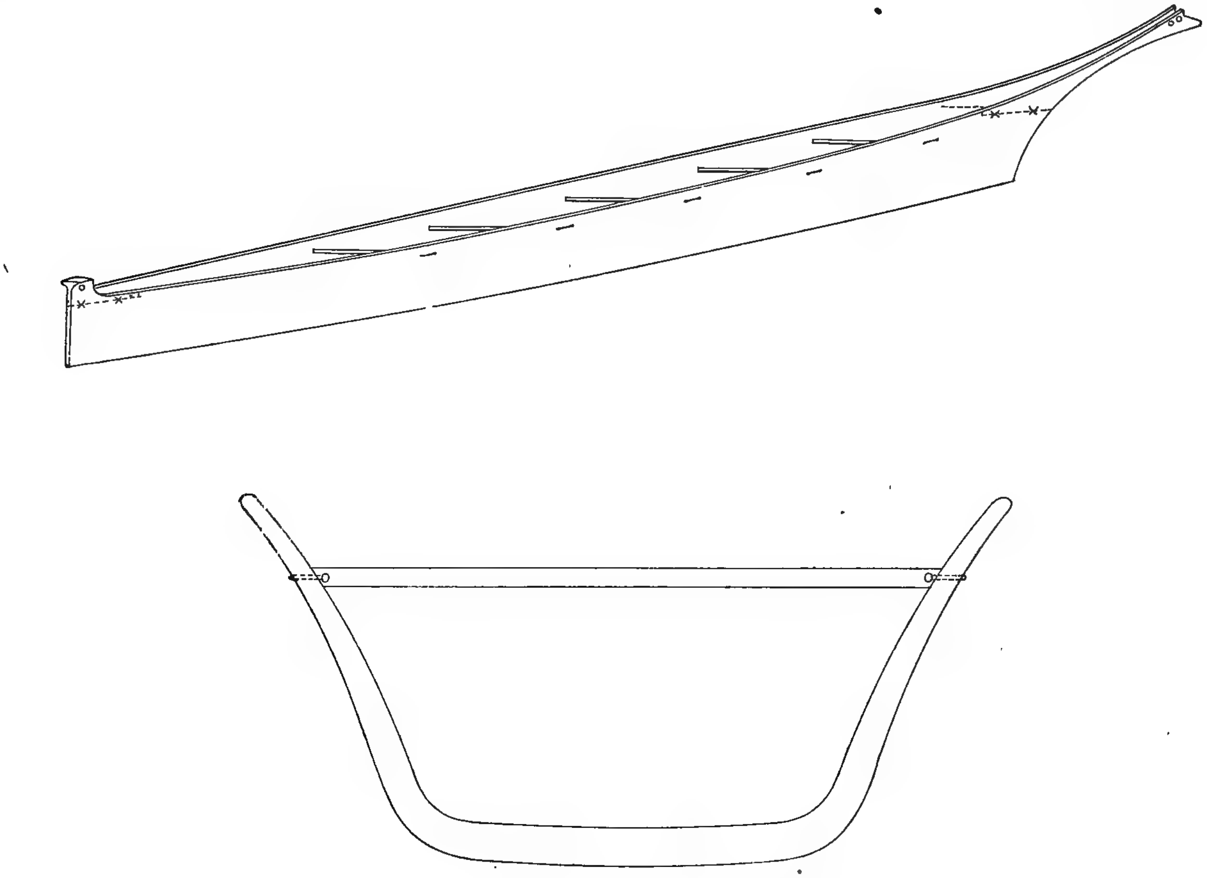

Fig. 24.—PUGET SOUND CANOE.

30 feet long, 4 feet wide on top, 2 feet wide on floor, and 24 inches in total depth, made of a single log of cedar. Boat weighs 800 pounds and floats light on 3 inches draught. Will carry 20 men on 12 inches draught.

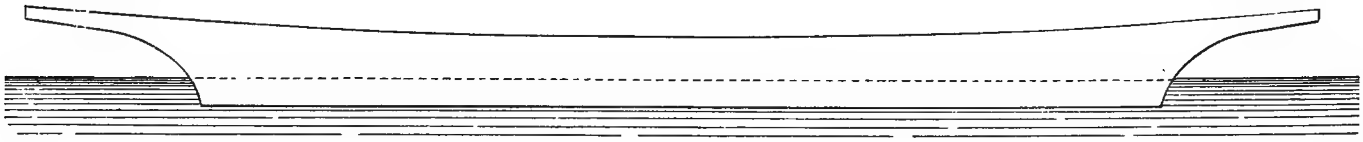

Fig. 25.—PUGET SOUND CANOE.

A form not uncommon for fishing boats.

The Puget sound and Alaskan canoes are hewed from the trunks of the white cedar tree, two varieties of which grow all along the coast from Sitka to California, standing thickly in the fir forests. This tree attains a height of from 100 to 150 feet, and is often 6 and 7 feet, sometimes 8 feet, in diameter near the ground. The wood is white close-grained, elastic, light and durable, the Puget Sound cedar being the lightest and best. It is easily worked, and a boat of any size desired can be carved from a single log. The usual sizes of canoes for shore fishing are from 20 to 30 feet in length, from 3 to 4 feet in width on top and 2 feet on the floor, with a depth of from 20 to 24 inches. The body of the boat to the gunwale is made from one solid log, but the prow and stern pieces are made separately, and are fitted closely to their places and fastened there by means of thongs tied through small holes. There are no thwarts to these canoes, but 4, 5, or 6 round bars of wood, each about 2 inches in diameter, are used in the place of thwarts and are lashed to their places with thongs rove through small round holes, the object being to support the sides of the boat against the dash of waves and the pressure of the water outside. Short broad-bladed paddles are used for propelling power, the Indians sitting on mats and blankets, half on the bottom of the boat, half on the gunwales, facing toward the bow, and when driven by three or four muscular pairs of arms these light canoes move with surprising speed. One knows not which to admire the most, the skill which has led to the production of so light, swift, and serviceable a boat by savage men, or the almost incredible endurance displayed by the Indians, who paddle them steadily, while en route to distant points, for from 12 to 15 hours at a time, with no pause whatever, refreshment being snatched in mouthfuls by the men while busily plying their oars. Latterly, the white men's fashions have crept into these canoes to some extent. Many of them are fitted with a pair of short oars, which are plied by a man sitting in the bow; others have a short pole mast forward of amidships, with a small sprit sail; but even if oars and sail be used, the occupants of the boat still line the gunwales after their own ancient fashion and work with the paddles continuously until they reach their destination.

## ALONG THE NORTHERN LAKES.

There has always been more or less fishing on the northern lakes; but within the last fifty years the business has grown to be an industry, and of late years it has increased to such an extent as noticeably to affect the inland sales of fish caught in the salt sea. The business is carried on in a multitude of small boats, the majority of them not large enough to register at the custom-house, being of less than 5 tons. Fishing on the lakes is an along-shore occupation. It is not necessary, as a rule, for the men to be out over night in their boats, as they put out from the mouth of the river, or from the bay where they belong, in the early morning, and calculate to be back again perhaps in time for supper. Carried on in this way, the business does not require boats with decks and houses, and the fishing craft of the lakes, therefore, do not as a general rule have either, nearly all of them being open boats. These boats are built chiefly at Ogdensburg, Clayton, Oswego, Charlotte, and Buffalo, New York; Erie, Pennsylvania; Ashtabula, Cleveland, Lorain, Huron, Rocky River, Vermillion, Sandusky, and Toledo, Ohio; Sanilac, Bay City, Alpena, Marquette, and the islands in Michigan; and on Green bay, and at Sheboygan, Manitowoc, Milwaukee, and Racine, Wisconsin; but the business is greatly scattered, and there are few men who construct more than a dozen boats a year. A great many boats are the work of men half fisherman, half carpenter, who make only one boat, or at most two or three boats in a year. It is a modest industry, and is the means of utilizing the spare time of a great many men whose labor would otherwise find only partial employment.

The patterns of boats used on the lakes all come from the sea-coasts, the builders in the majority of cases being eastern born, or of eastern descent. At Erie, Pennsylvania, keel-boats are being built for fishing purposes 28 feet long, 8 feet wide, and 3 feet deep, with a foot sheer, not decked, except sometimes for a few feet at the bow, but with wash-boards the whole length of the gunwales. These boats have perpendicular stems and V-sterns, are round on the floor, and are fitted with center-boards, the bottoms rounding upward aft, as in sharpies and in many racing yachts. They usually have skags to assist in sailing on the wind and also to support the rudders, but in many cases these are omitted. The framing and the center work are of white oak, and the boats are often planked with oak. Their weight causes them to sit low in the water, but they are strong and seaworthy, and can stand a great deal of hard usage. The chief peculiarity is their rig, their generous beam and the stability of the boats enabling them to spread an extra amount of canvas. A boat is accordingly fitted with two tall masts, on each of which is hung a fore-and-aft lower sail and gaff topsail, made into one. A boom spreads the sail below, and a gaff does the same above, the gaff being split in two, one-half going each side of the canvas. The two halves are joined with screw bolts, and thus hold the canvas tightly in their clasp. This rig makes necessary the use of one halliard only, the same rope being used as the downhaul. There is no jib. It is said that this fashion came originally from New York. The boats cost about $250 each.

Along the Ohio coast the sharpie (Fig. 26) is the favorite of the fishermen. This fashion came from Connecticut along with a large percentage of the population of that state. The mouths of the Huron, Black, and other rivers are full of this class of boats, which are pulled up into the bulrushes on the flats when not in use. They are large, open boats, each carrying an anchor and often a chain. The average size of a sharpie is 36 feet long, 10½ feet wide, and 3 feet deep, being thus a fuller, heavier, and more capacious boat than a Connecticut sharpie of the same length. It takes two men 17 days to build one, and its value, when finished, is about $225. While 36 feet is the average and popular length, the boats vary in size, some being not over 24 feet in length and others as high as 42 feet, and cost from $275 to $300 each. The bilge-log, top timbers, stern, and center-board of an Ohio sharpie are made of oak; the planking and flooring are white pine. About 800 feet of pine and 200 feet of oak are cut up in building a boat. The stem rakes a few inches; the sides flare from 10 to 12 inches.

The greatest beam is forward of amidships. Right in the bow there is a stout breast hook, supporting a bit of "ekeing", or a short deck, which in its turn supports the foremast and allows room for working the sail and anchor. A few feet from the bow there is a stout thwart, with a parting board or bulkhead underneath to prevent the fish from sliding about. The center-board is nearly amidships. A strong thwart just aft of the board supports the mizzen-mast, and a few feet farther aft occurs a low thwart with parting-board. The stern is broad and overhanging, and there is a stern seat for the steersman, with a raised platform for his feet. As a rule, the boat has no wash-board. There are two masts; no bowsprit. A 32-foot sharpie is fitted with 36- and 34-foot masts; a 36-foot boat with masts 48 and 46 feet long. The masts rake considerably, and carry the same style of sail as the Erie boats.

The capacity of the Ohio sharpie is quite unusual. It carries from 7½ to 12 tons of pound-nets, fish, and apparatus, besides the crew; and, in addition to its ability in this direction, it is also a very fast and manageable boat.

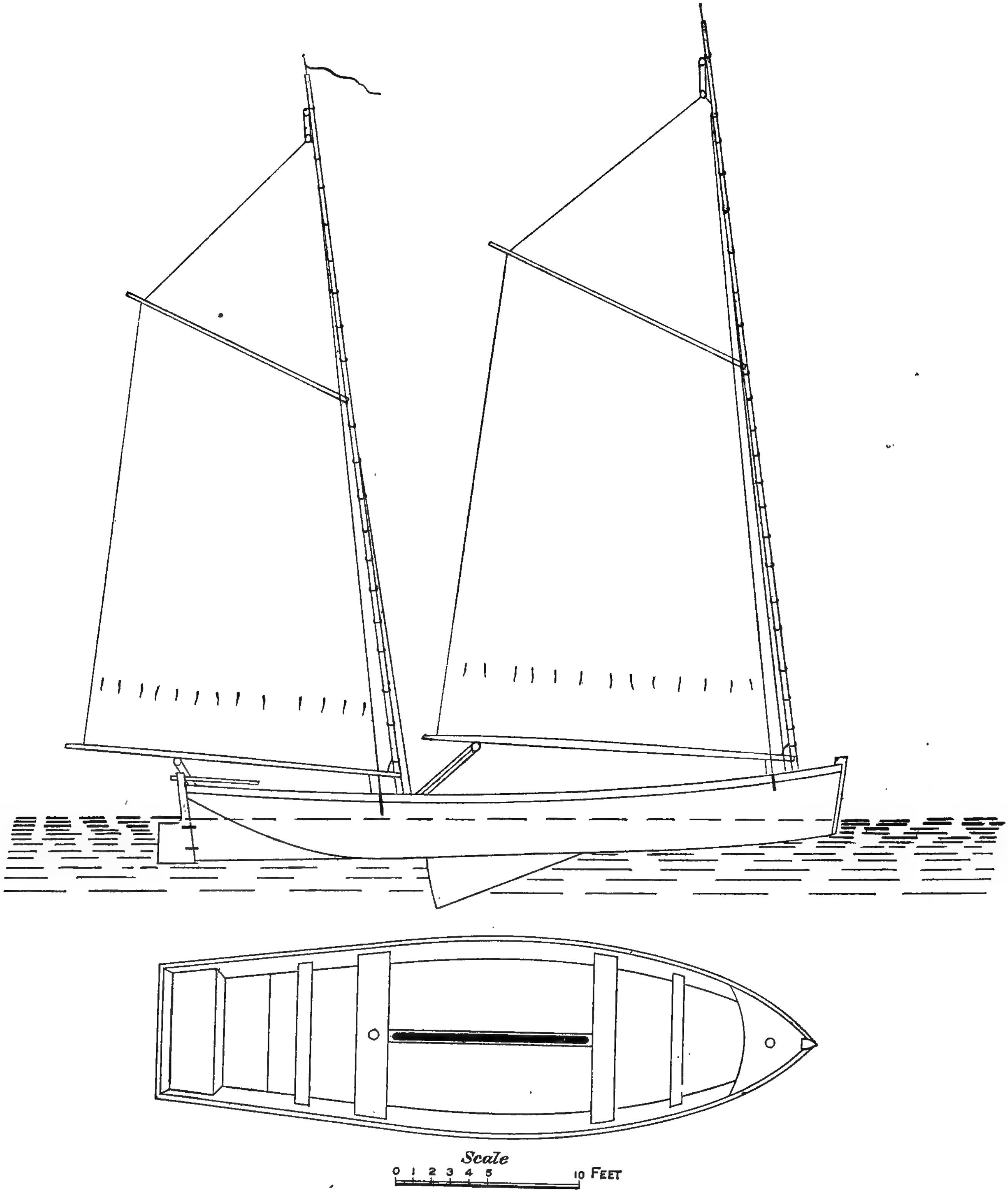

Fig. 26—Ohio sharpie.

36 feet long, 10½ feet wide, and 3 feet deep inside. Weight, with sails and rigging, 3,500 pounds. Will carry 8 tons of nets, fish, etc., on 18 inches draught of water.

At Marquette boats are in use that greatly resemble the pink. They are clinker-built, sharp-sterned, and schooner-rigged, and measure from 22 to 28 feet on the keel and from 7 to 9 feet across the gunwales. These boats are from 24 to 32 inches deep, and cost from $200 to $300 each.

Steam has lately come into use at Marquette to a considerable extent, small tugs from 40 to 50 feet long on the keel, 8 to 12 feet beam, and 5 or 6 feet deep, being now employed, and the principal part of the business is carried on there by the owners of these vessels. As the steam tug is not peculiarly a fishing vessel, it will be described elsewhere.

## THE BUILDING INDUSTRY.

The preceding pages will show in what a scattered and fragmentary manner the business of building fishing boats and vessels is carried on. The industry is not concentrated in a special class of shops and yards, but is widely diffused among the regular builders of boats and vessels, and some of it is carried on by amateurs. There are few establishments which make a specialty of any branch of fishing-boat building; and as it would be difficult to separate the statistics and details of this line of ship-building from the general work which goes on in behalf of the merchant service, it is deemed best to postpone consideration of the present state of the building industry, so far as fishing vessels are concerned, until the same topic is taken up with reference to wooden merchant vessels.

## CHAPTER II.—MERCHANT SAILING VESSELS.

Wooden sailing vessels for the merchant service comprise the bulk of the tonnage built and owned in the United States. A statement prepared by Mr. T. C. Purdy, special agent of the census for the collection of statistics of steam navigation, shows the following facts concerning the tonnage of the United States in the census year of 1880:

| Vessels. | Number. | Tonnage. |
|---|---|---|
| Sailing vessels | 16, 830 | 2, 366, 258 |
| Steamers | 5, 139 | 1, 221, 207 |
| Canal-boats | 8, 771 | 1, 253, 688 |
| Barges | 5, 032 | 1, 331, 563 |
| Flat-boats | 2, 702 | 220, 690 |
| Wharf-boats | 145 | 86, 390 |
| Hulks | 46 | 7, 638 |

The fishing fleet comprises about 2,600 vessels large enough to be documented by the custom-houses, registering in the aggregate 120,000 tons. The documented yachting fleet includes 180 small vessels, a total of 4,300 tons. All the rest of the sailing fleet are merchant vessels, employed on the coasts or on the northern lakes, or in foreign trade. There are only five or six iron ships in the whole number, all the rest being timber-built. Americans prefer wooden vessels, and at present they build few others for the general freighting service. For fifty years the largest and best wooden sailing ships in the world have been built in the ship-yards of the United States.

Nature having fitted this continent for ship-building by supplying it with an abundance of good timber, vessels have been built upon our shores from the first year of actual settlement, the first ship, oddly enough, having been constructed to carry a little band of settlers away from an inhospitable region which they wished to leave after their first winter. This vessel was built at the mouth of the Kennebec river, in Maine, a region which has since become famous for its ships, and which is now the leading locality, certainly in America, for the construction of sailing ships. In 1607 a company of English colonists came to Stage island, at the mouth of this river, in the vessels Gift of God and Mary and John to plant a settlement near the fishing grounds of New England. Sir George Popham, Sir Ferdinando Gorges, Sir John Gilbert, and other leading men were identified with this enterprise, and the company of emigrants was composed of Captain Raleigh Gilbert, Edward Harlow, Edward Davis, and about a hundred others. The original purpose was to land on Monhegan island, then, as now, noted for fishing; but finally they went to Stage island and began the settlement. The ships then returned to England, leaving 45 people behind. The severity of the winter discouraged the pioneers, and, growing homesick, they built a vessel in which to return. It was a staunch and excellent little vessel, a two-master, named the Virginia, and in after years this bark made several voyages to the English settlements on this continent. She is said to have been of "thirty tons burden", and judging of her dimensions from the rules for tonnage then in vogue, and also from the relative proportions of the vessels of that day, she must have been about 60 feet long, 17 feet broad on the main beam, and 10½ feet deep in the hold.

The Dutch at New York built the next vessel. The emigrants from Holland in 1614 lost one of their ships by fire, and in 1615–'16, to replace it, Adrian Blok built the small yacht Onrest, of 16 tons burden, which was 38 feet long on the keel, 44½ feet long over all, and 11 feet beam. What is now understood as a yacht is a vessel with a long, sharp bow and sharp floor, designed especially for speed, and used solely for pleasure; but the Onrest was no such craft, the yacht of her time being broad and round, with a bluff bow, and was made for light draught, on account of the shallow water of the rivers and harbors of the Netherlands. This model has been preserved in Dutch drawings. The Onrest was employed for several years in exploring the Atlantic coast from the thirty-eighth to the fortieth degree of latitude. Block island was visited during one of her excursions, and took its name from Adrian Blok.

With the exception of fishing boats and shallops there is no record of the building of any other boats until 1631. In that year, on the 4th of July, the little bark Blessing of the Bay was launched into the Mystic river at Medford for the use of the Massachusetts colony. She was built at the instance of Governor Winthrop, and was finished under his eye, the object being to open communication with the Dutch at the mouth of the Hudson and to trade to various parts of the coast. Governor Winthrop wanted a strong vessel, and she was largely made of locust. The Blessing of the Bay ran to Long Island and other settled localities for a short time and then disappeared from view, and it is possible that she was the unfortunate vessel that was sent by Winthrop and others from Boston to Virginia in 1633 with a load of fish and furs and was wrecked on the capes when near her destination.

The abundance of good timber in New England was a strong attraction to some of the British merchants under whose auspices the new colonies were settled. The forests of England were beginning to be impoverished; timber was dear in the mother land and ships were costly; and the importation of American lumber, particularly of sticks suitable for masts and spars, was encouraged from the earliest years. One of the Massachusetts company, Matthew Craddock, an eminent merchant and ship-owner of London, and president of the company, began an organized effort at ship-building, and it is stated that he "was more forward in advancing out of his substance than any other, being generally the highest in all subscriptions". He never came to the colony in person, but sent over a number of his own men to build vessels and operate for him. Every one of the company who subscribed £50 was to have 200 acres of land allotted to him. Mr. Craddock located his claim on the Mystic river, 3 miles from the infant village of Charlestown, at a place called Medford at the time, and afterward "Neck of Land". Wood says, in 1634, speaking of the Mystic river:

> On the East side is Maister Craddock's plantation, where he hath impaled a Parke, where he keepes his Cattle till he can store it with Deere: Here likewise he is at charges of building ships. The last yeare one was upon the Stockes of a hundred Tunne; that being finished, they are to build one of twice her burden. Ships without either Ballast or loading may floate down this River: otherwise the Oyster-banke would hinder them which Crosseth the Channell.

Several vessels of good size were launched from the yard at this spot, and they all went to England to go into the general service of their builder and owner; but as they were not employed on this side of the ocean, there is little record of them.

There was so much large timber of thoroughly good quality, and the wood was so cheap, that vessels could have been built here at a large reduction from the cost in England; an advantage which has never failed to produce striking results when put to proper use. For several years, with the view of taking advantage of the resources of the new territory in this respect, the emigration of shipwrights to America was encouraged, and special privileges were given them, such as exemption from the duty of training and from the taxation of property actually used in ship-building. The inducements offered brought a number of good carpenters to New England, who settled in Boston, Salem, Gloucester, Scituate, and other coast towns and constructed whatever vessels were demanded by the times. But there was no organized effort to develop the industry after the death of Mr. Craddock. Natural advantages go for little without enterprising men to make use of them, and for many years the production of merchant shipping was only of a scattered and modest character. Fishing boats were built in abundance, but trading vessels only now and then, the cost of the latter being about £4 per ton.

After the village of Charlestown, Massachusetts, was planted a small coasting trade sprang up around Boston bay which led to some building. The villages on the bay were without firewood and hay, and sloops and lighters were built to bring these articles from the islands and from the coasts north and south. Many fishing boats were employed in this trade in the winter time; but firewood being a cargo for which they were not well adapted, regular wood boats were preferred, and from a small beginning there soon grew up a large fleet of wood sloops, owned all along the Massachusetts coast, the most of them probably being built at Salem. Six shipwrights had settled in Salem as early as 1629, and three small shallops were built there the same year; and while there were not many vessels demanded, there was nevertheless work enough for a few good men. The industry seems to have thrived in Salem from the start, and the village soon became conspicuous for its ship-yards and for the abundance of vessels produced. Many wood sloops were afterward built on Cape Ann, and Gloucester had 50 in 1706.

The building of merchant vessels is the offspring of a desire to trade. For the first 20 years after the landing of the Pilgrims the colonists thought only of building enough boats to keep the fishermen employed and to carry products along the coast to and from the different towns. The transatlantic trade took place entirely in European ships. About 1640 the colonists began to need large vessels for themselves. They had fish to sell, which the merchants of Barbadoes, Jamaica, Antigua, and other islands wished to buy; and the latter had produce which, on their part, they wished to market in New England. Rev. Hugh Peters, of famous memory, stirred up the people on this subject with great success, and the building of vessels with which to trade with the southern islands followed as a consequence of his efforts. Winthrop writes:

> The general fear of want of foreign commodities, now our money was gone and that things were like to go well in England, set us on work to provide shipping of our own, for which end Mr. Peters, being a man of very public spirit and singular activity for all occasions, procured some to join for building a ship at Salem of 300 tons, and the inhabitants of Boston, stirred up by his example, set upon the building of another at Boston of 150 tons.

These two vessels were finished the following year. In 1641 two other vessels were building at Salem, and in 1642 three at Boston, one at Salem, and one at Dorchester. This was the real beginning of ship-building in New England for the general trade. The vessels were successful, and gave the industry a strong impetus. One wide-awake and zealous man woke up the whole coast, and after 1642 a large number of New England towns began to build vessels for distant voyages. That was 240 years ago; and there has been scarcely any change from that day to this in the method of dividing the ownership of vessels among a number of part owners in the general system of framing and planking vessels, or in the terms used to designate the different parts of the structure. The things which have changed in the course of these 240 years are the forms of the hulls, in view of a better knowledge of the scientific principles governing speed and stability in the water, the fashions of sails and rigging, the materials of construction, the cost of vessels, and the devices employed in the ship-yard for saving human labor and for improving its efficiency.

The dawn of the industry in the New World was thought worthy of comment in England, and was referred to in books of travels and in official reports. In *New England's First Fruits*, September, 1642, is the information:

> Besides many boats, shallops, hoys, lighters, pinnaces, we are in a way of building ships of an 100, 200, 300, 400 tons. Five of them are already at sea, many more of them in hand at this present.

In Lechford's *News from New England*, London, 1642, it is stated that the people of the provinces were "building of ships and had a good store of barks, catches, lighters, shallops, and other vessels". There is very little in the records to show what the products of the little ship-yards were from year to year. The amount of building up to 1665 was referred to, however, in the report of a committee of the general court of Massachusetts while having that famous legislative dispute with Colonel Richard Nichols, George Cartwright, Sir Robert Carr, and Samuel Maverick:

> The number of their ships and vessels, as follows: about eighty from 20 to 40 tons, about forty from 40 to 100 tons, and about a dozen ships above 100 tons.

That more than this number were *built* is certain, for even at that early period the merchants of Barbadoes, Antigua, Jamaica, and the other islands were sending to New England for their vessels, and many were built for them.

About 1670 Sir Joshua Child took alarm at the growth of shipping in America. He declared:

> Of all the American plantations, his Majesty has none so apt for building of shipping as New England, nor any comparably so qualified for the breeding of seamen, not only by reason of the natural industry of that people, but principally by reason of their cod and mackerel fisheries; and, in my poor opinion, there is nothing more prejudicial, and in prospect more dangerous, to any mother kingdom, than the increase in shipping in her colonies, plantations, or provinces.

In Connecticut ship-building began soon after the first settlements. The people all provided themselves with fishing boats at the start, and shallops were then built for small coasting and river trade between the different towns. Travel and traffic being by water, on account of the lack of good roads, the shallop, afterward called the sloop, was the universal boat for the purpose, and was generally decked. A few pinnaces, or open long boats (though sometimes decked), were also built, and lighters were made to bring goods from the ships arriving from England up to the river towns. Small as these ships from Europe were, they each drew about 10 feet of water, and could not ascend small rivers. A decree of the general court at New Haven, June 11, 1640, will throw some light on the infant industry of that town. In callings that required skill, among which was that of "ship-carpenters", master-workmen were to be paid not above 2 shillings 6 pence per day in summer, "in w$^{c}$h men may worke 12 howers, butt lesse then 10 howers dilligently improved cannot be accounted nor may be admitted for a full dayes worke, nor in winter above 2*s.* a day, in w$^{c}$h at least 8 howers to be dilligently improved in worke." Those not master-workmen were to have 2 shillings per day in summer and 20 pence in winter. The order of the court continues: "For goeing with boats of severall sorts, the man not above 2*s.* a tyde, the whole tyde being dilligently improved, according to the nature of that imploym$^{t}$. And for boates, according to their quallity and burden. A lighter of 16 tunne w$^{t}$h a boate or cannow w$^{t}$h her not above 3*s.* a tide, and one of 12 tunne, with a boate, not above 2*s.* 6*d.* a tide. A shallop of 4 tunne, not above 1*s.* a tide, and so in respective proportio$^{n}$. Butt in such raines or stormes that goods cannot be laden without spoyling, nor the boat stirr though the tide serve, no paym$^{t}$ to be made for the boate in such tides, though the man be paid while he attends the service." The rates for master-workmen were lowered 6 pence a day in 1641. In 1648 a ship was built at New Haven by carpenters, who were brought from Boston for the purpose, and for many years Massachusetts gave to the other coasts of the country the best carpenters they had for ship-building. Hutchinson says that the chief object of the people of New Haven, Guilford, and Milford was trade, and the better to be accommodated they built their houses on small lots of land near the water's edge.

> They built vessels for foreign voyages, and set up trading houses upon lands which they purchased at Delaware bay for the sake of beaver, but were unsuccessful, and their stocks sunk very fast, and in 5 or 6 years they were much exhausted. Unwilling to give over, they exerted themselves as a last effort in building a ship for the trade to England, in which they put their whole stock of money, plate, and all the proper goods they could procure, to make a more valuable adventure. In her went passengers Mr. Grigson, one of the magistrates, in order to solicit a patent, and 8 or 10 more considerable persons, who, to use Mr. Cotton's expression, all went to heaven by water, the ship never being heard of after sailing. The loss of this ship entirely broke them up as traders, and they turned to husbandry for their support.

The names of the Swallow and the Fellowship are preserved in the Connecticut records of 1649 as two of the vessels of that date. The unfortunate end of the early ventures in general trade did not, however, stop the building of small vessels in Connecticut, and sloops for coasting and river purposes were built at New Haven and on the Connecticut river in considerable numbers. There was a fine body of excellent timber in the province, white oak, chestnut, pine, and spruce, all of it coming down to the banks of the water-courses, and this was continually resorted to as material for small vessels.

Ship-building at the mouth of the Hudson river began early. The yacht of Adrian Blok has been already mentioned. The directors of the Dutch West India Company were anxious to encourage the starting of ship-yards, and granted many privileges for the purpose. March 10, 1649, it was ordered that only the owners of real estate in New Amsterdam below the Harlem river should have the right to build yachts, sloops, and vessels; but in 1650 new freedom and exemptions were granted, and all who were willing to emigrate to the Hudson river were to have the right, gratuitously, to cut and draw from the public forests as much timber as they should need for the construction of vessels. In 1652 a master ship-carpenter came from Holland expressly to build a ship-house and stocks and go into business; but most of the work done in the early years was at the ship-yard of the company. Private enterprise was long in awakening. The following document has been preserved in the company's records, covering the work done in the years from 1633 to 1638:

### RETURN OF THE SHIPS BUILT AND REPAIRED IN NEW NETHERLAND DURING WOUTER VAN TWILLER'S ADMINISTRATION.

Before me, *Cornelis van Tienhoven*, secretary of *New Netherland*, appeared in presence of the undersigned witnesses *Tymen Jansen*, ship-carpenter, about 36 years old, and with true Christian words in stead and under promise of a solemn oath, if necessary, at the request of his Honor, Director General *Kieft*, declared, testified and deposed, that it is perfectly true that he, deponent, during the administration [of Mr. *van Twiller*] has worked as ship's carpenter and has been engaged on all old and new work which Mr. *Twiller* ordered to be made, to wit:

A° 1633 the ship "*Soutberck*" repaired and provided with new knees.
Other carpenters have long worked on the ship "*Hope of Groeningen and Omlanden*".
The yacht "*Hope*" captured A° 1632 by said *van Twiller* was entirely rebuilt and planked up higher.
The yacht "*Prins Willem*" has been built.
The yacht "*Amsterdam*" almost finished.
A large open boat.
In the yacht "*Wesel*" an orlop and caboose were made.
In the yacht "*Vreede*" the same.
The boat "*Omwal*" at *Fort Orange*.
The yacht with a mizzen sold to *Barent Dircksen*.
The wood-cutters' boat.
Divers farmboats and skiffs were sold to various parties.
Also many boats and yawls made for the sloops.
Moreover the carpenters constantly repaired and caulked the old craft.

All of which he, deponent, declares to be true and to have testified and deposed at the aforesaid request to the best of his knowledge without regard of persons but only in the interest of truth. Done at *Fort Amsterdam* this 22d of March A° 1639.

WYBRANT PIETERSEN, } as witnesses.
MAURITS JANSEN, }

This is the m of
TYMEN JANSEN.

After the English occupation of New York ship-building was continued on a small scale. Two ships are known to have been built in 1669, one of 120 tons at New York, and one of about 65 tons at Gravesend, Long Island. In 1678 Governor Andros reports:

> There may have lately traded to ye collony, in a yeare, from tenn to fifteen shipps or vessells of about together 100 tunns each, English, New England, and our owne built, of which 5 small shipps and a ketch now belonging to New Yorke foure of them built there.

The record of passes issued by the governor of New York during the years 1678–'80, however, mentions 23 ships as hailing from New York which were probably built in the province, as in several cases not included in the above 23 the entry reads "Ship Beaver, of New York, an *English-built* craft". The description of one of the 23 as "a great square-sterned boat with two bulkheads" gives us an idea on what lines ships were then built. Governor Andros must have been mistaken when making the above statement, or else the trade of New York increased rapidly within a year after he made it; for from June to November, 1681, 154 entries of vessels were made at the New York collector's office, and from November, 1680, to March, 1690, 530 clearances were issued, a large percentage being without doubt New York built ships, including vessels navigating the Hudson and East rivers.

In 1700 there hailed from New York 124 ships of 100 tons and under, ketches, brigantines, and sloops, while Boston had 194, among them ships of 300 tons. Lord Cornbury (governor of New York from 1701 to 1709) found that the war then waging between England and France had a pernicious effect upon the shipping interest of New York, as many New York vessels had been lost, and the continuance of the war did not encourage the owners of ship-yards or capitalists to invest money in such property. His report to the lords of trade and plantations in 1708 tells us how far the shipping of New York had been injured: "There has formerly belonged to this port 32 topsail vessels, besides sloops; now we can't reckon above 28 topsail vessels and sloops." It also informs us that many of the vessels owned by merchants in Jamaica, Barbadoes, and others of the Leeward islands, which were nearly all built in America, came from New York, and that not more than six vessels belonging to the islands were built in the West Indies. The ship-building interest at New York did not recover quickly from the blows inflicted by the war. In 1721 the lords of trade, etc., reporting to the king on the state of the American colonies, say that the vessels belonging to the province of New York are small and not considerable in numbers, being employed only in the carrying trade to the southern islands and neighboring colonies. The transatlantic trade seems to have been carried on by English bottoms, of which 64, with a tonnage of 4,330 tons, arrived in New York from 1714 to 1717. During the same period 63 English ships were cleared from New York for British ports, 464 ships, sloops, and other vessels for the British colonies on this continent and the West Indies, and 118 to other than English ports. A certain percentage of these vessels were built at the port, but the ship-yards languished for many years, their product being principally sloops and small vessels.

It is probable that one strong reason for the dullness in ship-building at the mouth of the Hudson was the activity in New England through all this period. The latter section enjoyed the great advantage of a steady demand for the fisheries and the coasting trade, and its ship-yards had something to do nearly all the time. If the men were not hewing out the timbers and putting together the materials for a new sloop, ketch, or bark, they were apt to be busy repairing an old vessel; and as wages are lower and labor more skillful where work is steady, the New England yards could build better and cheaper ships than those in the other provinces. South of New York there was little or no building in colonial times, and, as above shown, there was not much even at New York. Tonnage was chiefly built in New England, and it is to be regretted that there is little of a definite character on record to show what the production in New England amounted to in that period, the only data that I have been able to find being contained in the colonial archives in the state-house at Boston. The inspection and registry of vessels of 30 tons and upward was ordered in 1698, in imitation of the practice of the mother country. From 1698 to 1714 a registry of vessels was kept, and this record, covering 450 pages of a large ledger, has been condensed and tabulated for this report. The act required:

> That when and so often as any ship or Vessel of Thirty Tuns or upward is to be built and set up in any Town or place within this province [of Massachusetts], before any Plank be brought on the Carpenter or Undertaker shall repair unto one of the Justices of the Peace within the same County, who upon request made is hereby impowered to appoint and authorize one or more able Shipwrights to be Overseers and Surveyors of the $^{d}$ Building, and of all the materials and workmanship.

The inspectors were required to survey each plank and timber. Another law for carrying into effect "An act for preventing frauds and regulating abuses in the plantation trade" demanded the registry of the vessels. In their enactments fishing vessels were left out of the account, as they were, as a rule, of less than 15 tons burden. It was therefore substantially the merchant fleet of the time alone which came under the notice of the law. As for the tonnage itself, that was arrived at by a rough estimate of the cargo which could be actually carried, so many tons meaning the actual burden of the vessel. The rule on this subject was established in France in 1681 by order of Colbert. With a view to fixing the relation between capacity of hull and cargo, or burden, the cubic feet of space occupied by a ton of 2,000 pounds was considered as being 42 cubic feet. The average contents of the hull were 45 per cent. of the parallelopipedon inclosing it; and hence the product of the principal dimensions, multiplied by 0.45 and divided by 42, was supposed to represent the actual number of tons weight of goods that would be stowed away in the hull and carried. It was the same as multiplying the length of keel by the breadth and depth, and dividing by 94. The English adopted this plan in substance; but, after all, the rule was so variously applied that the result was indefinite. Besides that, the government officers had one plan, the builders another, and often individual builders had different plans. The owners often had plans of their own, and the same ship which paid duties on 50 tons when importing foreign goods would often be rated at 100 tons when hired as a government transport. This looseness in estimate is seen in the record at the Massachusetts state-house, many vessels appearing several times in the ledger, and often at a different rating each time, the burden varying 10 or 20 tons from the original register, and one extreme case was found where a ship was documented once as of 130 tons and afterward as of 20 tons. The tonnage stated in the register, therefore, can only be regarded as approximate. The dimensions of vessels are not given; such as it is, however, the record remains a valuable one, as showing the production of New England ship-yards from 1696 to 1714, and to some extent for a few previous years. The record, condensed, is as follows, the duplications having been sifted out as far as possible:

| Places where built. | SLOOPS. | | PINKS. | | KETCHES. | | BRIGANTINES. | | BARKS. | | SHIPS. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. |
| **1674.** | | | | | | | | | | | | |
| Salem | | | 1 | 15 | | | | | | | | |
| **1676.** | | | | | | | | | | | | |
| Beverly | | | | | 1 | 34 | | | | | | |
| **1677.** | | | | | | | | | | | | |
| Lynn | 1 | 15 | | | | | | | | | | |
| **1678.** | | | | | | | | | | | | |
| Charlestown | 1 | 15 | | | | | | | | | | |
| Scituate | 1 | 16 | | | | | 1 | 35 | | | | |
| England | | | | | 1 | 70 | | | | | | |
| Cork, Ireland | | | | | | | | | | | 1 | 90 |
| **1681.** | | | | | | | | | | | | |
| Newbury | | | | | | | 1 | 20 | | | | |
| **1682.** | | | | | | | | | | | | |
| Boston | 1 | 30 | | | | | | | | | | |
| Scituate | 1 | 20 | | | | | | | | | | |
| **1683.** | | | | | | | | | | | | |
| Scituate | 1 | 25 | | | | | | | | | | |
| England | | | | | | | | | | | 1 | 70 |

| Places where built. | SLOOPS. |  | PINKS. |  | KETCHES. |  | BRIGANTINES. |  | BARKS. |  | SHIPS. |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. |
| **1684.** |  |  |  |  |  |  |  |  |  |  |  |  |
| Salem |  |  |  |  | 1 | 30 |  |  |  |  |  |  |
| Scituate | 1 | 30 |  |  |  |  |  |  |  |  |  |  |
| England |  |  | 1 | 60 |  |  |  |  |  |  |  |  |
| **1685.** |  |  |  |  |  |  |  |  |  |  |  |  |
| Boston | 1 | 12 |  |  |  |  |  |  |  |  |  |  |
| Lynn | 1 | 15 |  |  |  |  |  |  |  |  |  |  |
| Milford, Connecticut | 1 | 14 |  |  |  |  |  |  |  |  |  |  |
| Virginia | 1 | 13 |  |  |  |  |  |  |  |  |  |  |
| England |  |  | 1 | 70 |  |  |  |  |  |  |  |  |
| **1686.** |  |  |  |  |  |  |  |  |  |  |  |  |
| Ipswich |  |  |  |  |  |  | 1 | 30 |  |  |  |  |
| Middletown, Connecticut | 1 | 15 |  |  |  |  |  |  |  |  |  |  |
| Killingworth | 1 | 10 |  |  |  |  |  |  |  |  |  |  |
| Virginia | 1 | 15 |  |  |  |  |  |  |  |  |  |  |
| England |  |  | 1 | 25 | 1 | 30 |  |  |  |  |  |  |
| **1687.** |  |  |  |  |  |  |  |  |  |  |  |  |
| Salem | 2 | 32 |  |  | 2 | 50 |  |  |  |  |  |  |
| **1688.** |  |  |  |  |  |  |  |  |  |  |  |  |
| Salem |  |  |  |  | 1 | 16 |  |  |  |  |  |  |
| Marblehead |  |  |  |  |  |  |  |  | 1 | 20 |  |  |
| Newport, Rhode Island | 1 | 12 |  |  |  |  |  |  |  |  |  |  |
| England |  |  |  |  |  |  |  |  |  |  | 1 | 80 |
| **1689.** |  |  |  |  |  |  |  |  |  |  |  |  |
| Boston |  |  |  |  |  |  | 1 | 60 |  |  |  |  |
| Salem |  |  |  |  | 1 | 25 |  |  |  |  |  |  |
| York |  |  |  |  |  |  | 1 | 60 |  |  |  |  |
| England |  |  |  |  |  |  |  |  |  |  | 1 | 90 |
| **1690.** |  |  |  |  |  |  |  |  |  |  |  |  |
| Newbury |  |  |  |  |  |  | 1 | 20 |  |  |  |  |
| Providence, Rhode Island | 1 | 10 |  |  |  |  |  |  |  |  |  |  |
| New London, Connecticut | 1 | 15 |  |  |  |  |  |  |  |  |  |  |
| Pennsylvania | 1 | 20 |  |  |  |  |  |  |  |  |  |  |
| **1691.** |  |  |  |  |  |  |  |  |  |  |  |  |
| Boston |  |  |  |  | 1 | 30 |  |  |  |  |  |  |
| Salem |  |  |  |  | 1 | 12 |  |  |  |  | 1 | 170 |
| Lynn | 1 | 10 |  |  |  |  |  |  |  |  |  |  |
| Hampton, New Hampshire |  |  |  |  |  |  | 2 | 60 |  |  |  |  |
| New Jersey | 1 | 12 |  |  |  |  |  |  |  |  |  |  |
| **1692.** |  |  |  |  |  |  |  |  |  |  |  |  |
| Boston |  |  |  |  |  |  |  |  | 1 | 35 | 3 | 400 |
| Scituate | 1 | 16 |  |  |  |  | 1 | 40 |  |  |  |  |
| Amesbury | 1 | 35 |  |  |  |  |  |  |  |  |  |  |
| Piscataqua |  |  |  |  |  |  |  |  |  |  | 1 | 130 |
| Milton |  |  |  |  |  |  |  |  |  |  | 1 | 300 |
| New London, Connecticut | 2 | 37 |  |  |  |  |  |  |  |  |  |  |
| **1693.** |  |  |  |  |  |  |  |  |  |  |  |  |
| Boston |  |  |  |  |  |  | 3 | 120 |  |  | 1 | 90 |
| Scituate | 1 | 40 |  |  |  |  | 1 | 60 |  |  |  |  |
| Salem |  |  | 1 | 60 |  |  | 1 | 40 |  |  |  |  |
| Newbury |  |  |  |  |  |  | 1 | 35 |  |  |  |  |
| Braintry |  |  |  |  |  |  | 1 | 30 |  |  |  |  |
| Milton |  |  |  |  |  |  | 1 | 80 |  |  |  |  |
| Hingham | 1 | 20 |  |  |  |  |  |  |  |  |  |  |
| Kittery, Maine | 1 | 25 |  |  |  |  |  |  |  |  |  |  |
| Rhode Island |  |  |  |  |  |  | 1 | 50 |  |  |  |  |
| New London, Connecticut | 1 | 25 |  |  |  |  |  |  |  |  |  |  |
| Virginia | 1 | 40 |  |  |  |  |  |  |  |  |  |  |
| **1694.** |  |  |  |  |  |  |  |  |  |  |  |  |
| Boston | 2 | 55 |  |  |  |  |  |  |  |  | 3 | 230 |
| Charlestown | 1 | 30 |  |  |  |  | 1 | 30 |  |  |  |  |
| Cambridge |  |  |  |  |  |  | 1 | 45 |  |  |  |  |
| Salem | 2 | 50 |  |  | 1 | 30 | 3 | 140 | 1 | 60 | 1 | 60 |
| Scituate | 5 | 145 |  |  |  |  | 2 | 110 | 1 | 70 | 1 | 80 |

| Places where built. | SLOOPS. |  | PINKS. |  | KETCHES. |  | BRIGANTINES. |  | BARKS. |  | SHIPS. |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. |
| **1694**—Continued. |  |  |  |  |  |  |  |  |  |  |  |  |
| Newbury | 1 | 30 |  |  |  |  |  |  |  |  |  |  |
| Beverly | 1 | 30 |  |  | 1 | 25 | 1 | 40 |  |  |  |  |
| Milton |  |  |  |  |  |  | 2 | 90 |  |  |  |  |
| Swanzey | 1 | 40 |  |  |  |  |  |  |  |  |  |  |
| Stony Brook | 1 | 20 |  |  |  |  |  |  |  |  |  |  |
| Hingham | 2 | 40 |  |  |  |  |  |  |  |  |  |  |
| Portsmouth, New Hampshire | 1 | 10 |  |  |  |  |  |  |  |  |  |  |
| Rhode Island | 1 | 30 |  |  |  |  |  |  |  |  |  |  |
| Long Island, New York | 1 | 30 |  |  |  |  |  |  |  |  |  |  |
| Connecticut |  |  |  |  |  |  | 1 | 50 |  |  |  |  |
| Milford, Connecticut |  |  |  |  |  |  | 2 | 50 |  |  |  |  |
| New York | 1 | 40 |  |  |  |  |  |  |  |  |  |  |
| **1695.** |  |  |  |  |  |  |  |  |  |  |  |  |
| Boston | 2 | 38 |  |  |  |  | 3 | 145 |  |  |  |  |
| Charlestown | 2 | 45 |  |  |  |  | 1 | 50 |  |  | 1 | 400 |
| Salem | 3 | 70 |  |  | 1 | 40 | 1 | 20 |  |  |  |  |
| Scituate | 1 | 25 |  |  |  |  |  |  | 1 | 60 |  |  |
| Ipswich | 1 | 30 |  |  |  |  |  |  |  |  |  |  |
| Newbury | 3 | 94 |  |  |  |  |  |  |  |  |  |  |
| Bristol | 1 | 10 |  |  |  |  |  |  |  |  |  |  |
| Hingham | 1 | 20 |  |  |  |  |  |  |  |  |  |  |
| Pemaquid, Maine | 1 | 35 |  |  |  |  |  |  |  |  |  |  |
| York, Maine |  |  |  |  |  |  |  |  |  |  | 1 | 60 |
| Kittery |  |  |  |  |  |  | 1 | 40 |  |  |  |  |
| Rhode Island |  |  |  |  |  |  | 1 | 60 |  |  |  |  |
| Connecticut | 2 | 45 |  |  |  |  |  |  |  |  |  |  |
| Milford | 1 | 30 |  |  |  |  |  |  |  |  |  |  |
| Glastonbury | 1 | 15 |  |  |  |  |  |  |  |  |  |  |
| England |  |  |  |  |  |  |  |  |  |  | 1 | 70 |
| **1696.** |  |  |  |  |  |  |  |  |  |  |  |  |
| Captured from the French and Spanish |  |  |  |  | 1 | 70 |  |  | 1 | 60 | 10 | 1,120 |
| Boston | 3 | 80 |  |  | 1 | 30 | 1 | 45 | 1 | 40 | 2 | 290 |
| Charlestown |  |  |  |  |  |  | 1 | 50 |  |  | 1 | 150 |
| Cambridge |  |  |  |  |  |  | 2 | 70 |  |  |  |  |
| Salem | 1 | 25 |  |  | 2 | 50 |  |  |  |  |  |  |
| Scituate | 1 | 35 |  |  |  |  | 1 | 50 |  |  | 3 | 280 |
| Gloucester | 1 | 15 |  |  |  |  |  |  |  |  |  |  |
| Beverly |  |  |  |  | 1 | 40 |  |  |  |  |  |  |
| Plymouth |  |  |  |  |  |  | 1 | 60 |  |  |  |  |
| Weymouth |  |  |  |  |  |  |  |  | 1 | 50 |  |  |
| Bristol |  |  |  |  |  |  |  |  | 1 | 50 |  |  |
| Piscataqua, New Hampshire |  |  |  |  |  |  |  |  | 1 | 60 | 1 | 110 |
| Hampton, New Hampshire |  |  |  |  |  |  | 2 | 60 |  |  |  |  |
| Tiverton, Rhode Island | 1 | 25 |  |  |  |  |  |  |  |  |  |  |
| Connecticut | 1 | 30 |  |  |  |  |  |  |  |  |  |  |
| Killingworth, Connecticut | 1 | 15 |  |  |  |  |  |  |  |  |  |  |
| New London | 1 | 20 |  |  |  |  |  |  |  |  |  |  |
| New Haven | 1 | 20 |  |  |  |  |  |  |  |  |  |  |
| Milford |  |  |  |  | 1 | 30 |  |  |  |  |  |  |
| Stratford | 1 | 10 |  |  |  |  |  |  |  |  |  |  |
| New Jersey | 1 | 16 |  |  |  |  |  |  |  |  |  |  |
| Maryland | 1 | 20 |  |  |  |  |  |  |  |  |  |  |
| England |  |  |  |  |  |  |  |  |  |  | 1 | 150 |
| **1697.** |  |  |  |  |  |  |  |  |  |  |  |  |
| Boston | 2 | 82 |  |  |  |  | 1 | 60 |  |  | 1 | 200 |
| Charlestown |  |  |  |  |  |  |  |  |  |  | 4 | 630 |
| Cambridge | 1 | 18 |  |  |  |  |  |  |  |  |  |  |
| Salem | 2 | 45 |  |  | 1 | 40 |  |  |  |  | 1 | 200 |
| Scituate | 2 | 100 |  |  |  |  | 2 | 120 |  |  | 1 | 90 |

| Places where built. | SLOOPS. |  | PINKS. |  | KETCHES. |  | BRIGANTINES. |  | BARKS. |  | SHIPS. |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. |
| **1697**—Continued. |  |  |  |  |  |  |  |  |  |  |  |  |
| Newbury | 1 | 25 |  |  |  |  |  |  |  |  |  |  |
| Salisbury |  |  |  |  |  |  | 1 | 30 |  |  |  |  |
| Haverhill | 1 | 30 |  |  |  |  |  |  |  |  |  |  |
| Plymouth | 1 | 16 |  |  |  |  |  |  |  |  |  |  |
| Weymouth |  |  |  |  |  |  | 2 | 110 |  |  |  |  |
| Swanzey |  |  |  |  |  |  |  |  |  |  | 1 | 78 |
| Piscataqua, New Hampshire |  |  |  |  |  |  |  |  |  |  | 2 | 224 |
| Hampton | 1 | 20 |  |  |  |  |  |  |  |  |  |  |
| Rhode Island | 1 | 50 |  |  |  |  |  |  |  |  |  |  |
| Providence | 1 | 10 |  |  |  |  |  |  |  |  |  |  |
| Connecticut | 3 | 95 |  |  |  |  |  |  |  |  |  |  |
| New London | 1 | 25 |  |  |  |  |  |  |  |  |  |  |
| Lyme | 1 | 20 |  |  |  |  |  |  |  |  |  |  |
| Haddam | 1 | 35 |  |  |  |  |  |  |  |  |  |  |
| Guilford | 1 | 25 |  |  |  |  |  |  |  |  |  |  |
| Glastonbury | 1 | 50 |  |  |  |  |  |  |  |  |  |  |
| Killingworth | 1 | 20 |  |  |  |  |  |  |  |  |  |  |
| Milford | 1 | 15 |  |  |  |  |  |  |  |  |  |  |
| New Haven | 3 | 86 |  |  |  |  |  |  |  |  |  |  |
| Middletown | 2 | 37 |  |  |  |  |  |  |  |  |  |  |
| Gardner's Island, New York | 1 | 12 |  |  |  |  |  |  |  |  |  |  |
| Southold, Long Island | 1 | 20 |  |  |  |  |  |  |  |  |  |  |
| England |  |  |  |  |  |  |  |  |  |  | 1 | 75 |
| **1698.** |  |  |  |  |  |  |  |  |  |  |  |  |
| Captured from enemy |  |  |  |  |  |  |  |  | 1 | 60 | 3 | 340 |
| Boston | 2 | 30 |  |  | 3 | 105 |  |  | 2 | 125 | 3 | 200 |
| Charlestown | 2 | 177 |  |  |  |  |  |  |  |  |  |  |
| Salem | 2 | 60 |  |  | 4 | 130 |  |  |  |  | 1 | 60 |
| Scituate | 2 | 35 |  |  |  |  | 3 | 120 |  |  | 2 | 200 |
| Newbury | 1 | 30 |  |  | 1 | 35 |  |  |  |  |  |  |
| Weymouth |  |  |  |  |  |  | 1 | 40 |  |  |  |  |
| Chebacco | 1 | 18 |  |  |  |  |  |  |  |  |  |  |
| Plymouth |  |  |  |  | 1 | 35 |  |  |  |  |  |  |
| Milton |  |  |  |  |  |  | 1 | 50 |  |  |  |  |
| Hampton, New Hampshire | 1 | 30 |  |  |  |  |  |  |  |  |  |  |
| Connecticut | 2 | 45 |  |  |  |  |  |  |  |  |  |  |
| Bradford | 1 | 12 |  |  |  |  |  |  |  |  |  |  |
| Long Island, New York |  |  |  |  |  |  |  |  | 1 | 80 |  |  |
| New Jersey | 1 | 12 |  |  |  |  | 1 | 18 |  |  |  |  |
| Bermuda | 1 | 25 |  |  |  |  |  |  |  |  |  |  |
| **1699.** |  |  |  |  |  |  |  |  |  |  |  |  |
| Captured from enemy |  |  |  |  |  |  |  |  | 1 | 60 |  |  |
| Boston | 1 | 25 |  |  | 2 | 75 | 4 | 185 | 1 | 60 | 11 | 1,160 |
| Charlestown | 2 | 65 |  |  | 1 | 80 |  |  |  |  | 8 | 680 |
| Medford |  |  |  |  |  |  | 1 | 40 |  |  |  |  |
| Salem |  |  |  |  | 9 | 275 |  |  | 1 | 80 | 1 | 60 |
| Scituate | 3 | 90 |  |  | 1 | 40 | 3 | 135 |  |  | 4 | 310 |
| Gloucester | 1 | 40 |  |  |  |  |  |  |  |  |  |  |
| Chebacco | 1 | 12 |  |  |  |  |  |  |  |  |  |  |
| Beverly | 1 | 22 |  |  |  |  |  |  |  |  |  |  |
| Lynn |  |  |  |  | 1 | 30 |  |  |  |  |  |  |
| Amesbury |  |  |  |  | 1 | 30 |  |  |  |  |  |  |
| Newbury | 1 | 30 |  |  | 3 | 85 |  |  | 1 | 30 |  |  |
| Weymouth |  |  |  |  |  |  |  |  |  |  | 1 | 100 |
| Rehoboth |  |  |  |  |  |  | 1 | 30 |  |  |  |  |
| Wayland | 1 | 35 |  |  |  |  |  |  |  |  |  |  |
| Milton |  |  |  |  |  |  |  |  |  |  | 1 | 90 |
| Connihasset | 1 | 30 |  |  |  |  |  |  |  |  |  |  |
| Taunton |  |  |  |  |  |  |  |  |  |  | 2 | 200 |
| Hingham | 1 | 45 |  |  |  |  |  |  |  |  |  |  |
| Hampton, New Hampshire |  |  |  |  |  |  | 1 | 30 |  |  |  |  |

| Places where built. | SLOOPS. |  | PINKS. |  | KETCHES. |  | BRIGANTINES. |  | BARKS. |  | SHIPS. |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. |
| **1699**—Continued. |  |  |  |  |  |  |  |  |  |  |  |  |
| Manchester | 1 | 30 |  |  |  |  |  |  |  |  |  |  |
| Maine |  |  |  |  |  |  |  |  |  |  | 1 | 50 |
| Newport | 1 | 30 |  |  |  |  |  |  |  |  |  |  |
| Connecticut | 2 | 50 |  |  |  |  |  |  |  |  | 1 | 90 |
| New London | 1 | 15 |  |  |  |  |  |  |  |  |  |  |
| Hartford | 1 | 30 |  |  |  |  |  |  |  |  |  |  |
| England |  |  |  |  | 1 | 30 |  |  |  |  |  |  |
| **1700.** |  |  |  |  |  |  |  |  |  |  |  |  |
| Boston | 3 | 87 |  |  | 1 | 50 | 1 | 60 | 1 | 35 | 8 | 790 |
| Charlestown | 4 | 116 |  |  |  |  | 1 | 50 | 3 | 140 | 3 | 490 |
| Salem |  |  |  |  | 10 | 310 |  |  |  |  | 1 | 130 |
| Scituate | 3 | 70 |  |  | 2 | 60 | 5 | 215 | 1 | 60 | 2 | 146 |
| Gloucester | 1 | 20 |  |  |  |  |  |  |  |  |  |  |
| Lynn |  |  |  |  | 1 | 30 |  |  |  |  |  |  |
| Ipswich | 1 | 30 |  |  |  |  |  |  |  |  |  |  |
| Weymouth |  |  |  |  |  |  |  |  |  |  | 2 | 175 |
| Plymouth |  |  |  |  | 2 | 56 |  |  |  |  |  |  |
| Taunton |  |  |  |  |  |  |  |  |  |  | 1 | 60 |
| Newbury | 2 | 60 |  |  | 1 | 20 | 1 | 40 |  |  |  |  |
| Piscataqua, New Hampshire | 2 | 50 |  |  |  |  |  |  |  |  |  |  |
| Newport, Rhode Island | 1 | 40 |  |  |  |  |  |  |  |  |  |  |
| New London, Connecticut | 1 | 30 |  |  |  |  | 1 | 50 |  |  |  |  |
| Lyme | 1 | 20 |  |  |  |  |  |  |  |  |  |  |
| New Haven | 1 | 35 |  |  |  |  |  |  |  |  |  |  |
| Guilford | 1 | 8 |  |  |  |  |  |  |  |  |  |  |
| Cape Sable | 1 | 12 |  |  |  |  |  |  |  |  |  |  |
| **1701.** |  |  |  |  |  |  |  |  |  |  |  |  |
| Boston | 3 | 75 |  |  | 2 | 75 | 3 | 120 | 2 | 125 | 4 | 540 |
| Charlestown |  |  |  |  |  |  |  |  |  |  | 1 | 125 |
| Salem | 3 | 76 |  |  | 4 | 140 |  |  |  |  |  |  |
| Scituate | 4 | 100 |  |  |  |  | 1 | 60 | 2 | 130 | 1 | 70 |
| Ipswich | 1 | 30 |  |  |  |  |  |  |  |  |  |  |
| Gloucester | 2 | 58 |  |  |  |  |  |  |  |  |  |  |
| Newbury |  |  |  |  |  |  | 1 | 50 |  |  |  |  |
| Bristol | 1 | 30 |  |  |  |  |  |  |  |  |  |  |
| Taunton |  |  |  |  |  |  |  |  |  |  | 1 | 90 |
| Rehoboth |  |  |  |  |  |  | 1 | 55 |  |  |  |  |
| Plymouth | 2 | 50 |  |  |  |  |  |  |  |  |  |  |
| Weymouth |  |  |  |  |  |  |  |  |  |  | 1 | 100 |
| Lynn | 1 | 35 |  |  |  |  |  |  |  |  |  |  |
| Milton | 1 | 50 |  |  |  |  |  |  |  |  |  |  |
| Kittery, Maine | 1 | 35 |  |  |  |  |  |  |  |  | 2 | 160 |
| Saco |  |  |  |  |  |  | 2 | 90 |  |  |  |  |
| New London, Connecticut | 1 | 25 |  |  |  |  |  |  |  |  |  |  |
| Lyme |  |  |  |  |  |  |  |  | 1 | 70 |  |  |
| Haddam | 1 | 35 |  |  |  |  |  |  |  |  |  |  |
| Guilford | 1 | 16 |  |  |  |  |  |  |  |  |  |  |
| Hartford | 2 | 50 |  |  |  |  |  |  |  |  |  |  |
| New Haven | 1 | 35 |  |  |  |  | 1 | 60 |  |  |  |  |
| Norwalk | 1 | 40 |  |  |  |  |  |  |  |  |  |  |
| England |  |  |  |  |  |  |  |  |  |  | 1 | 110 |
| **1702.** |  |  |  |  |  |  |  |  |  |  |  |  |
| Captured from enemy | 2 | 38 |  |  |  |  |  |  |  |  | 7 | 816 |
| Boston | 5 | 205 |  |  |  |  | 4 | 195 | 1 | 65 | 2 | 170 |
| Charlestown |  |  |  |  |  |  |  |  |  |  | 1 | 80 |
| Salem | 1 | 16 |  |  | 3 | 75 | 1 | 45 |  |  | 1 | 70 |
| Scituate | 2 | 80 |  |  |  |  | 6 | 270 |  |  | 2 | 190 |
| Gloucester |  |  |  |  |  |  | 2 | 120 |  |  |  |  |
| Newbury | 2 | 55 |  |  |  |  |  |  | 1 | 40 |  |  |
| Manamoy | 1 | 20 |  |  |  |  |  |  |  |  |  |  |
| Weymouth |  |  |  |  |  |  |  |  |  |  | 1 | 100 |
| Plymouth | 1 | 25 |  |  |  |  |  |  |  |  |  |  |

| Places where built. | SLOOPS. | | PINKS. | | KETCHES. | | BRIGANTINES. | | BARKS. | | SHIPS. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. |
| **1702—Continued.** | | | | | | | | | | | | |
| Hingham | 1 | 36 | | | | | | | | | | |
| Taunton | 1 | 30 | | | | | 1 | 60 | | | 1 | 200 |
| Hampton, New Hampshire | 1 | 20 | | | | | | | | | | |
| New Castle, New Hampshire | 1 | 30 | | | | | | | | | | |
| Berwick, Maine | 1 | 50 | | | | | | | | | | |
| York, Maine | 1 | 40 | | | | | | | | | | |
| Connecticut | 1 | 20 | | | | | | | | | | |
| Middletown | 1 | 40 | | | | | | | | | | |
| New Haven | 1 | 26 | | | | | | | | | | |
| Wethersfield | 1 | 30 | | | | | | | | | | |
| England | | | 1 | 80 | | | | | | | | |
| **1703.** | | | | | | | | | | | | |
| Boston | 6 | 130 | | | | | 7 | 360 | | | 6 | 405 |
| Charlestown | | | | | | | | | | | 3 | 320 |
| Medford | | | | | | | | | | | 1 | 60 |
| Salem | 2 | 52 | | | 2 | 40 | | | | | 1 | 150 |
| Scituate | 5 | 146 | | | | | 4 | 182 | | | | |
| Newbury | 2 | 55 | | | | | | | | | | |
| Amesbury | | | | | | | 1 | 40 | | | | |
| Duxbury | 1 | 35 | | | | | | | | | | |
| Taunton | | | | | | | 1 | 50 | | | 2 | 150 |
| Plymouth | 1 | 30 | | | | | | | | | | |
| Weymouth | | | | | | | | | | | 1 | 130 |
| Manchester | | | | | 1 | 25 | | | | | | |
| Piscataqua, New Hampshire | 1 | 40 | | | | | | | | | | |
| Kittery, Maine | | | | | | | | | | | 1 | 100 |
| York | 2 | 60 | | | | | | | | | | |
| Hartford | 2 | 56 | | | | | | | | | | |
| **1704.** | | | | | | | | | | | | |
| Captured from enemy (*a*) | 1 | 15 | | | | | | | | | 2 | 200 |
| Boston | 7 | 225 | | | | | 6 | 305 | 1 | 50 | 10 | 840 |
| Charlestown | | | | | | | | | | | 2 | 220 |
| Salem | 1 | 30 | 1 | 80 | 1 | 20 | | | | | 2 | 250 |
| Scituate | 1 | 35 | | | | | 3 | 145 | | | 2 | 110 |
| Gloucester | 1 | 35 | | | | | 3 | 185 | | | | |
| Lynn | 1 | 50 | | | | | | | | | | |
| Rowley | 1 | 25 | | | | | | | | | | |
| Newbury | 2 | 65 | | | | | | | | | | |
| Amesbury | | | | | | | 1 | 40 | | | | |
| Duxbury | 1 | 35 | | | | | 1 | 50 | | | | |
| Taunton | | | | | | | | | 1 | 55 | | |
| Bristol | 1 | 15 | | | | | | | | | | |
| Weymouth | | | | | | | | | | | 1 | 100 |
| Piscataqua, New Hampshire | | | | | | | | | | | 2 | 180 |
| Newport, Rhode Island | | | | | | | 1 | 60 | | | | |
| Long Island, New York | 1 | 15 | | | | | | | | | | |
| Hartford, Connecticut | 1 | 34 | | | | | | | | | | |
| Newcastle, Pennsylvania | 1 | 50 | | | | | | | | | | |
| **1705.** | | | | | | | | | | | | |
| Captured from enemy | 1 | 20 | | | | | | | | | 1 | 100 |
| Boston | 2 | 60 | 1 | 50 | | | 8 | 525 | | | 8 | 880 |
| Charlestown | 2 | 55 | | | | | | | | | 4 | 450 |
| Salem | | | | | 1 | 25 | | | | | 4 | 620 |
| Scituate | 2 | 80 | | | | | 6 | 380 | | | 1 | 90 |
| Gloucester | 3 | 88 | | | | | 4 | 240 | | | 3 | 270 |
| Newbury | 2 | 60 | | | 1 | 50 | 2 | 95 | | | | |
| Plymouth | | | | | | | 1 | 50 | | | | |
| Weymouth | | | | | | | | | | | 1 | 120 |
| Hingham | 1 | 30 | | | | | | | | | | |

*a* Shallop.

| Places where built. | SLOOPS. | | PINKS. | | KETCHES. | | BRIGANTINES. | | BARKS. | | SHIPS. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. |
| **1705**—Continued. | | | | | | | | | | | | |
| Duxbury | 1 | 20 | | | | | | | | | 1 | 75 |
| Taunton | 2 | 55 | | | | | | | | | 1 | 120 |
| Marshfield | 1 | 40 | | | | | | | | | | |
| New Hampshire | | | 1 | 85 | | | | | | | 1 | 80 |
| Exeter | | | | | | | 1 | 48 | | | | |
| Piscataqua | | | | | | | 1 | 40 | | | | |
| Hampton | 1 | 20 | | | | | | | | | 1 | 70 |
| Manchester | | | | | | | | | | | 2 | 175 |
| Kittery, Maine | | | | | | | | | | | 2 | 450 |
| Bristol, Maine | | | | | | | 2 | 125 | | | | |
| Rhode Island | 3 | 120 | | | | | | | | | | |
| New Haven, Connecticut | 1 | 35 | | | | | | | | | | |
| Middletown | 1 | 50 | | | | | | | | | | |
| Stratford | | | | | | | 1 | 50 | | | | |
| **1706.** | | | | | | | | | | | | |
| Boston | 5 | 165 | | | | | 4 | 190 | | | 6 | 485 |
| Charlestown | 1 | 35 | | | | | 3 | 185 | | | 2 | 200 |
| Salem | 3 | 101 | | | | | 4 | 180 | | | 4 | 770 |
| Scituate | 2 | 70 | | | | | 3 | 195 | | | | |
| Gloucester | 5 | 185 | | | | | 6 | 360 | | | 1 | 60 |
| Newbury | | | | | | | 2 | 115 | | | 1 | 100 |
| Haverhill | 1 | 30 | | | | | | | | | | |
| Ipswich | 1 | 30 | | | | | | | | | 1 | 90 |
| Duxbury | | | | | | | 2 | 70 | | | | |
| Plymouth | 1 | 20 | | | | | 1 | 40 | | | | |
| Hingham | | | | | | | 1 | 40 | | | 1 | 160 |
| Taunton | 2 | 45 | | | | | | | 1 | 70 | 1 | 90 |
| Bristol | 1 | 35 | | | | | 2 | 135 | | | | |
| New Hampshire | | | | | | | | | | | 2 | 220 |
| Piscataqua | | | | | | | 2 | 100 | | | | |
| New Castle, New Hampshire | | | | | | | | | 1 | 70 | | |
| Manchester | 1 | 34 | | | | | | | | | | |
| Portsmouth | | | | | | | | | | | 2 | 155 |
| Kittery, Maine | 1 | 30 | | | | | | | | | 5 | 920 |
| York | 1 | 35 | | | | | 1 | 60 | | | | |
| Rhode Island | 1 | 30 | | | | | | | | | | |
| Tiverton | | | | | | | 1 | 45 | | | | |
| Connecticut | 1 | 40 | | | | | | | | | | |
| Guilford | 1 | 30 | | | | | | | | | | |
| Milford | 1 | 20 | | | | | | | | | | |
| Glastonbury | 1 | 18 | | | | | | | | | | |
| Lyme | 1 | 15 | | | | | | | 1 | 70 | | |
| **1707.** | | | | | | | | | | | | |
| Captured from enemy | | | | | | | 1 | 40 | | | 1 | 260 |
| Boston | 7 | 240 | | | | | 6 | 270 | 1 | 60 | 5 | 616 |
| Charlestown | 1 | 30 | | | | | 1 | 60 | | | 2 | 220 |
| Salem | 1 | 15 | | | 1 | 28 | 1 | 50 | | | | |
| Scituate | 2 | 60 | | | | | 2 | 130 | | | | |
| Gloucester | 3 | 90 | | | | | 3 | 220 | | | | |
| Newbury | 3 | 90 | | | | | 1 | 30 | | | | |
| Plymouth | 1 | 35 | | | | | | | | | | |
| Duxbury | 1 | 35 | | | | | | | | | | |
| Weymouth | 1 | 40 | | | | | | | | | | |
| Swanzey | | | | | | | | | | | 1 | 120 |
| Freetown | | | | | | | | | | | 1 | 120 |
| Hingham | 1 | 35 | | | | | | | | | | |
| Taunton | 1 | 40 | | | | | 1 | 55 | | | | |
| Bristol | 1 | 50 | | | | | | | | | | |
| Hampton, New Hampshire | 1 | 16 | | | | | 1 | 30 | | | | |
| Kittery, Maine | | | | | | | 1 | 40 | | | | |
| Connecticut | 1 | 35 | | | | | | | | | | |
| New Haven | 1 | 45 | | | | | | | | | | |
| Cow Neck, New York | 1 | 12 | | | | | | | | | | |

| Places where built. | SLOOPS. | | PINKS. | | KETCHES. | | BRIGANTINES. | | BARKS. | | SHIPS. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. |
| **1708.** | | | | | | | | | | | | |
| Captured from enemy | | | | | | | | | | | 1 | 120 |
| Boston | 7 | 245 | 1 | 80 | | | 2 | 140 | | | 9 | 1,020 |
| Charlestown | | | | | | | | | | | 6 | 685 |
| Salem | | | | | | | 1 | 60 | 1 | 60 | 2 | 260 |
| Scituate | 1 | 30 | | | | | | | | | 1 | 50 |
| Gloucester | | | | | | | 1 | 40 | | | | |
| Chebacco | 1 | 36 | | | | | | | | | | |
| Ipswich | 1 | 30 | | | | | 1 | 50 | | | | |
| Hingham | 1 | 30 | | | | | | | | | | |
| Lynn | | | | | | | 1 | 40 | | | | |
| Newbury | 3 | 100 | | | | | 1 | 60 | | | 3 | 590 |
| Swanzey | | | | | | | 1 | 50 | | | 1 | 170 |
| Duxbury | 2 | 45 | | | | | | | | | | |
| Bristol | 2 | 70 | | | | | | | | | | |
| Taunton | | | | | | | 3 | 200 | | | 1 | 120 |
| Piscataqua, New Hampshire | 1 | 18 | | | | | | | | | | |
| Hampton | | | | | | | | | 1 | 70 | | |
| Portsmouth | | | | | | | | | | | 1 | 140 |
| Exeter | | | | | | | | | | | 1 | 100 |
| York, Maine | 1 | 35 | | | | | | | | | | |
| Connecticut | 2 | 85 | | | | | 1 | 55 | | | | |
| England | 1 | 50 | | | | | | | | | 1 | 100 |
| **1709.** | | | | | | | | | | | | |
| Captured from enemy | | | | | | | | | 1 | 60 | 4 | 490 |
| Boston | 8 | 305 | | | | | 4 | 185 | | | 18 | 1,968 |
| Charlestown | 1 | 40 | | | | | | | | | 2 | 400 |
| Salem | 2 | 55 | | | | | 1 | 95 | 1 | 65 | 4 | 500 |
| Scituate | 2 | 50 | | | | | 1 | 40 | | | 1 | 70 |
| Gloucester | 5 | 128 | | | | | 1 | 70 | | | | |
| Lynn | | | | | | | 1 | 50 | | | | |
| Ipswich | 1 | 30 | | | | | | | | | | |
| Newbury | 1 | 40 | | | | | 1 | 20 | | | 2 | 230 |
| Swanzey | | | | | | | 2 | 110 | | | | |
| Duxbury | 2 | 60 | | | | | | | | | | |
| Hingham | 1 | 16 | | | | | | | | | | |
| Taunton | 1 | 25 | | | | | 1 | 70 | | | | |
| New Hampshire | | | | | | | | | | | 1 | 65 |
| Piscataqua | | | 1 | 80 | | | | | | | 5 | 910 |
| Connecticut | 1 | 30 | | | | | | | | | | |
| Bradford | | | | | | | 1 | 55 | | | | |
| Milford | 1 | 40 | | | | | | | | | | |
| Newfoundland | 1 | 40 | | | | | | | | | | |
| **1710.** | | | | | | | | | | | | |
| Captured from enemy | | | | | | | | | | | 6 | 900 |
| Boston | 7 | 175 | | | | | 7 | 300 | 1 | 70 | 18 | 2,060 |
| Charlestown | 1 | 30 | | | | | 1 | 50 | | | 2 | 400 |
| Salem | 3 | 90 | | | | | 2 | 150 | | | | |
| Scituate | 1 | 30 | | | | | 1 | 60 | | | | |
| Cape Ann | 1 | 25 | | | | | | | | | | |
| Gloucester | 6 | 180 | | | | | | | | | | |
| Lynn | | | | | | | 1 | 60 | | | | |
| Newbury | 6 | 195 | | | | | 1 | 30 | | | 1 | 200 |
| Duxbury | 2 | 55 | | | | | | | | | | |
| Plymouth | 3 | 75 | | | | | | | | | | |
| Milton | 1 | 40 | | | | | | | | | | |
| Hingham | | | | | | | | | 1 | 40 | | |
| Taunton | | | | | | | | | | | 1 | 120 |
| Piscataqua, New Hampshire | | | | | | | | | | | 2 | 160 |

| Places where built. | SLOOPS. | | PINKS. | | KETCHES. | | BRIGANTINES. | | BARKS. | | SHIPS. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. |
| **1710**—Continued. | | | | | | | | | | | | |
| Kittery, Maine | | | | | | | 2 | 120 | | | 2 | 360 |
| Rhode Island | 1 | 25 | | | | | | | | | | |
| Newport | 1 | 30 | | | | | | | | | | |
| Connecticut | 1 | 25 | | | | | | | | | | |
| New Haven | 1 | 40 | | | | | | | | | | |
| England | | | | | | | | | | | 1 | 110 |
| **1711.** | | | | | | | | | | | | |
| Captured from enemy | 3 | 60 | | | | | | | | | 4 | 350 |
| Boston | 7 | 240 | | | | | 5 | 285 | | | 8 | 740 |
| Charlestown | | | | | | | | | | | 2 | 260 |
| Salem | 2 | 80 | | | | | 1 | 55 | | | 2 | 170 |
| Scituate | 1 | 30 | | | | | | | | | 2 | 140 |
| Cape Ann | 3 | 90 | | | | | | | | | | |
| Connihasset | | | | | | | | | | | 1 | 60 |
| Newbury | 4 | 150 | | | | | | | 1 | 40 | 1 | 70 |
| Salisbury | 1 | 40 | | | | | | | | | | |
| Lynn | 2 | 75 | | | | | | | | | | |
| Weymouth | 1 | 50 | | | | | | | | | | |
| Plymouth | 2 | 60 | | | | | | | | | | |
| Marshfield | | | | | | | | | | | 1 | 70 |
| Bristol | 1 | 50 | | | | | | | | | | |
| Taunton | 1 | 30 | | | | | 1 | 50 | | | *a* 3 | 1,080 |
| Exeter, New Hampshire | | | | | | | | | | | 1 | 130 |
| New Castle, New Hampshire | | | | | | | | | | | 1 | 70 |
| Newport, Rhode Island | | | | | | | | | | | 1 | 55 |
| Tiverton | 1 | 14 | | | | | | | | | | |
| Kittery, Maine | 1 | 25 | 1 | 80 | | | 1 | 65 | | | 3 | 470 |
| York, Maine | 1 | 55 | | | | | | | | | | |
| New London | 1 | 40 | | | | | | | | | 1 | 120 |
| Wethersfield | 1 | 45 | | | | | | | | | | |
| **1712.** | | | | | | | | | | | | |
| Captured from enemy | 3 | 72 | 1 | 80 | 1 | 15 | | | | | 3 | 310 |
| Boston | 10 | 370 | | | | | 2 | 130 | | | 14 | 1,355 |
| Charlestown | | | | | | | 2 | 120 | | | 1 | 200 |
| Salem | 4 | 170 | | | | | | | | | 1 | 150 |
| Scituate | | | | | | | 3 | 140 | | | | |
| Cape Ann | 1 | 30 | | | | | | | | | | |
| Newbury | 4 | 145 | | | | | 1 | 45 | | | 3 | 300 |
| Duxbury | 2 | 50 | | | | | 1 | 45 | | | | |
| Swanzey | 1 | 35 | | | | | 1 | 50 | | | 1 | 80 |
| Plymouth | 3 | 100 | | | | | | | | | | |
| Hingham | 2 | 35 | | | | | | | | | | |
| Dighton | | | | | | | | | | | 1 | 70 |
| Exeter, New Hampshire | 1 | 30 | | | | | | | | | | |
| Kittery, Maine | 3 | 115 | | | | | 1 | 50 | | | 1 | 120 |
| Newport, Rhode Island | 2 | 85 | | | | | | | | | | |
| New Haven, Connecticut | 1 | 50 | | | | | | | | | | |
| Fairfield | 1 | 25 | | | | | | | | | | |
| **1713.** | | | | | | | | | | | | |
| Captured from enemy | 1 | 15 | | | | | | | | | 1 | 80 |
| Boston | 11 | 330 | | | | | 5 | 305 | | | 18 | 1,860 |
| Charlestown | 2 | 75 | 1 | 80 | | | | | | | 6 | 645 |
| Salem | 1 | 30 | | | | | | | | | | |
| Scituate | 1 | 30 | | | | | | | | | 1 | 70 |
| Ipswich | 1 | 30 | | | | | 1 | 100 | | | | |
| Gloucester | 2 | 68 | | | | | | | | | | |
| Lynn | 1 | 30 | | | | | | | | | | |
| Newbury | 9 | 275 | | | | | 5 | 265 | | | [illegible] | 135 |
| Duxbury | 1 | 30 | | | | | | | | | | |

*a* Two of these ships are registered as 600 tons and 400 tons respectively. This is no doubt a great exaggeration.

| Places where built. | SLOOPS. | | PINKS. | | KETCHES. | | BRIGANTINES. | | BARKS. | | SHIPS. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. | No. | Tonnage. |
| **1713**—Continued. | | | | | | | | | | | | |
| Rowley | 1 | 35 | | | | | | | | | | |
| Plymouth | 1 | 30 | | | | | | | | | | |
| Marshfield | 1 | 30 | | | | | | | | | | |
| Bristol | | | | | | | | | | | 2 | 150 |
| Hingham | 1 | 50 | | | | | | | | | | |
| York, Maine | 1 | 30 | | | | | | | | | | |
| Kittery, Maine | 3 | 150 | | | | | | | | | 1 | 50 |
| Connecticut | 1 | 20 | | | | | | | | | | |
| Haddam | 1 | 25 | | | | | | | | | | |
| **1714.** | | | | | | | | | | | | |
| Boston | 9 | 325 | | | | | | | | | 16 | 1,575 |
| Charlestown | 2 | 65 | | | | | | | | | 3 | 330 |
| Dorchester | 1 | 50 | | | | | | | | | | |
| Salem | | | | | | | | | | | 1 | 90 |
| Newbury | 3 | 120 | | | | | 2 | 70 | | | 4 | 340 |
| Haverhill | 1 | 50 | | | | | | | | | | |
| Plymouth | 1 | 75 | | | | | | | | | | |
| Dighton | | | | | | | | | | | 1 | 80 |
| Kittery, Maine | 1 | 30 | | | | | | | | | | |
| York | 1 | 35 | | | | | | | | | | |
| East Haven, Connecticut | 1 | 20 | | | | | | | | | | |

Of the 1,332 vessels American built in the above list, seven-eighths were owned in Boston. The following 239 were built for foreign owners, every class of vessel being comprised in the list, the majority being ships:

| | |
|---|---|
| For owners in the British isles | 169 |
| For owners in Barbadoes | 21 |
| For owners in Antigua | 9 |
| For owners in Nevis | 7 |
| For owners in Montserrat | 11 |
| For owners in Jamaica | 6 |
| For owners in Fayal | 2 |
| For owners in Madeira | 1 |
| For owners in Teneriffe | 1 |
| For owners in Oporto Royal | 3 |
| For owners in Saint Christopher | 9 |

The names of these early vessels were expressive. Endeavour, Industry, Tryall, Speedwell, Happy Return, Brother's Adventure, Beginning, Blessing, Hopewell, Goodspeed, Unity, and Friendship were popular titles repeated a hundred times in vessels owned on the same coast. A great many were named after members of the owners' families, and a very few had names like Sea Flower, Dispatch, Dove, Lark, Swallow, Swift, and Dragon. Some of the large vessels were named Bedford Galley, Diamond Galley, Leopard Galley, Dudley Frigate, Granville Frigate, and Boston Merchant, Port Nevis Merchant, Antigua Merchant, etc.

Arrivals and departures of vessels were also kept at Boston during the years above named, and show that large sloops left Boston chiefly for points on the American coast. Pinks and ketches were also engaged in the coasting trade, and a few cleared from time to time for Newfoundland, apparently for fishing on the banks. The craft engaged in trading to the West India islands and to Europe were pinks, ketches, barks, and ships, but occasionally sloops sailed for all these destinations.

Small as were the merchantmen of that day, they carried large crews and usually were armed with a number of cannon, a circumstance which affected their form, as they were so round on the floor that the placing of a number of heavy guns on the upper deck was liable to make them crank. A remedy for this was sought in making the hull narrower on deck than on the load water-plane, the top sides often falling home several feet. This brought the deck-weights in toward the center of the ship, and did much toward making her stiff in a sea way. The record of clearances from Boston shows how well armed some of the merchantmen were. A few cases are quoted:

Pink Swallow, for Charleston, South Carolina, 60 tons, 10 men, 2 guns.
Ship Two Brothers, for Jamaica, 140 tons, 19 men, 14 guns.
Ship Swallow, for Barbadoes, 150 tons, 18 men, 12 guns.
Pink Mary, for Barbadoes, 60 tons, 8 men, 4 guns.
Pink Return, for Madeira, 40 tons, 9 men, 4 guns.

Ship Richard, for London, 100 tons, 14 men, 12 guns.
Pink Olive Branch, for Barbadoes, 45 tons, 7 men, 3 guns.
Ketch Hopewell, for Madeira, 40 tons, 7 men, 3 guns.
Ship Trident, for Barbadoes, 140 tons, 15 men, 14 guns.
Pink Richard and Margaret, for Barbadoes, 40 tons, 10 men, 6 guns.
Ship Samuel and Thomas, for London, 120 tons, 16 men, 6 guns.
Brigantine Supply, for Leeward islands, 15 tons, 5 men, 2 guns.
Brigantine Resolution, for South Carolina, 30 tons, 5 men, 2 guns.
Ship James, for Jamaica, 80 tons, 12 men, 7 guns.
Pink Samuel, for Jamaica, 60 tons, 10 men, 6 guns.
Ship Prudent Sarah, 100 tons, 14 men, 10 guns.
Ship Francis and Dorothy, for Nevis, 200 tons, 20 men, 20 guns.
Ketch Fidelity, for Bilbao, 35 tons, 7 men, 2 guns.

The necessity for carrying such an armament on merchant vessels was removed in after years, when America had become a free and independent nation, as much by the treaties and the influence of the United States as by any other cause.

Various contracts for the construction of vessels are on file in the valuable colonial records which are yet preserved in the United States. One of 1661 at Gloucester, Massachusetts, was for a "new ship", 68 feet long on the keel, 23 feet beam from outside to outside, 9½ feet deep in the hold, with two decks. From the mainmast to the forecastle the upper deck was to be 5 feet high, with a fall of 15 inches at the forecastle and a rise of 6 inches at the mainmast for the quarter-deck. The cabin was to be 6 feet high. The price was £3 5*s.* for every ton of burden, and a part of the payment was to be made with £150 worth of muscovado sugar, reckoned at 2 pence per pound at Barbadoes.

A contract of 1695 at Charlestown, Massachusetts, called for a "new square-sterned ship" of best white or black oak, with pine decks and houses, having two flush decks, a half-deck, round house, forecastle, and head, and of the following dimensions: Keel, 82 feet long; breadth on the frame timbers at the main beam, 25½ feet, with 4-inch plank in addition; depth of hold, 11 feet; rake of stem, 18 feet, 6 feet to be at a foot rise from the keel. Her scantling and details were as follows: Keel, 12 inches square, with a 3-inch shoe; keelson, 12 by 16 inches; stem, either 14 or 16 inches, according as the stuff could be obtained; stern-post, 12 by 24 inches, with a false stern-post of 18 inches to run from the keel to the wing transom; wing transom, 14 by 28 inches; the other transoms, 12 inches; a large knee to unite the stern-post to the keel, with arms 7 and 9 feet long; the floor timbers of the frames to be sided 12 inches at the keel and molded 9½ inches at the floor heads, each timber being 18 feet long; the lower foot-hooks (or futtocks) to fill up between the lower timbers and have a 7-foot scarf, being 12 inches broad over the keel, and running up 2½ feet above the lower or gun-deck; the top timbers, stepping on the lower futtock heads, molded 7½ inches at the heel and 3½ inches at their heads, and sided 7 or 8 inches; between decks, 6 feet high; the outside planking, 3-inch; garboards and channel streaks, 4½ and 4 inches; the lower wales, 7 inches; the ceiling was 3 inches thick, with 2 streaks of 4-inch at the rung-heads, 2 more for middle bands of 4-inch, and a 4- and 5-inch clamp; beams of the gun-deck from 14 to 17 inches broad by 11 inches deep, spaced 4½ feet apart, with carlines, and two knees at each end; water-ways of 4-inch oak, and the rest of the decking 3-inch; the spirketing, 4 by 18 inches; 4-inch clamps to the upper deck; upper deck beams, 9 inches deep and 5 feet apart, with carlines, and with one lodging and one hanging knee; the ceiling between decks, 2½-inch plank; water-ways, 3-inch and 2-inch oak; decking, 2-inch deal; bulwark planking, 2 inches; rails, 4½ inches thick; as many gun-ports as the owners should require; 11-inch wing-transom knees, with arms 6 and 11½ feet long, the other transoms double-kneed with 10-inch knees; beams of the poop-deck, 4½ by 8 inches, with 2-foot spaces between them and 3-inch water-ways; beams of the round-house, 4 by 7 inches, 2 feet apart; 7 breast-hooks, with arms 8 feet long, molded 14 inches; a step for the foremast, 16 feet long, 2½ feet broad, and a similar step for the mainmast; rudder, 18 inches at the head, 20 inches deep, with tiller, drum-head, capstan, and windlass; mainsail and foretop-sail sheet-bits; a pair of small quarter-galleries; bulkheads; a complete set of masts and yards, the vessel finished in all respects down to a cleat, all the materials to be provided by the builder, except iron work, nails, and carvers' and joiners' work; the fastenings to be chiefly with treenails of oak, and the vessel to be built in one year's time. The contract price was £4 5*s.* per ton, the tonnage to be determined as follows: After multiplying her length, breadth, and half-breadth for the depth, the product was to be divided by 95. £100 was to be paid down on signing the contract, the remainder to be paid from time to time, £200 being reserved until delivery of the ship. Sums amounting to £985 were indorsed on the contract, which, with the £200 on delivery, made the cost of the vessel about £1,185. Her carpenters' measurement was 276 tons; her real carrying capacity was very nearly the same. She would register under our present rules about 180 or 190 tons. She was a two-master, with bowsprit, and was either a brigantine, a brig, or a bark, as the names were then understood. These details give a pretty fair idea of the vessels of her size at that time.

Another contract was for a square stern ship in 1700 at Boston having two decks, a half- or poop-deck, round-house, forecastle, and head. She was to be 72 feet long on the keel, the stem raking 17 feet and the stern-post about 2 feet, 24½ feet wide at the main beam, and 11 feet deep in the hold, with a height of 4 feet between decks. Her scantling were about the same as in the last-named contract. She would have been of about 222 tons, carpenters' measurement, and the contract price was £3 12*s*. per ton. Money was so scarce in America at this time that it was a common practice to pay for ships in goods, and one has been known to be paid for almost entirely in calicoes.

A third may be mentioned, dated in 1701, for "a new vessel, barque, or brigantine" 45 feet long on the keel, 18½ feet wide, 8½ feet deep in the hold, one deck, 4½-foot waist, quarter-deck, cabin, and forecastle. The stem was to rake 12½ feet. There were to be three gun-ports on each side and two in the stern. The contract called for white oak throughout, except for decking and houses, which were to be of white pine. The price was 53*s*. per ton, carpenters' measurement; and £40 was to be paid down at the signing of the contract, as much more at the laying of her deck, and the rest on delivery of the vessel. She was of about 60 tons.

About the year 1700 the ketch and the pink began to be less preferred than in previous years, and by 1715 they were not built for trading purposes to any extent. These vessels were round-sterned, easy to build, and not expensive, but they lacked a feature much needed in a period when trading ships had to fight: there was no room in the stern for the convenient working of cannon pointing right aft, and the round stern was abandoned for a so-called square stern, which at first did not overhang as in modern vessels. Below water the stern was sharp, but above water it was about the shape of the end of a barrel until it reached the deck, when it ran up with straight sides to accommodate the galleries and houses. While this change was going on the positions of the masts of the ketch were changed, both being brought farther forward, and the light bonaventure mast aft was enlarged until it became in reality the mainmast of the vessel. This mast carried a lug or lateen sail below and sometimes a square sail above, the foremast having square sails only and the bowsprit two or three jibs and often a sprit sail. A square sheet of canvas hung below the bowsprit on a yard, and thus changed the ketch became a brig or brigantine, and its former name was dropped. The new name was of European derivation. After 1745 the schooner became a popular rig in America for coasting vessels of any size, and also for foreign voyages of moderate length.

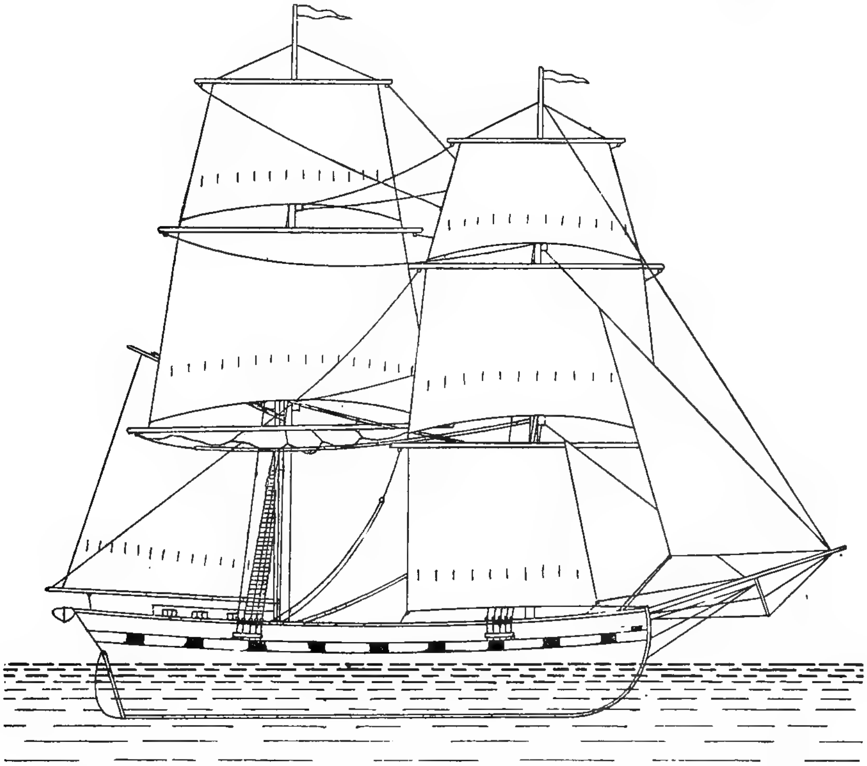

Fig. 27.—A Snow of the early years of the American republic.

One variety of the brigantine was called the snow (Fig. 27), a style of vessel built from time to time from 1700 to 1800, but it might as well have been called a brig as anything else, as its only marked peculiarity was that the fore-and-aft sail on the mainmast was a regular sloop sail, spread by boom and gaff, its luff or fore edge being attached by hoops to a third small mast, placed close to the mainmast and in contact with it, heeling on the deck and having its head attached to the after part of the maintop. Substantially the vessel was what we would call a full-rigged brig, and the name "snow" was never much used. In the expedition from Massachusetts for the capture of the great fort at Louisburg, in Canada, in 1745, the American fleet was composed of 3 ships, 3 snows, 1 brig, and 3 sloops, with a number of whale-boats.

The hulls of that day were round bowed and broad beamed. It was a popular fashion to curve the stem above the hawse holes backward, like the bow of an ancient Dutch galliot, and to dispense with any cutwater or head; but this fashion went out of vogue after independence, as there was little lifting power in such a bow, to say nothing of looks. Americans afterward made their bows flaring at the top. The broadest part of the hull was one-tenth the length forward of amidships. The topsides always had more or less of a fall home, while the fore foot was cut away under water and the stern-post raked 1, 2, or 3 feet.

The sloops of 1700 and for fifty years afterward were large boats for their rig. Whaling and the carrying of firewood along the coast had the effect to develop them, and many cruised back and forth in trade across the Atlantic. It is said that before the Revolution a regulation of England allowed lumber to be imported to the mother country only in sloops, which was one reason for their large size, a sloop built on the Kennebec in 1772 registering 140 tons. These vessels carried one and two square topsails and two jibs when bound on long voyages.

Ship-building flourished at Philadelphia, Baltimore, and Charlestown to some extent before the revolutionary war. Vessels were fitted out by their merchants chiefly for foreign trade, and while not remarkable for number the shipping of these ports was well built and well modeled. Philadelphia was always active in the West India trade, and at one time had almost entire possession of the East India trade to this country.

Each period of our national history has had its peculiarly profitable industry, and before the Revolution ship-building was the one which took nearly the first rank with us. By 1760 from 300 to 400 trading vessels were being built annually in the different provinces, to say nothing of a multitude of small boats for fishing along shore. The coast from New York harbor to Eastport, Maine, was one long row of ship-yards, and wherever there was a village planted by the sea there some vessel was seen in course of construction. Workmen were drawn here from England, much to the disturbance of the master carpenters of that kingdom, and the latter asked parliament more than once in that period not to encourage America in the production of shipping, because of the emigration to which it led. The industry was a valuable one for America, as a large part of the tonnage built was for foreign owners, and the constant exportation of ships brought large sums of money annually to a country where coin was scarce and in great demand. The advantages enjoyed by our ship-builders were, in the first place, cheap timber, low wages, and long days, the men toiling in the yards from sunrise to sunset; and, secondly, the possession of great fisheries, a good foreign commerce, a parliamentary law forbidding foreign-built ships to bring foreign goods to any of our provinces except from their own home ports, and a passion for foreign trade on the part of American merchants, that field of enterprise being the most profitable one in which they could employ their capital. The magnitude that ship-building had attained a few years before the Revolution is illustrated by a report to the house of commons in 1792, in which appears the following information: In 1769 the colonies built and launched 389 vessels, 113 square-rigged and 276 sloops and schooners, of an aggregate burden of 20,001 tons. Of these Massachusetts (including Boston and Salem) provided nearly one-half, New Hampshire and Rhode Island the next largest number, while New York had only 5 square-rigged vessels and 14 sloops and schooners, measuring in all 955 tons. Pennsylvania owned 1,344 tons, Virginia 1,249 tons, North and South Carolina 1,396 tons, and Connecticut 1,542 tons, while Georgia had 1 sloop and 1 schooner, whose combined measure was only 50 tons. In 1769 the entrances to all the ports of the present United States amounted to 332,146 tons and the clearances to 339,302 tons, of which 99,121 tons cleared for Great Britain, 42,601 for southern Europe and Africa, 96,382 for the British and foreign West Indies, and 101,198 for the continent of America and the Bahamas. The aggregate value of the whole imports amounted to £2,623,412, and the exports to £2,852,441, of which Great Britain sent £1,604,975, receiving in return £1,531,516.

During the Revolution ship-building was nearly suspended. English cruisers hovered near our coasts and captured and destroyed large numbers of vessels, the whaling and fishing fleet being almost annihilated. Foreign trade suffered the same fate. Raids were made on various coast towns and the shipping in port was burned; it was not safe to send anything except an armed vessel to sea, and few, except privateers intended especially for preying upon English merchantmen, were fitted out at any American port. A great part of the idle fishing and merchant fleet being employed in privateering in that war, for the time being it was a profitable field for them, and while the losses to their owners were large at times, their gains were sometimes immense, little armed sloops frequently capturing large merchantmen. The ships of one Newburyport merchant who built the first privateer of the Revolution took 23,360 tons of shipping and 2,225 men during her career, the prizes, with their cargoes, selling for 3,950,000 specie dollars. Four frigates and three sloops-of-war were built for Congress, familiarizing our people with the idea of producing powerful vessels of large class, and as the war went along large privateers were built by many merchants, especially in New England, Philadelphia, and Baltimore.

When the war ended many ships were too large for the coasting and other employments in which the bulk of our tonnage had been previously employed, and were no more fit for the small shopping business along the coast and to the West Indies than the great Californiamen of to-day would be for yachting; but while retaining a part at least of their armament, these ships were speedily converted into merchantmen, and were sent, from the necessities of the case, to China and distant parts of the world. It was a Baltimore vessel which, in 1785, sailed into the Canton river and first displayed the new flag there, returning with a cargo of teas, chinaware, silks, etc. In September, 1788, Captain Read, of an American ship, returned to Philadelphia from a voyage to China. The ship Atlantic, of Salem, in 1788, was the first to display the flag in Surat, Bombay, and Calcutta. The peaceful victories of American vessels in the following twenty-five years in the trade to these distant lands sprang, in great measure, from the possession of large privateers at the close of the Revolution, and were also due, in part, to the new conditions under which shipping enterprise had to be conducted after peace was declared. After 1783 American ships were foreign vessels in the eye of British law. Cut off at once from a part of the trade which they had enjoyed before the Revolution, they were compelled to go into the fields of employment which were open to them, and the East India and Asiatic trades being free, our larger merchantmen went into them at once.

Nothing else could have been expected than that American ships should come under the operation of the British navigation act immediately after peace. Nevertheless John Adams and other representatives of Congress were sent to London to endeavor to negotiate such a treaty of commerce as would secure as nearly as possible the advantages which had been enjoyed before the war; but they were unable to negotiate a treaty, and failed even to secure equality as to tonnage taxes. The same repulse was met with at the courts of France and Spain, and the American government was compelled to pass retaliatory laws. The first Congress under the Constitution met in April, 1789. July 20, 1789, two acts became laws which were intended expressly to secure fair play for American shipping abroad. They provided that on each entry from a foreign port an American vessel should pay a tax of 6 cents per ton, a vessel built in America and owned abroad 30 cents per ton, and a foreign vessel 50 cents per ton. Goods imported in American vessels were to pay 10 per cent. less duty, and India and China goods from 9 to 25 per cent. less duty. These laws were effective in securing commercial treaties and enlarging the field of employment for American ships.

The sixteen years that followed, ending with the war of 1812, were perilous times for American ships. English policy excluded us from a profitable trade with the British West Indies, and the same policy led to the searching of our merchant vessels for British subjects, the capture and confiscation of our vessels and cargoes, and the detention of large numbers of them for evasions of English law. England, France, and Holland were at war through a greater part of that time, and this led to other troubles. If the right of neutral nations to trade peacefully with nations with which they were themselves at peace had been fully established, the ships of the new republic would have become the common carriers of the whole world; but to prevent us from gaining that advantage, as well as to injure each other, England and France reciprocally issued a number of famous decrees and orders, each one forbidding trade with her rival, and these orders were vigorously enforced by the detention, seizure, and confiscation of hundreds of American vessels and cargoes and millions of dollars' worth of property—a policy which certainly had the desired effect. In that period ship-building thrived better than did ship-owning. A great many privateers were built, and to replace the large losses of tonnage new vessels had to be produced continually; but there were years when the industry languished, in consequence of the loss of capital and the embargoes and non-importation acts passed by our own government. The news of the peace of 1814 had an instant effect for good. Many privateers were building in Maine, Massachusetts, and elsewhere, and when the news came the ship-carpenters dropped their tools to rejoice over the ending of the disastrous war, but took them up again next day to complete their ships for the new mission of peaceful trade. Ax, hammer, and calking-iron were put to work in scores of yards that had been long lying idle. The maritime world was in excitement, as after so long a paralysis of commerce the ships first in the field were sure to earn the best freights and the cargoes first imported to bring the most profitable returns. Everybody began to think of ships, and in less than a week after receipt of the news of peace ship-building sprang into activity on every part of the coast engaged in the industry.

March 3, 1815, Congress passed a law forbidding any foreign vessel to bring goods to America, except from the country to which it belonged. This act was the legislative weapon by whose unsparing use we were enabled in the course of a few years to obtain from every foreign nation a treaty of reciprocity in trade and to break down, one by one, the vexatious obstructions of foreign law to the free enterprise of American citizens in the carrying trade of the world. The legislative annals of Congress contain the complete record of this struggle and the victory. After 1815 our maritime career was one of great prosperity.

A permanent impression had been made upon the form and rig of American vessels by forty years of war and interference. It was during that period that the shapes and fashions which prevail to-day were substantially attained. The old high poop-decks and quarter galleries disappeared with the lateen and the lug sail on brigs, barks, and ships; the sharp stern was permanently abandoned; the curving home of the stem above the hawse holes went out of vogue, and vessels became longer in proportion to beam. The round bottoms were much in use, but the tendency toward a straight rise of the floor from the keel to a point half way to the outer width of the ship became marked and popular. Hollow water-lines fore and aft were introduced; the fore foot of the hull ceased to be cut away so much and the swell of the sides became less marked; the bows became somewhat sharper and were often made flaring above the water, and the square sprit sail below the bowsprit was given up. American ship-builders had not yet learned to give the vessels much sheer, however, and in the majority of them the sheer-line was almost straight from stem to stern. Nor had they learned to divide the topsail into an upper and a lower sail, and American vessels were distinguished by their short lower masts and the immense hoist of the topsail. The broadest beam was still at two-fifths the length from the bow. Hemp rigging, with broad channels and immense tops to the masts, was still retained; but the general arrangement and cut of the head, stay, square, and spanker sails at present in fashion were reached. The schooner rig had also become thoroughly popularized, especially for small vessels requiring speed, and the fast vessels of the day were the brigs and schooners, which were made long, sharp on the floor, and low in the water, with considerable rake to the masts. The changes made in those forty years of perilous enterprise were chiefly introduced for the sake of speed and ease in handling the sails and the vessel. A merchantman was always liable to be called on to fight or to run away, and quickness in maneuvering and ability to slip away from an armed cruiser were qualities of the first importance. Builders were called on to study models and rig with reference to the needs of the times, and the result was that after the war of 1812 Americans had the ablest and smartest vessels in the world. Many ideas adopted by our builders were borrowed from the French, among whom naval architecture had been most critically and scientifically studied. The French frigates sent to assist us in the Revolution were closely studied, and when taken out of water at Salem and elsewhere for repair their lines were sometimes copied and frequently imitated in American-built ships. Many men-of-war and merchantmen were built on the models of these frigates, and it is possible that a part of the admiration expressed by the French for American frigates built during the Revolution, especially for the Alliance, which was the pride and favorite of our navy, was due to that fact. Our vessels got rid of much of their old clumsy shape and look, and improved materially in speed and beauty and in all other desirable qualities. In the timber employed for building there was no change, except to employ more chestnut, locust, and some live oak, the latter being brought from the south. White oak was the main dependence for frames, center work, outside planking, water-ways, rails, etc., and was much used for ceiling and for beams. Pitch-pine also came into use after awhile, and was first used for beams, afterward for ceiling, and then for keelsons. White pine comprised the rest of the ship, except the upper spars, which were made of spruce, on account of the need of lightening the top gear as much as possible. Treenails, on account of the expense of iron, were liberally used for fastening. The principal part of the iron of our ships had to be imported, and this included not only the bolts, the bar-iron for the fittings of the spars, and much of the other iron work of the ship, but also the rigging chains and the anchors; afterward, when iron chain cables were introduced, they, too, were at first imported. After the termination of hostilities, when our merchant marine had fairly settled down to peaceful enterprise and heavy freighting, our ships lost some of the jaunty character acquired from 1775 to 1814, but that was only because the builders were free to adopt the models best suited to the trades in which the vessels were to be employed, and not because they had forgotten the lessons taught by the previous years of war.

Within a few years after 1814 the foreign carrying trade of America had nearly all been gathered up by home-built vessels, and this was due to the superiority of the ships themselves, the vigor with which our citizens threw themselves into foreign trade, and the protection afforded them by our laws. There were no railroads then, no steamboats, no mines of gold and silver, no cattle ranches, no great and general development of manufacturing industry. Foreign trade was the field for the most profitable employment of our capital, as nearly all our manufactured goods had to be bought in Europe. Travel upon the sea was entirely carried on in sailing vessels. Immigration, which was only at the rate of about 8,000 a year before 1825, rose to over 20,000 a year in 1830, and to 300,000 a year about 1850. The fisheries were prolific and profitable, producing a vast surplus that had to be marketed abroad; and our fertile fields and wonderful forests yielded a great variety of important products, which were in large demand abroad, while on the other hand the teas, coffees, spices, fruits, silks, and wares of the far East were in larger demand among our people. The persistent efforts of the government at Washington having gained, little by little, fair and equal rights for our ships abroad, all the conditions were favorable to foreign trade, and, so far at least as shipping is concerned, our national history from 1814 to 1861 records little except the varying phases of a peaceful development of a profitable foreign commerce, and of the naval art to which it gave steady and paying employment.

Ships naturally took the shapes which fitted them best for the goods they had to carry. The cotton ships were a special class. They were sent out to carry bales of cotton and hogsheads of tobacco from the southern states to Europe and bring back salt, iron, and general manufactures. Great capacity was the prime consideration. Before the powerful compressing apparatus of to-day was invented a gross ton of cotton occupied about 100 cubic feet of space, the reduction to 60 cubic feet being a late achievement. To carry a good cargo of this bulky commodity, therefore, required a large vessel; and as a large ship is expensive, owners prudently studied how to gain the capacity they wanted without at the same time incurring new cost of operation. Tonnage taxes and port charges were the expenses most dreaded, as being the least within the control of owner or master after the vessel was launched. Advantage was taken of the laws for the measurement of vessels to reduce the official tonnage of the cotton ships considerably, (*a*) and the rule of the law (adopted from the English practice),

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*a* May 6, 1864, Congress established a new system of measurement, in accordance with the modern English practice, and American vessels are now measured under the tonnage law of that date. The register length of a vessel is the length from the fore part of planking on the stem to the after part of the rudder-post (after part of the main stern-post in screw steamers), measured on the upper deck, or, in the case of three-deck vessels, on the second deck from below. The beam is the broadest part from outside to outside of planking. The depth of hold is measured from the under side of the deck plank to the floor of the hold. The tonnage of the vessel is only an expression of her actual internal cubical capacity in tons of 100 cubic feet each. It does not express her carrying power; it is merely a standard of measurement. The cubical capacity of the hull is ascertained by what is called "Simpson's one-third rule". The capacity of the houses on deck, the space under the poop-deck, and all other inclosures, is next ascertained, and the total is the vessel's gross tonnage. The adoption of the new measurement law has left builders absolutely untrammeled as to models. It may be stated, incidentally, that the cargo-carrying power of American sailing ships is about 1½ times their register tonnage. A ship of 2,000 tons register will carry about 3,000 tons of dead-weight cargo.

mathematically expressed, was as follows (L being the length from the fore part of the stem to the after part of the stern-post, measured on deck; B the breadth from outside to outside of planking at the broadest part of the vessel; D the depth of hold from the plank of the deck to the ceiling of the hold, assumed to be $\frac{1}{2}$ B.):

$$\frac{(L - \frac{3}{5} B) \times B \times \frac{1}{2} D}{95}$$

This was the rule for double-decked vessels. In single-decked vessels the actual depth was taken, instead of considering one-half the beam as the depth; the old divisor of 94 was superseded by 95, the latter being more accurate.

This was very nearly the old European rule for obtaining the actual tons weight of cargo the vessel would carry. It was, at best, only a rough approximation, as the ship often carried more than her official tonnage, often less. The reasonable accuracy of this rule depended entirely on closely following the model of the old merchantmen of about 1700. In those ancient vessels the stem raked forward from the keel about three-fifths of the length of the vessel's main beam, and, as the extreme bow thus had no buoyancy of its own, it was a part of the vessel not appropriated for cargo. The available depth of old vessels was about one-half the beam. A ton of goods occupied from 40 to 42 cubic feet of space, and the rule was an effort to arrive at a fair statement of the tons of goods that could be stowed within a vessel, or the part of the displacement which was due to the weight of cargo alone. Builders of cotton ships were able to turn the inaccuracy of the law to their own advantage and lengthened out the bow under water, so that the deduction of three-fifths of the beam made the tonnage length less than the actual length. They also made the hold much wider at the water than on deck, and much deeper than one-half the beam, and also constructed large poop and top-gallant-forecastle decks, covering nearly the whole top of the ship, open, however, amidships, which were good for the stowage of 200 or 300 bales of cotton, which, nevertheless, escaped tonnage taxation. The result was a roomy ship, with the old-fashioned falling home of the top sides, which passed muster at the custom-house as of far less capacity than she really had. The government did not get its just dues, but shipping was benefited. Boston, Kennebunk, and Bath built a great many vessels of this model, and the builders of those places won the reputation in time of producing the largest ships of a given official tonnage in America. In the tables of tonnage built in the United States from 1814 to 1861 some allowance must be made for this fact, as the actual amount of tonnage produced was larger than the tables show. The bark Saone (Figs. 28 and 29), built at Bath, Maine, in 1846, the model of which has been preserved, is a fair specimen of the "kettle-bottoms", as they were called, of that period.

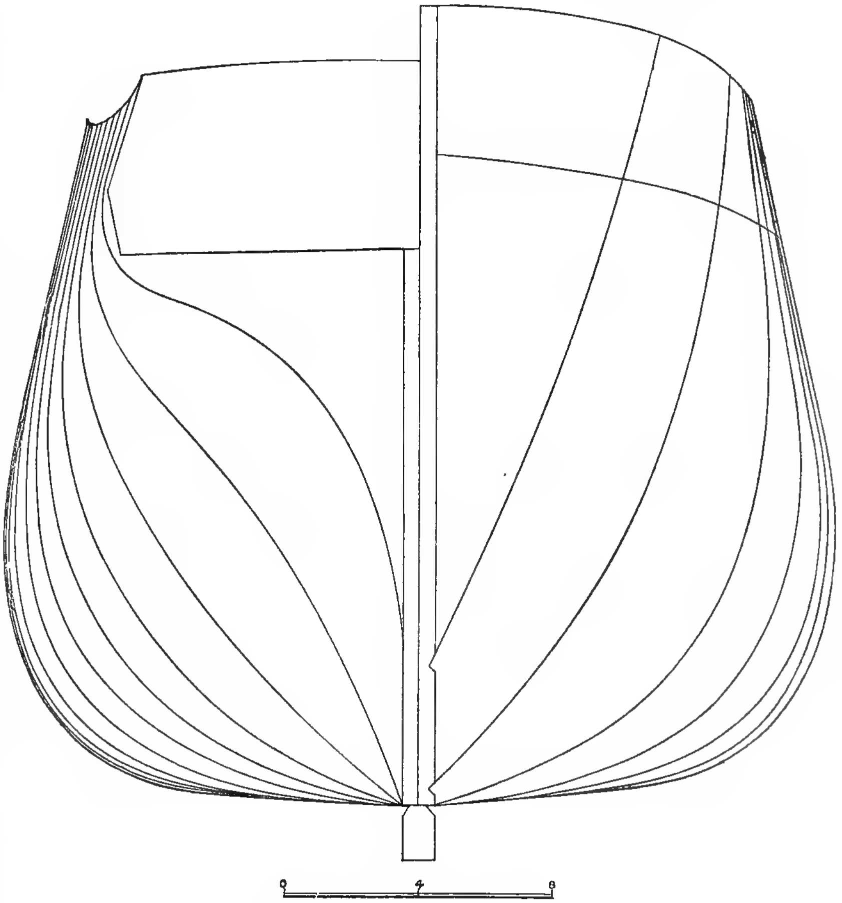

Fig. 28.—BARK SAONE, BUILT AT BATH, MAINE, IN 1846, FOR WILLIAM A. REA, OF BOSTON; REGISTER, 292 TONS.

Length on deck from stem to taffrail, 116$\frac{5}{8}$ feet; breadth of beam, molded, at upper deck, 21$\frac{3}{4}$ feet; depth, molded, 16$\frac{3}{4}$ feet; swell of sides, 20 inches. First square station, 3 feet from rabbet of stem at rail; Nos. 1 to 7, 6 feet apart; 7 to 8, 9$\frac{1}{2}$ feet; 8 to 18, 6$\frac{1}{3}$ feet. Coefficient of midship section to 11$\frac{1}{8}$ feet, or about two-thirds depth from keel, 0.89 per cent.; coefficient of displacement, 0.69 per cent. Angle of entrance at bow on load-line, 155°, angles below diminishing to 60°. Angle of run at load-line, 95°, angles below diminishing to 20°. Bark will carry 460 tons of cargo on 14 feet draught of water, reckoned from top of keel.

As no roomy ship could ever be loaded down to her deepest draught with so light and fleecy a cargo as cotton, it was customary to stow away bales in every available sheltered space to be found on board, from the limber strake to the main rail, and even the mess-table in the cabin was often a bale of cotton. No matter how big the cargo, the ship would not be down in the water to her bearings, and would be top-heavy and crank in consequence; so that it was always necessary to carry from 100 to 300 tons of stone ballast for the sake of stability, and even then the "kettle bottoms" were apt to go away over on their sides whenever the wind was abeam and stay there, to the discomfort of all on board. The sailor loves to see a good space between the deck he treads and the water upon which he floats; and whatever beauties the owner saw in a "kettle bottom" that carried a big freight and paid him well, Jack saw none. His preference has always been for a ship that would stand up stiff under sail, and some of the cotton fleet would. They were not all of the model of the Saone. A good many had straight sides, with only enough of a curve home to wear a graceful look and to suit the inclination of the shrouds, and often had a longer bow. These were large and fast carriers, and with a large freight on board they sailed well and attained an excellent rate of speed. American cotton ships in time began to do about two-thirds of all the business there was in their line from the ports of the United States, and thronged the wharves of New Orleans, Mobile, Savannah, Charleston, and New York, where the flag of this country is now seldom seen flying from the peak of a transatlantic vessel.

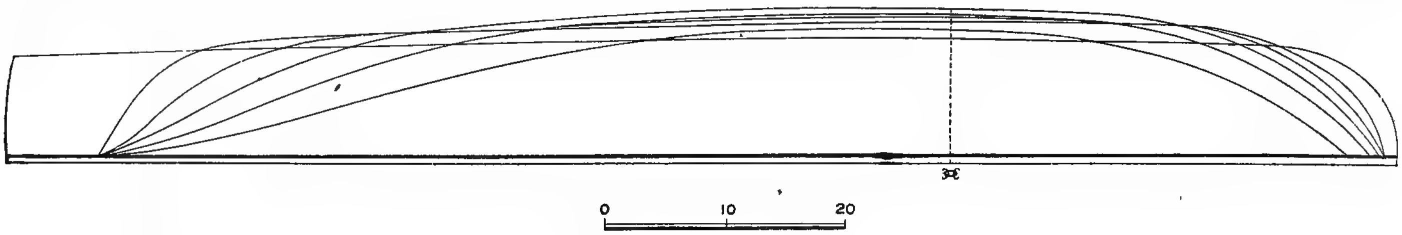

Fig. 29.—Half-breadth plan of bark Saone (showing 5 water-lines 3 feet apart and line of main rail).

Reference has been made to the evasion of tonnage duties. The success of a ship is necessarily and chiefly due first to a rigid keeping down of all her expenses and to strict economy both in and out of port, and next to her being placed in charge of a good captain and crew, and the adoption of a model which would save taxation was a natural proceeding. It must be said, however, that the burdens of port charges and of taxation in its various forms never weigh hard on shipping unless trade is dull, freights are low, and competition is sharp. No matter how big and costly a ship, no matter what wages are paid or how expensively she is run (and a ship *is* an expensive investment, spending money right and left with a prodigality known in few forms of business), she can carry every burden if trade is good and freights are profitable and spend from 20 to 45 per cent. of her value, as she does, every year, without feeling it. When a ship does make money, it makes it rapidly.

Congress was called upon more than once after 1814 to legislate in behalf of our cotton-carrying fleet. France had considerable tonnage in the trade to New Orleans, and to protect it she enacted a discriminating duty on certain American goods. If brought in a French ship, cotton was to pay 1½ cents per pound less duty, tobacco 1⅛ cents per pound less, and potash $\frac{55}{100}$ths of a cent less—a discrimination which actually amounted to more than the freight. A French tobacco ship of 300 tons saved about $6,300 on each cargo over what an American vessel had to pay. In 1820 Congress levied a duty of $18 a ton on French vessels in retaliation; a step which secured equality in duties, and soon gave the carrying trade to American ships, by reason of the superiority of the vessels and the management of them.

The bulk of American tonnage during the period from 1814 to 1860 was employed in general freighting and passenger carrying between this continent and the eastern world, and some of it to and from South America. It was into this general trade that the fast privateers of 1812–'14 went after peace, and in which they were steadily engaged until they were worn out, which was in about twenty years' time, when they were succeeded in general freighting by a fuller class of ships, carrying large cargoes and spreading a vast expanse of canvas. It was required that vessels should carry the greatest number of tons of goods on a given draught of water consistent with stability under sail, rolling easily in a sea-way, steering well, and sailing fast, and there was great difficulty in deciding upon a model which would answer all the multifarious demands of trade, as there was such wide variety in cargoes. Sometimes the charter would be for a cargo of railroad iron; sometimes for teas and East India goods; sometimes for grain and flour and naval stores; at other times for a miscellaneous cargo. A good average style of vessel, which would do fairly well under any circumstances, was the best result that could be attained so far as model was concerned, and builders always found it safe to err on the side of capacity to carry a little larger and heavier cargo than was called for. Commerce was growing rapidly. If there was not business enough to guarantee full cargoes when the ship was built, there was apt to be more than enough before the twenty years of her existence should have expired, and no owner ever complained because his vessels carried bigger freights than was expected of them. The tendency was decidedly toward full ships, the old plan being followed of locating the dead flat, or largest section of the ship, at two-fifths the length from the bow. The round floors and the long turn of the bilge, lingering from the preceding century, gradually gave way to flatter floors and a sharper turn of the bilge; the huge swell of the sides was slowly abandoned; figure-heads were left off; the bow was made flaring above water; more sheer was given; the center of buoyancy was moved farther aft; and the handsome freight-carrier used between 1845 and 1860 came into existence in consequence of the successive changes introduced. One sample of this model was the Universe (Fig. 30), built at New York in 1851 to sail between that port and Liverpool, which was one of the first vessels to depart from the old rule of broadest beam at two-fifths the length from the bow, placing it nearer amidships. Her water-lines were hollow forward and aft. The Universe was not a remarkable ship, but her lines have been preserved and are valuable for reference. Reference also is made to the Great Republic, illustrated elsewhere.

The majority of American ship-yards receiving their principal patronage from the merchant owners of this class of ships, the freighter was naturally carefully studied in all its details, and much attention was paid to the subject of strength. European builders gained the rigidity of hull needed to withstand the constantly varying stress brought on the different parts of the ship's length when floating among the waves by strapping the outside of the frame timbers with iron bands extending from a longitudinal iron band bolted to the top timbers down diagonally across the frames to the ends of the floor timbers. These straps crossed amidships in a sort of lattice-work, and were bolted to each other and to the frame at each crossing. From 50 to 100 tons of iron would be put into this work. Straps were also used on the inside of the frames, as also wooden straps and riders; and the same device was adopted in many American ship-yards, particularly at New York, Boston, and Bath. The general plan adopted, however, was one original with American builders, which served the purpose well and has continued in constant use to the present time. The inner planking of the hull, or, as it is called, the ceiling, was made extremely thick on the turn of the bilge, a strip about 10 feet in width being laid with squared logs from 10 to 12 inches thick the whole length of the hold. From this thick stuff the ceiling diminished in thickness to the deck, the planks covering the upright part of the side of the hold remaining, however, of unusual thickness. The water-ways, clamps, and other longitudinal pieces were all made of large dimensions. All this work was fitted to its place with the greatest care, the edges of adjoining pieces faying against each other very tightly. The keelsons were also carried up very high and bolted strongly through and through, and sister keelsons were added. In large freighting ships the iron and composition bolts driven down through the keelson, frames, and keel were often from 9 to 10 feet in length. With such a tremendous backbone, aided by the thick stuff on the bilge and strong clamps and water-ways, wooden ships attained a rigidity and strength never before known, and did not need the aid of iron straps on the frame timbers, although strapping was sometimes resorted to. This system of heavy scantling became universal in American vessels of every class after 1830. The coasting schooners of to-day are, in consequence, more heavily built than even East Indiamen were before the adoption of this system.

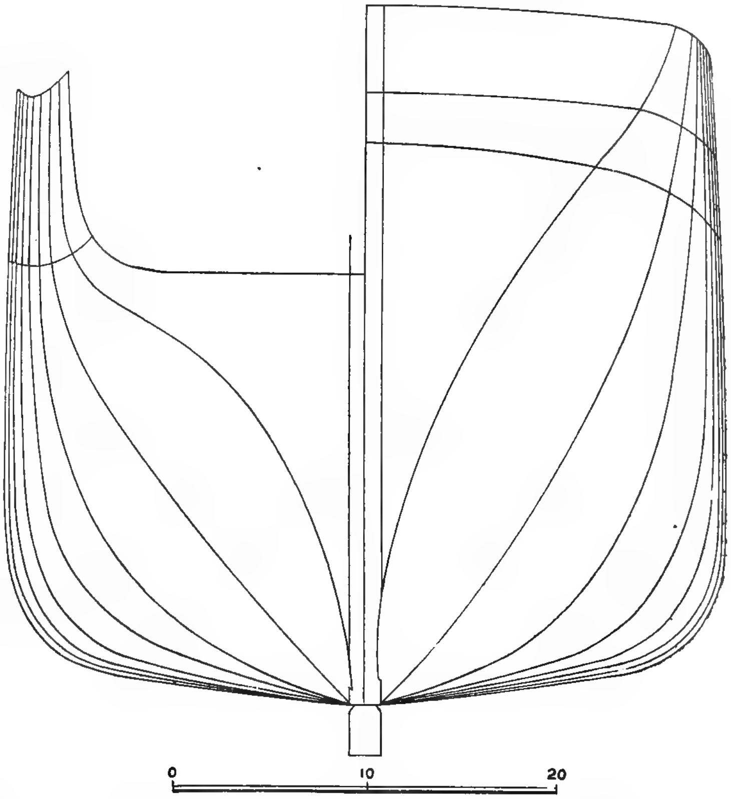

Fig. 30.—Freighting-ship Universe, 1851, at New York.

Register tonnage, 1,298 feet. Length between perpendiculars on 15-foot water-line, 175 feet; breadth, 37⅞ feet; depth from plank-sheer to keel, 27 feet. Weight of vessel, about 940 tons net; with anchors, cables, and tank of 2,000 gallons of water aboard, 1,033 tons. Draught, thus loaded, 10 feet 1¾ inches. Capacity between that and 19 feet draught, 1,488 tons net. Coefficient of displacement, 0.67 per cent. Center of buoyancy at 15-feet draught, 8½ feet above keel. Foremast reaches load-line 30 feet from forward perpendicular; mainmast 74 feet aft; mizzen-mast 48 feet aft of mainmast.

As the weight of additional timber and material was concentrated in the lower part of the hull, the center of gravity of the ship was kept well down (a point of some value) and stability was greatly promoted. A coasting vessel of good model thus built would often sail from port to port, seeking cargo, with the hold entirely empty, without putting aboard a pound of ballast to steady her. A large number of the wooden sailing vessels of the present day in America have this quality, which is valuable at all times, and especially to coasters, because it saves them a great deal of time and money. It is a trait the iron sailing vessel does not possess. The English merchantmen which frequent our ports now, being nearly all of iron, cannot stir without ballast; and they require ballast when laden with cargo more frequently than do our wooden merchantmen.

Good ships are necessary to maritime eminence, but good sailors are equally required. The great prosperity of our shipping from 1814 to 1861 was due in large measure to the excellent personnel of the crews and officers of the merchantmen. These people were recruited in the main from the fisheries and the coasting trade. The majority were American born, having homes and families ashore, and were persons of good principles, abstaining especially from the use of spirituous liquors. Sailors were paid good wages, and the captains were spurred by the payment of a percentage of the freight and passage money as a premium. A good crew means energy on board ship, quick voyages, the saving of time in getting into and out of port, the rescue of the vessel from wreck and injury under trying circumstances, a lower cost of insurance, smaller bills of expense generally, and fewer losses to the owners. The energy and daring of the excellent crews of that period were the admiration of the maritime world, and gifts of plate, the freedom of the city, and other testimonials to their merit were not uncommon. The temperance that prevailed on American vessels was the subject of comment in a report to the British parliament in 1838. The committee said:

> The happiest effects have resulted from the experiments tried in the American navy and merchant service to do without spirituous liquors as an habitual article of daily use, there being at present more than 1,000 sail of American vessels traversing all the seas of the world in every climate, without the use of spirits by their officers and crews, and being, in consequence of this change, in so much greater a state of efficiency and safety than other vessels not adopting this regulation that the public insurance companies in America make a return of five per cent. of the premium of insurance on vessels completing their voyages without the use of spirits, while the example of British ships, sailing from Liverpool on the same plan, has been productive of the greatest benefit to ship-owners, underwriters, merchants, officers, and crews.

A special class of ships which grew up after 1814 were the sailing packets, or vessels carrying both passengers and freight, which cleared from port on regular days in each month and ran back and forth between special points only. When the war ended there were only a few small British ships in the packet service between England and America, and scarce any between America and other parts of the world. Soon after the peace, however, a large number of lines came into existence as a natural outgrowth of the rush of emigration from Europe to America and the general expansion of ocean travel and trade. The carrying of passengers was a profitable business, and there was considerable competition among shipping merchants to get the largest share. None but the best and finest vessels could be used in this business, and the old-fashioned freighting ships, with their small cabins and houses, underwent a considerable change to adapt them to the new state of affairs. A great many houses in Portland, Boston, New York, Philadelphia, Baltimore, Norfolk, Charleston, and New Orleans put their money into ships especially built for the passenger service, and ran them in regular lines to all the ports abroad and on our own coast whither trade and travel chiefly tended. In the coasting trade brigs, schooners, and barks were used, but in the packet service to foreign ports barks and ships only were thought of. The latter were vessels of the largest size, handsomely built and sumptuously fitted up, and carried often from 600 to 1,000 persons and 1,000 tons or more of freight. The lines to Liverpool, Havre, and Australia often comprised 15 or 20 vessels, each of the finest specimens of marine architecture afloat. When the clipper era began the packets improved in speed and made trips across the ocean to Europe and to Australia which it took the steamships years to surpass. These lines were owned chiefly in the north by old shipping houses of great experience and large capital.

It was at New York that the packet business between America and Europe chiefly centered. There were lines from other ports; but New York was the pioneer, and always kept the lead, and had the most and finest packets. The New Yorkers were restless under their dependence on the old English ships sailing to Falmouth, which ran only in the winter time, and besides were slow. In the summer time they sailed from Halifax. It was resolved to run an American line from New York, and a start was made a year or two after the war by Isaac Wright & Co. with the four ships Pacific, Amity, James Cropper, and William Thompson, of from 400 to 500 tons each. These packets constituted the Black Ball line, so called from the round black dot in a white field which was adopted as the pennant of the ships. They were put at once into the packet business to Liverpool, sailing the first of every month, and made the run outward in an average of 23 days and the homeward run in 40 days. The ships were well built, fleet, and handsome, were managed with great energy, and were a success from the start. In about six months four vessels were added to the line, sailing on the 16th of every month, and each vessel made three round trips a year. The Black Ball line remained in existence, though changed in ownership, until the decline of American shipping finally terminated its career, and was one of the last to surrender the field to the new monarch of the sea, steam. A London line followed the Black Ball; then a Havre line was started. In 1821 a second line to Liverpool, called the Red Star, was established, sailing on the 24th of every month, the four ships of this pennant being the Manhattan, Hercules, Panthea, and Meteor. Then Fish, Grinnell & Co. and Thaddeus Phelps & Co. originated the Swallow Tail line, to sail on the 8th of every month.

One of the best of the New York packet lines was John Griswold's, which started in 1823 with the Sovereign, Cambria, President, Hudson, Columbia, Hannibal, Corinthian, and Ontario. In 1837 the number of vessels was increased to twelve.

The New York packets were all superior vessels, and were commanded by a remarkably fine class of men, the best families on the ship-building coasts contributing men to officer these ships. The frequency and regularity of their sailing were strong points. Toward the last there was a packet sailing every five days. No foreign vessel got the mails in those days, as they were all given, at least by the American government, to American packets; and so great was the reputation of these vessels that they were regularly patronized not only by Americans going abroad, but by the West India merchants, Canadians, and even by the English officers of the large garrisons in Halifax and the provinces generally. These packets drove nearly all their foreign rivals out of the business. Many efforts were made to compete with them, but never with any success.

In the construction of these vessels the best talent of the day was employed, and they were generally built for the owners by contractors who had already attained some celebrity. The rivalry of the various lines was keen, and it was this eager competition as much as anything else which led to the continual improvement in models, rig, workmanship, and general excellence of American ships, each new vessel being expected to excel some rival or all the predecessors of its own fleet in some desirable quality. Builders found that more was required of them than at any previous period of their history, and in order to hold their own and maintain the reputation of their yards they were forced to study the scientific principles involved in the form and sparring of ships. After 1815 the designers and builders of packets could not afford to remain in ignorance of the fundamental principles of their art. They did not sufficiently know what made one ship bad and another ship good, and therefore began to study. They sought every source of information. Books were imported from Europe, and many builders went to school to the constructors of the American navy. Delicate tests were made with small models of different forms; fast fishes were cut up and their shapes analyzed; the flow of waves away from the bow of a boat was investigated, and every other conceivable point was looked into. The period from 1815 to 1850 was thus one of study, experiment, and discussion, especially in the large cities; and, in consequence, there grew up a race of acute and daring ship-builders, whose achievements were the wonder of the world, and whose fashions were imitated, both on this and the other side of the ocean, by everybody who built ships.

The qualities desired in a packet ship were strength, speed, stability at sea, ease of handling, easy rolling, beauty of model, and comfort in the passenger accommodations. It must not be supposed that these were all attained at one bound; on the contrary, the best good general model for the packet ship, and the best sizes and dimensions of timbers, were reached only by patient study and slow degrees. A great many bad ships were built before all the questions that interested the building world were decided; but it was the final result of the forty years of study and investigation following the war of 1812 that the sailing ship reached substantial perfection as an ocean carrier, and scarce any advance has been made from that day to this. So well is the art now understood that a ship can be built to perform exactly the service required of it and to meet its owner's expectations fully. What remains to America now to accomplish is, first, to reduce the cost of ships; and, secondly, to handle them in such manner when at sea as to withstand the general competition of other maritime nations.

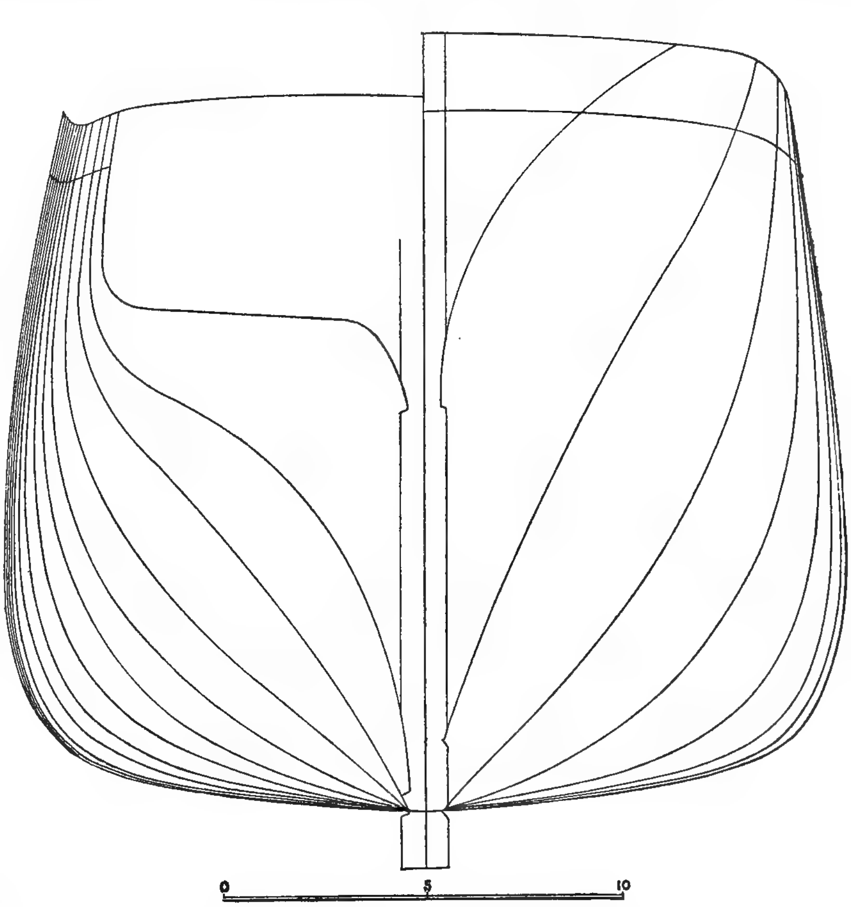

Fig. 31.—Lines of the packet ship Guy Mannering.

Down to 1849 packets were either one- or two-decked vessels, with a poop-deck aft and a top-gallant forecastle forward. Those in the service to Europe were of from 900 to 1,100 tons register. The cargo was stored in the lower hold, some of the light freight going between decks if the cargo was a large one. The between-deck space aft was divided into cabins for the passengers; the middle portion was fitted up with kitchens, pantries, etc. The steerage passengers and crew were forward. On deck were houses for the crew and various officers, with others which served as vestibules to the apartments below. The first three-decker was the Guy Mannering (Fig. 31), of 1,419 tons, which was built in 1849 by William H. Webb, at New York—a noble structure and a good ship. Three-deckers, with poop and top-gallant forecastle decks, were afterward the popular style of packet. The Guy Mannering was 190½ feet long, register measurement, 40⅕ feet beam, and 28⅔ feet deep in the hold. At 20 feet draught above the keel she would carry 2,400 tons of cargo. Her greatest beam was at ⅖ L. from the bow. The lower water-lines at bow and stern were concave, and at the plank-sheer and rail the bow was almost round. Her building lines are given above.

The American packets carried the best officers and the largest crews of any ships afloat. They were fast, dry, handsome, and sumptuously fitted up, and were managed with so much energy, care, and ability that they gained a virtual monopoly of the passenger, mail, and express traffic to Europe. They made the best time of any ships afloat, were insured at the lowest rates and earned the highest freights, and superseded nearly all the English, French, and German ships in that business, and their success and fame were the subject of intense envy abroad. After 1830 there were frequent dispatches of rival packets, transient, but all American, from Boston, New York, and Philadelphia to England and other parts of Europe. All the ships sailed with great speed, and made the run across the Atlantic in excellent time. The James Baines ran from Boston to Liverpool in 12 days 6 hours;

the Red Jacket once ran from New York to Liverpool in 13 days 11½ hours; the Mary Whiteridge made the trip from Baltimore in 13 days 7 hours; but the usual time was 19, 20, and 21 days to Liverpool, and from 30 to 35 days homeward. One of the New York packets, the Great Western, sailed regularly from New York on the 4th of March every year with a copy of the President's message to Congress. As they were the noblest ships of their day, the packets had the most dignified names. President, Vanguard, Yorktown, Ivanhoe, Guy Mannering, London, New York, Sovereign, Courier, Orbit, Napoleon, Manhattan, Hercules, Independence, Albert Gallatin, Abbott Lawrence, and United States were the class of titles given them. The ships of one of the New York lines were called after eminent actors.

English steamers were sent out in 1838 and 1840 to compete with these packet lines. The Cunard line began in 1840, backed by a subsidy of £90,000 a year, afterward increased to £145,000. The Americans responded in 1847 with a line of steamers to Bremen, and in 1850 with the Collins line to Liverpool. Then began the era of steam navigation of the Atlantic; but the steamers at first did not display remarkable speed. Under ordinary circumstances their trips across the Atlantic were made only in good average sailing-packet time. Nor did they have great carrying power, as their capacity was occupied with coal and machinery; but they enjoyed the advantage of being able to pursue their course in storms, and in 20 years they had gained so much in speed and carrying power and were so heavily backed with subsidies that sailing ships could no longer compete with them. The United States aided the revolution from sail to steam just enough to destroy her splendid packet lines to Europe completely without replacing them by steamships carrying her own flag. In 1857 all the subsidies to steamers to Europe were withdrawn by Congress, and, in consequence, the Collins and the Bremen lines were taken off. The sailing packets had meanwhile been entirely superseded, and from that day to this the passenger, mail, and express traffic of the Atlantic has been transacted almost wholly in European-built steamships. Sailing packets had disappeared even before the war of 1861, which gave the final crushing blow to the hopes of early American supremacy of the sea. The coast lines of packets were also superseded during the same period by steam vessels.

One peculiarity of this period was the increase in the size of vessels. Referring again to the table of vessels registered at Boston from 1674 to 1714, it will be noted how small were the merchantmen of early days. The fleet with which our forefathers navigated the oceans of the world was composed of little vessels, which would be none too large for the coasting trade now. The three-masted schooners carrying lumber from the southern states to northern ports at the present time would have been regarded then as immense ships. In 1714 sloops were sailing to Europe, and even from the Hudson river to China, and brigs and ships of from 200 to 400 tons were the large merchantmen for the service across the Atlantic and to the East Indies. The lack of capital on the part of our merchants, and the lack of a dense population in the United States, kept the size of vessels down. There was also some timidity on the part of owners and builders with regard to the ability of long ships to live in heavy weather, as they dreaded making the hulls long enough to reach two waves, fearing lest when bow and stern were lifted on different crests the midship portion, being in the trough of the sea, would lack support and be terribly strained. After 1812, however, large ships were demanded. The frigates of the war had done well enough at sea, and owners took courage. Builders were equal to the emergency, and a few large merchantmen were built and sent out, their performance dispelling all fears on the subject of length. Every new experiment in the maritime world was keenly watched by a multitude of eager men, and it needed only the first half dozen of successful ships to prove that the way was clear for all who chose to embark their capital in large vessels. After that the only considerations that governed owners, so far as size was concerned, were their ability to command the capital to build large and the chances of receiving business enough for a big ship. Two of the large ships were the Splendid and the Superior, built in 1822 by Isaac Webb, at New York, for Charles Henry Hall, which were monsters at the time. They were intended for the China and East India trade, but were too large, and it is related that one or both were at one time laid up and partially dismantled because there was not business enough to employ them. Nevertheless, about 1825 the Washington, of nearly 1,000 tons, was built, the largest merchantman of her day, which excited such wonder in foreign ports that people thronged to the wharves to see her. It was many years later before the size of 1,100 tons was attained. In 1841 a bold experiment was made by Clark & Sewall, of Bath, who built the ship Rappahannock, 179.6 feet long, with 37 feet beam, custom-house measurement, and of 1,133 tons, the largest merchantman in the world. Her great size astonished everybody, and it was a general prediction that she would be a failure. It was not believed that there was foreign commerce enough to occupy such a vessel, and it was declared that even the Rothschilds could not afford to own her, and that she would be sure destruction to the fortunes of whoever undertook to employ her. The launching drew a great crowd of people to Bath. The Rappahannock was a bluff-bowed, full and long-bottomed ship, narrower on deck than below, and full-rigged. Her scantling was no larger than that of a 300-ton schooner of the present day, and the fastening throughout would now be considered light. The managing owner of the ship lived in New York, and he did, indeed, have some trouble in providing her with full cargoes. She ran as a packet to Liverpool in the summer time and as a cotton ship from New Orleans in the winter. A good illustration of the limited extent of the export trade of that period is the fact that freights to Liverpool always dropped one-eighth of a penny per pound when the Rappahannock was reported to be coming up to New Orleans, rates in that day ranging from five-eighths to a penny per pound. The ship was a success, living 21 years, and ending her existence in freighting coal to the Mediterranean; she foundered at sea.

The following lists of vessels built for a few large shipping houses show the growth in size in sailing vessels for the deep sea after 1814:

### VESSELS BUILT BY THE HOUGHTONS, OF BATH, MAINE, FOR THEMSELVES.

| Year. | Vessel. | REGISTER DIMENSIONS. | | | | Year. | Vessel. | REGISTER DIMENSIONS. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Length. | Breadth. | Depth. | Tonnage. | | | Length. | Breadth. | Depth. | Tonnage. |
| | | *Ft. In.* | *Ft. In.* | *Ft. In.* | | | | *Ft. In.* | *Ft. In.* | *Ft. In.* | |
| 1819 | Brig Bolton | 72 4 | 22 9 | 8 7½ | 121 | 1855 | Ship Potomac | 193 6 | 36 5 | 18 2½ | 1,198 |
| 1822 | Warren | 94 9 | 23 5 | 12 3½ | 214 | 1856 | Pocahontas | 193 7 | 36 4 | 24 5 | 1,196 |
| 1823 | Sublime | 93 6 | 24 6 | 12 3 | 249 | 1856 | Rochester | 156 8 | 31 5 | 21 4 | 824 |
| 1824 | Clarissa Ann | 97 3 | 25 3 | 12 7½ | 276 | 1858 | Bolton | 180 6 | 34 3 | 17 0 | 987 |
| 1828 | Caledonia | 102 0 | 25 7½ | 12 9⅞ | 299 | 1859 | Crescent City | 184 6 | 37 5 | 24 2 | 1,205 |
| 1832 | Ship Cordova | 106 1½ | 26 5½ | 13 2¾ | 332 | 1859 | Europa | 177 4 | 36 9 | 24 2 | 1,174 |
| 1833 | Braganza | 111 5½ | 26 6 | 13 3 | 353 | 1860 | Persia | 182 4 | 35 2 | .......... | 1,248 |
| 1834 | Missouri | 117 3 | 27 5 | 13 8½ | 399 | 1860 | Caledonia | 179 3 | 37 3 | 24 0 | 1,179 |
| 1837 | Rochester | 131 2 | 30 1 | 15 5 | 563 | 1863 | Virginia | 177 0 | 35 5 | 23 6 | 1,094 |
| 1838 | Hanover | 135 0 | 30 8 | 15 4 | 577 | 1865 | Scotia | 182 6 | 36 8 | 24 5 | 1,171 |
| 1840 | Bark Clinton | 112 8 | 26 2 | 13 1 | 349 | 1866 | China | 184 8 | 38 1 | 24 2 | 1,173 |
| 1842 | Princeton | 105 0 | 25 0 | 12 6 | 206 | 1868 | Arcadia | 183 1 | 38 1 | 24 0 | 1,234 |
| 1845 | Ship Charlotte Reed | 128 6 | 28 4 | 14 2 | 471 | 1868 | Prussia | 184 2 | 36 6 | 23 9 | 1,212 |
| 1847 | Milan | 146 0 | 32 5 | 16 2½ | 699 | 1870 | Austria | 198 9 | 39 0 | 23 9 | 1,300 |
| 1848 | Bark Henry Warren | 113 3 | 26 0 | 13 0 | 347 | 1871 | Columbia | 205 9 | 40 0 | 24 0 | 1,471 |
| 1849 | Ship Houghton | 156 6 | 33 1 | 16 6½ | 787 | 1873 | Louisiana | 202 4 | 40 0 | 24 4 | 1,436 |
| 1850 | Clara Ann | 122 8½ | 27 5½ | 13 8¾ | 421 | 1874 | Geneva | 216 4 | 39 9 | 24 6 | 1,535 |
| 1851 | Pelican State | 153 4 | 33 7 | 16 9½ | 849 | 1875 | Bohemia | 221 7 | 40 2 | 25 5 | 1,633 |
| 1852 | Kate Swanton | 135 6 | 28 0 | 14 0 | 489 | 1876 | Samaria | 217 6 | 39 1 | 24 1½ | 1,509 |
| 1852 | Northampton | 174 9 | 35 9 | 23 7 | 1,130 | 1877 | Armenia | 223 3 | 40 4 | 25 0 | 1,698 |
| 1853 | Shamrock | 186 6 | 36 0 | 18 0 | 1,194 | 1882 | Arabia | 233 9 | 43 2 | 27 6 | 2,081 |
| 1854 | Baltic | 154 0 | 33 0 | 16 6 | 769 | | | | | | |

### VESSELS BUILT BY THE SEWALLS, OF BATH, MAINE, FOR THEMSELVES.

[By Clark & Sewall first, and after 1855 by E. & A. Sewall.]

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1823 | Brig Diana | .......... | .......... | .......... | 199 | 1863 | Brig Glendale | 121 9 | 28 8¾ | .......... | 454 |
| 1824 | Orbit | 83 6 | 23 7½ | 11 6½ | 189 | 1864 | Ship Intrepid | 183 6 | 35 6 | .......... | 1,078 |
| 1825 | Lewis | 93 4 | 23 5 | 12 2¾ | 247 | 1864 | Bark Volant | 129 0 | 29 1 | .......... | 496 |
| 1827 | Dummer | 76 0 | 22 0 | 10 1 | 146 | 1864 | Ship Ocean Signal | 193 0 | 36 9 | .......... | 1,215 |
| 1828 | Pleiades | 98 4 | 25 0⅜ | 12 8⅞ | 284 | 1865 | Freeman Clark | 190 1 | 38 5 | 24 6 | 1,336 |
| 1829 | Schooner Emulous | 72 0 | 21 1 | 7 6½ | 99 | 1865 | Bark Frank Marion | 143 5 | 31 4 | 20 4 | 678 |
| 1831 | Ship Emperor | 105 6½ | 25 9 | .......... | 314 | 1866 | Ship Matterhorn | 189 7 | 38 3 | 24 2 | 1,327 |
| 1832 | Girard | 110 5½ | 25 3 | .......... | 343 | 1866 | Wetterhorn | 151 8 | 31 5 | 20 6 | 698 |
| 1832 | Tropic | 110 10 | 26 5½ | .......... | 349 | 1868 | Hermon | 193 1 | 38 2½ | 24 2 | 1,316 |
| 1833 | Ceylon | 120 0 | 27 1¼ | .......... | 421 | 1869 | Tabor | 195 5 | 38 8 | 24 5 | 1,339 |
| 1835 | Roger Sherman | 126 2 | 29 6 | .......... | 490 | 1869 | Undaunted | 207 3 | 41 1 | 27 7 | 1,764 |
| 1836 | Diadem | 140 7½ | 32 1 | .......... | 657 | 1871 | Eric the Red | 198 7 | 41 1 | 25 9½ | 1,580 |
| 1837 | Ville de Paris | 130 4 | 30 2 | .......... | 537 | 1872 | Humboldt | 177 6 | 35 5 | 22 1 | 1,018 |
| 1840 | Pennsylvania | 143 8 | 32 2 | .......... | 677 | 1872 | Carrollton | 198 2 | 39 8 | 24 6 | 1,450 |
| 1841 | Genesee | 128 2 | 28 0 | .......... | 459 | 1873 | Sterling | 208 4 | 42 7 | 25 11 | 1,731 |
| 1841 | Rappahannock | 179 6 | 37 0 | .......... | 1,133 | 1873 | El Capitan | 205 9 | 39 9 | 24 6 | 1,493 |
| 1843 | Bark Detroit | 102 0 | 25 3½ | .......... | 292 | 1873 | Schooner Salilla | 128 9 | 31 6 | 10 7 | 312 |
| 1845 | Ship Macedonia | 124 0 | 27 0½ | .......... | 414 | 1874 | Ship Granger | 209 9 | 40 0 | 24 7 | 1,526 |
| 1846 | Rio Grande | 135 1 | 29 6 | .......... | 542 | 1874 | Occidental | 210 6 | 39 8 | 24 7 | 1,533 |
| 1847 | Switzerland | 134 1 | 30 6 | .......... | 570 | 1874 | Oriental | 220 1 | 42 2 | 24 9 | 1,688 |
| 1847 | John C. Calhoun | 143 11 | 32 11 | .......... | 708 | 1875 | Continental | 220 0 | 42 2 | 25 1 | 1,712 |
| 1848 | Brig Marcia | 86 8 | 23 2 | 8 10½ | 157 | 1875 | Harvester | 210 1 | 39 2 | 24 0 | 1,494 |
| 1848 | Ship William D. Sewall | 141 0 | 32 5 | .......... | 672 | 1876 | Reaper | 211 6 | 39 2 | 24 0 | 1,468 |
| 1850 | Adriatic | 147 0 | 32 8 | .......... | 715 | 1876 | Thrasher | 211 9 | 39 7 | 24 0 | 1,512 |
| 1851 | Sarah G. Hyde | 166 9 | 34 0 | .......... | 890 | 1876 | Indiana | 208 9 | 40 0 | 23 9½ | 1,487 |
| 1851 | Erie | 128 0 | 28 0 | .......... | 458 | 1877 | Challenge | 212 4 | 39 7 | 23 9½ | 1,456 |
| 1852 | Commerce | 180 0 | 36 1 | .......... | 1,085 | 1878 | Schooner Carrie S. Bailey | 137 6 | 32 1 | 11 7 | 396 |
| 1853 | Lady Franklin | 138 0 | 29 5½ | .......... | 549 | 1878 | Ship Chesebrough | 212 4 | 40 0 | 24 15 | 1,507 |
| 1854 | Samaritan | 191 3 | 37 0⅜ | .......... | 1,219 | 1879 | Solitaire | 213 7 | 40 1 | 24 1 | 1,531 |
| 1855 | Holyhead | 182 1 | 36 0 | .......... | 1,099 | 1880 | Thomas M. Reed | 227 4 | 42 4 | 27 0 | 1,987 |
| 1855 | Kineo | 159 6 | 33 7⅝ | .......... | 829 | 1880 | Schooner Belle Higgins | 143 1 | 32 9 | 11 9 | 412 |
| 1856 | Hellespont | 159 3 | 32 3½ | .......... | 767 | 1880 | Kate Markee | 142 8 | 34 2 | 14 8 | 503 |
| 1857 | Leander | 166 0 | 34 2½ | .......... | 896 | 1881 | S. M. Thomas | 167 0 | 35 2 | 15 0 | 761 |
| 1858 | Valentia | 158 0 | 33 2 | .......... | 790 | 1881 | Ship Iroquois | 237 1 | 43 6 | 28 1 | 2,121 |
| 1859 | Villa Franca | 170 9 | 34 1 | .......... | 918 | 1881 | Schooner B. L. Lunt | 163 2 | 35 6 | 15 6 | 758 |
| 1859 | Vigilant | 143 2 | 31 7 | .......... | 652 | 1882 | Ship Henry Villard | 219 2 | 39 8 | 24 1 | 1,553 |
| 1860 | Ocean Sond | 181 8 | 34 6 | .......... | 1,008 | 1882 | Schooner Nora Bailey | 145 3 | 33 0 | 12 3 | 443 |
| 1862 | Vancouver | 163 8 | 36 0 | .......... | 969 | 1882 | Ship W. F. Babcock | 240 8 | 43 8 | 28 0 | 2,029 |
| 1863 | Vicksburg | 183 1 | 36 6 | .......... | 1,130 | | | | | | |

### VESSELS BUILT BY DONALD McKAY IN EAST BOSTON.

[Custom-house dimensions.]

| Year. | Vessel. | REGISTER DIMENSIONS. | | | | Year. | Vessel. | REGISTERED DIMENSIONS. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Length. | Breadth. | Depth. | Tonnage. | | | Length. | Breadth. | Depth. | Tonnage. |
| | | Feet. | Feet. | Feet. | | | | Feet. | Feet. | Feet. | |
| 1845 | Ship Washington Irving | 150⅝ | 33 | 21 | 751 | 1854 | Ship Santa Claus | 184 | 38½ | 23 | 1,256 |
| 1846 | Anglo-Saxon | 158 | 35¼ | 21 | 895 | 1854 | Commodore Perry | 212 | $44\frac{11}{12}$ | 29 | 1,964 |
| 1846 | New World | 187 | 40½ | 28 | 1,404 | 1854 | Japan | 212 | $44\frac{11}{12}$ | 29 | 1,964 |
| 1847 | Ocean Monarch | 178½ | 40 | 26⅝ | 1,301 | 1854 | Blanche Moore | 220 | 41⅔ | $25\frac{7}{12}$ | 1,787 |
| 1847 | A. Z | 143½ | 32⅛ | 22 | 675 | 1854 | Bark Benin | 155⅙ | 32½ | 15 | 692 |
| 1847 | Anglo-American | 149½ | 32 | 20¼ | 704 | 1855 | Ship Donald McKay | 260½ | 46 | 29 | 2,595 |
| 1848 | Jenny Lind | 141½ | 28½ | 22 | 533 | 1855 | Defender | 202½ | $38\frac{7}{12}$ | 24¼ | 1,413 |
| 1848 | L. Z | 163¼ | $34\frac{7}{12}$ | 22½ | 897 | 1855 | Minnehaha | 209 | 41⅝ | 28⅓ | 1,695 |
| 1849 | Plymouth Rock | 174¼ | 34⅔ | 22½ | 739 | 1856 | Baltic | 187⅓ | 39¼ | 24½ | 1,320 |
| 1849 | Bark Helicon | 128 | 26½ | 19⅓ | 414 | 1856 | Adriatic | 187⅓ | 39¼ | 24½ | 1,327 |
| 1849 | Ship Reindeer | 156½ | $33\frac{5}{12}$ | 22 | 800 | 1856 | Bark Henry Hill | 140½ | 30½ | 14½ | 567 |
| 1849 | Parliament | 173 | 35⅓ | 22½ | 998 | 1856 | Ship Mastiff | 168⅘ | 36½ | 22½ | 1,031 |
| 1850 | Moses Wheeler | 165 | 33⅝ | 23 | 872 | 1856 | Amos Lawrence | 193¾ | 39½ | 24¼ | 1,396 |
| 1850 | Daniel Webster | 185 | 37¼ | 34 | 1,188 | 1856 | Abbott Lawrence | 202⅓ | $39\frac{11}{12}$ | 24⅓ | 1,498 |
| 1850 | Stag Hound | 209 | 39⅔ | 23½ | 1,534 | 1857 | Flying Fish | 198½ | 38⅙ | 22 | 1,346 |
| 1850 | Cornelius Grinnell | 182 | $36\frac{5}{12}$ | 23½ | 1,118 | 1859 | Alhambra | 174½ | 37 | $23\frac{11}{12}$ | 1,097 |
| 1850 | Bark Sultana | 121½ | 28⅓ | 14½ | 452 | 1859 | Schooner Benj. S. Wright | 84 | 24 | 8 | 107 |
| 1850 | Ship Antarctic | 177 | 37 | 23½ | 1,115 | | Side-wheel iron steamer Ashuelot. (a) | ... | ... | ... | ... |
| 1851 | Flying Cloud | 229 | 40⅔ | 21½ | 1,782 | | | | | | |
| 1851 | North America | 200½ | 39⅔ | 25⅔ | 1,464 | 1861 | Iron-clad monitor Nansett (a) | ... | ... | ... | ... |
| 1851 | Staffordshire | 230 | 41 | 29 | 1,817 | 1865 | Propeller (wooden) Treefoil (a) | ... | ... | ... | ... |
| 1852 | Sovereign of the Seas | 258 | 44½ | 28¼ | 2,421 | | Yucca (a) | ... | ... | ... | ... |
| 1852 | Westward Ho | 214 | 40⅔ | 23½ | 1,650 | | Sloop-of-war Adams (a) | ... | ... | ... | ... |
| 1852 | Bald Eagle | 215⅔ | 41⅓ | 23½ | 1,703 | 1866 | Steamer Theodore D. Wagner | 172 | 27⅔ | 21⅓ | 607 |
| 1853 | Empress of the Seas | 240½ | 44⅛ | 27½ | 2,197 | 1866 | George B. Upton | 164½ | 27⅔ | 21⅓ | 604 |
| 1853 | Star of Empire | 222¾ | $40\frac{7}{12}$ | 28 | 2,050 | 1867 | Brig North Star | 120 | 29⅘ | 15⅗ | 410 |
| 1853 | Chariot of Fame | 222¾ | $40\frac{7}{12}$ | 28 | 2,050 | 1868 | Ship Helen Morris | 174⅓ | 36½ | 23⅗ | 1,285 |
| 1853 | Great Republic | 334½ | 53½ | 38 | 4,555 | 1868 | Sovereign of the Seas | 202 | 41 | 24 | 1,502 |
| 1853 | Romance of the Seas | 240⅔ | 39½ | 39½ | 1,782 | 1868 | Schooner R. R. Higgins | 78½ | $22\frac{7}{10}$ | 8 | 90 |
| 1854 | Lightning | 243 | 42⅔ | 25 | 2,084 | 1869 | Frank Atwood | 88 | 24½ | 8⅓ | 107 |
| 1854 | Champion of the Seas | 252 | 45½ | 29 | 2,448 | 1869 | Ship Glory of the Seas | 240⅙ | $44\frac{1}{12}$ | 30½ | 2,102 |
| 1854 | James Baines | 266 | $46\frac{7}{12}$ | 31 | 2,515 | | | | | | |

*a* For the United States Government.

After the packet came the clipper ship, a vessel intended primarily for freighting, and built to secure the highest possible speed when laden with cargo. The packets were the fast vessels from 1815 to 1845, but after 1845 there grew up various branches of trade in which speed was as important for commercial purposes as it was for passenger travel. For instance, there was the tea trade from China to the United States, in which speed had always been thought essential. The cargoes consisted of teas, spices, coffee, dried fruits, etc., which were liable to deteriorate in a long voyage of four months to the home port, and to shorten the voyage as much as possible was desirable for obvious reasons. Furthermore, there were no telegraph lines and ocean cables in those days, and the uncertainty of the markets made fast trips home from the East Indies very important. Merchants had repeatedly suffered heavy loss, sometimes ruin, by the decline in cotton and other eastern goods brought home by ships during their absence on the voyage out and back, and good ships were therefore always required in that trade. Both in America and in Europe up to 1845 the East Indiamen were, as a rule, the large and fast freighting ships of their day. After 1815 a friendly rivalry broke out among owners of ships sailing to China, and every year races took place homeward with the first offerings of the new crop of tea which had come down to Chinese ports. The shipping houses gave their captains good vessels, and the captains did their part by driving the ships homeward through all sorts of weather, with all the canvas spread that they could carry. Americans earned a world-wide reputation for speed soon after 1814, and finally put the English so much on their mettle that the latter sent out a new and finer class of merchantmen than they had ever before owned to contest for the palm of superiority. The Alexander Baring, John o' Gaunt, Euphrates, Monarch, Foam, and other ships of that class, were equal to any under the flag of the United States in capacity, spread of canvas, and speed. This, in turn, stimulated the pride of the American houses, who responded between 1840 and 1850 with vessels of good and carefully studied form. These vessels sat low in the water, in strong distinction from the fashion of earlier times. The beam was broad, the bow sharp, and the water-lines fine. The masts were tall and raking, and the yards were so long that the ships spread an enormous cloud of canvas in a favoring wind. With these vessels the Americans kept their position ahead of all competitors.

The first clippers were built at New York city. The pioneer was the Helena, of 650 tons, built in 1841 for the China trade by William H. Webb, on the order of A. & N. Griswold. Though a good carrier, this beautiful vessel was modeled for speed, and, under the management of Captain Benjamin, made a number of rapid trips and earned a great reputation for the house to which she belonged.

Howland & Aspinwall followed with the Rainbow, of 750 tons, built by Smith & Dimon. The Rainbow was a good ship, and once went to Canton and back in 6 months and 14 days, having spent three weeks of the time in discharging and loading cargo, thus shortening the regular voyage by two months. Brigs and schooners had previously been built for speed and large vessels for burden. The Helena and the Rainbow revolutionized matters. They got better prices for freights than slow ships, and in every respect proved desirable. Other sharp ships soon followed.

In 1844 the Montauk, of 540 tons, was built by Mr. Webb for William S. Wetmore. A. A. Low & Co. then employed Brown & Bell to build the rival ship Howqua, of 706 tons, a very fast and fine vessel, which once ran from Shanghai to New York in 87 days. Not to be beaten, the owners of the Rainbow added to their fleet the famous clipper Sea Witch, of 907 tons, a sharper vessel than her predecessors, with raking bow and stern, fine lines, sharp floor, and remarkable beauty of form throughout, which was intended to beat any ship afloat. She was a fast vessel, a good investment, and a credit to Smith & Dimon, her builders, and once made the voyage to California in 97 days.

The era of sharp ships was now fairly inaugurated, and many of this class were built not only at New York, but at Boston, Philadelphia, and Baltimore. Nearly all the early ones did not exceed 1,000 tons register, but competition and expanding trade led to a great increase in size, and every year saw vessels launched spreading more and more canvas, longer, larger, and faster than ever, and expressly intended to beat everything that had gone before them in the merchant shipping of the world. In ten years after the first clipper the size of 2,400 tons was reached, and there were large numbers built of about 2,000 tons. The exploits of the new ships were amazing, and created the greatest excitement in shipping circles; in fact, they effected a remarkable revolution in the sailing tonnage of the world.

Foreign merchants were by no means idle spectators of what was going on in America, and in 1846 England began to awake to the new and dangerous rivalry from America. Alexander Hall & Co., of Aberdeen, made a specialty of clipper ships, and there were launched from their yard many superior and famous vessels; but the Americans, though hard pressed, were able to maintain the lead, and are entitled to the best record ever made by ships sailing under canvas. There were several famous races home from China between American and English clippers. Once, while a bet was being talked of, the British clippers Chrysolite and Stornaway and the American clippers Race Horse, Surprise, and Challenge engaged in a race from Canton to Liverpool and Deal, and arrived at the home ports as follows: At Liverpool, Chrysolite, in 106 days; at Deal, Stornaway, in 109 days; Challenge, in 105 days; Surprise, in 106 days. The British ship Challenge ran from Shanghai to Deal in 113 days; the American clipper Nightingale in 110 days. These races were claimed by both parties; but the Americans kept the reputation of superiority, and many ships were ordered at our ship-yards on foreign account.

In 1848 an event occurred which gave a great stimulus to the demand for clipper ships. Gold was discovered in California; and as that region was practically as far away as Asia, no vessels could be sent there except those that were large and staunch. A few vessels had found their way to San Francisco before that territory had been purchased, and a number soon afterward. Parcels of gold sent East by way of the isthmus of Panama created a rush of emigration and trade wholly unparalleled in the history of the New World for its sudden rise and great magnitude, and a great part of the freighting tonnage of the eastern states was called on at once to engage in voyages to and from the isthmus of Panama on both sides of the continent, and also in trips to San Francisco around cape Horn. An immense number of people had to be transported to the new territory on the Pacific, and with them all the goods, provisions, furniture, clothing, tools, etc., that they required, including their houses, large numbers of which were made ready in the East, loaded on ships, and sent out entire, ready to be set up. No one in San Francisco wished to be troubled with any more mechanical work than was necessary, and everything that could save labor was done in the East, leaving the emigrants free to make the eagerly-desired, quick, and brilliant fortune in the new El Dorado. By 1850, such was the rush, from 150 to 200 vessels were sometimes at anchor in the bay of San Francisco, where five years before it had been rare to see half a dozen. These were nearly all American vessels, as under our laws none but American ships could bring cargoes from the Atlantic coast. A few packet ships were turned into this new and profitable trade, but the majority were freighting vessels of large size. The time spent in making the run between New York or Boston and the Pacific coast was from 120 to 150 days; but in the summer of 1850 two small tea ships arrived from New York in 100 days. This quick passage caused the merchants of the West to realize the advantage of fast ships, and Alfred Peabody, of Salem, Massachusetts, and J. P. Flint, of Boston, who were on the coast, at once resolved to build clipper ships for the trade. Mr. Peabody started for Boston by way of the Isthmus and arranged with Glidden & Williams and one other firm to build at once the John Bertram, an extreme clipper of 1,100 tons, for freighting to California. The keel was laid in September in East Boston, the ship was launched in 60 days, and in 30 days more she was on her way to California with a cargo at a freight of $40 per measurement ton of 40 cubic feet. In 1879 the John Bertram was still doing well in the merchant service, although then under a foreign flag. This was the first clipper ship built for the California trade; but the clipper Witch of the Wave and four others of the same model, of 1,500 tons each, were built by the owners immediately afterward.

With this beginning the American ship-yards brought out large and fine clippers, exceeding in size and excellence anything ever before seen. Commercial rivalry was strong, not only between the merchants of America, but between them and those of England, and each year ships were ordered to exceed in size and speed everything which had gone before. Merchants realized the benefit of quick returns; owners and builders went wild over the enormous prices paid per ton for freights, and ship-builders could get almost any price for a ship that would meet the requirements of the trade. The goods forwarded were light, and were of such wide variety as not to be brought under any general rule based on dead-weight, and the measurement ton of 40 cubic feet of space was adopted as a basis for freight rates. From $40 to $50 a ton was paid in the first year of the California excitement, although $15 would have been a good profit, and ten years afterward the rate was still as high as $25. Forty dollars a ton would pay a ship to sail for California and then return in ballast for a cargo of goods, as the one freight made a handsome profit on the voyage both ways. Afterward, when rates fell, ships began to sail from California to China for a return cargo of teas and oriental ware, and could thus add to the freight money of from $20 to $30 per ton to California one of from $15 to $25 from China home, making from $35 to $50 per ton of stowage space on the one round trip. Only American ships enjoyed this advantage, for our laws excluded foreign tonnage entirely from all branches of our coasting trade, of which the California business formed a part. Several other influences came into play from 1850 to 1860 to increase the demand for fast ships. Gold had been discovered in Australia, causing a general rush from all parts of the world to that distant continent. Steam began to be employed in crossing the Atlantic, and the yards of Aberdeen and other places in Great Britain began to produce clippers that pushed ours hard in the tea races. Then there was the Crimean war, which broke out in 1854, turning a good deal of the existing tonnage into the transport service, giving a fresh impetus to freights, and making a demand for good ships for general trade. Sailing vessels were paid from $5 to $8 per register ton per month for use as transports during that war; steamers got from $8 to $16 per gross ton per month; timber freights across the Atlantic ran up from $8 to $12 per ton, and even to $14 in some cases; freights from India were from $12 to $20, and ran up to $45 per ton. All these influences combined made the period from 1848 to 1857 one of the greatest excitement and activity in ship-building in the United States. The years 1851, 1852, and 1853 were noted for the fine ships produced, and 1854, 1855, and 1856 have never been equaled in the United States, either for the amount of sailing tonnage built or for the gigantic size and great beauty of the large vessels, and no other age has seen so noble a sailing fleet as that which sprang into existence from the ship-yards of Baltimore, Philadelphia, New York, and Boston in those years of unwonted excitement and prosperity.

The clippers first built had sharp floors and sailed with a drag. Some of them from Baltimore drew 16 feet aft and only 8 feet forward, the midship section, or broadest part of the hull, being at two-fifths the length from the bow, as in the packets and heavy freighting ships. The forward body was full and the after body lean and tapering under water. This was gradually changed in imitation of the fast yachts and pilot boats of New York city, and after 1851 the long, sharp bow was considered the best for speed. The midship section was moved back in a few vessels to the center of length, and the after body was made fuller and more powerful. The ship was then made to sail on an even keel. The bottom was also made fuller. The sharp floor did not give enough cargo capacity; and the sharp bow and stern had so little buoyancy, as compared with the square body or middle portion, that the ends of many clippers sagged and broke down, subjecting them to continual repairs, one of them being compelled to repair to the extent of $15,000 after her first voyage. Besides that, there was a lack of stability in the sharp bottoms. About 1854, therefore, clippers began to be built with full bottoms, retaining the long bow, hollow water-lines, and other peculiarities of the swift model. These were good ships, and the form thus attained has ever since been popular in fast ships. A few draughts (Figs. 32 to 41) will illustrate the changes which took place. The lines of some of these vessels, including some of the most celebrated clipper ships that have ever been built, appear for the first time in this report.

The speed of clippers was remarkable. Six miles an hour was, and still is, a good average rate of speed for long voyages, and nine miles is excellent time, especially for a ship loaded with a full cargo of merchandise. Cargo steamers at this day make no better time. Clippers ran across the Atlantic to Liverpool at an average speed of 9 miles an hour, spurting at the rate of from 10 to 13 miles with the right wind, and on voyages that gave them the advantage of the trade winds they ran for days and weeks in succession at an average speed of from 12 to 15 miles an hour. To sail 300 miles a day was not exceptional. The Red Jacket made 325 miles a day for a week; the Flying Cloud once sailed 427½ miles in 24 hours; the James Baines, an Australian packet, built by McKay at Boston, once sailed 420 miles in 24 hours; and the Sovereign of the Seas, it is said, while on a voyage from the Sandwich islands to New York, lasting only 82 days, made 437 miles in 24 hours, the fastest time ever made by any vessel, sailer or steamer, on the deep sea. The average time of the fast Atlantic steamers now does not exceed 400 miles a day, and there is no record better than that made recently by the Alaska, which on one occasion made 419 miles in a day. The fast ships gave a great stimulus to trade, and were of vast benefit to commerce.

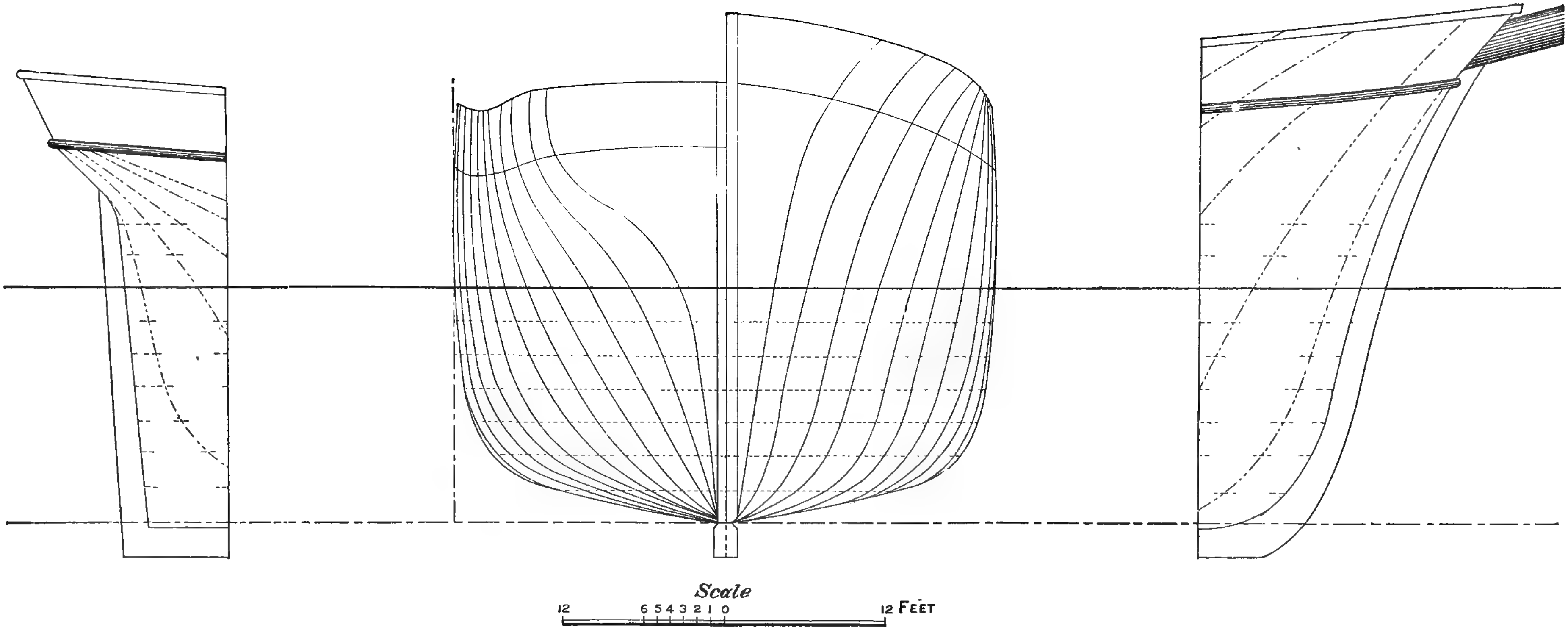

Fig. 32.—CLIPPER SHIP SOVEREIGN OF THE SEAS.

Built at East Boston in 1852 by Donald McKay. Register, 2,421 tons; displacement, 2,403 tons; length on load-line, 231⅛ feet; beam, molded, 43⅛ feet; depth, molded, 26¼ feet; coefficient of D., 0.52; coefficient of load-line, 0.60; coefficient of midship section, 0.84.

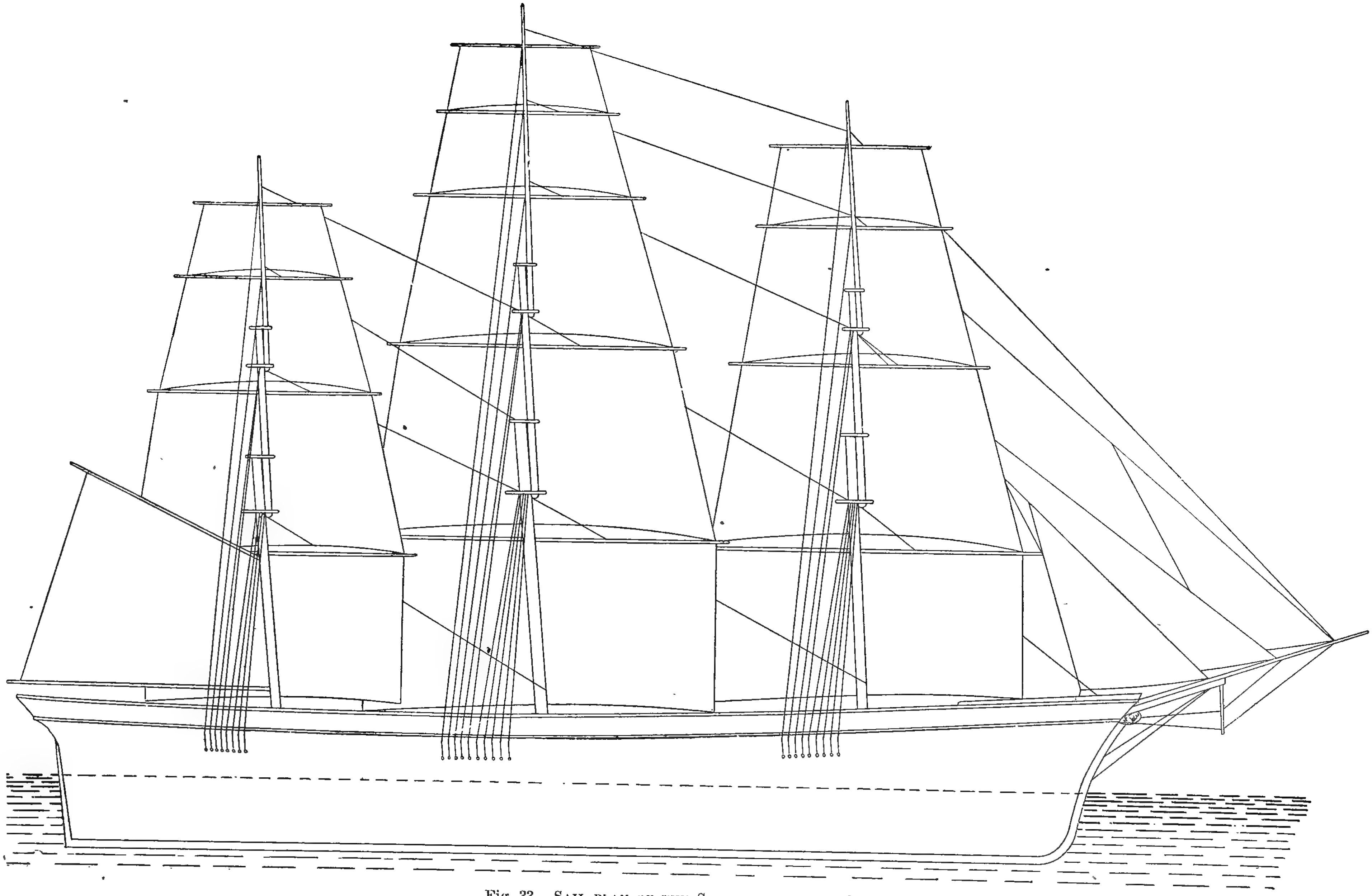

Fig. 33.—SAIL PLAN OF THE SOVEREIGN OF THE SEAS.

Showing old-fashioned full topsails. Rake of masts, $\frac{3}{4}$, $\frac{7}{8}$, and $1\frac{1}{4}$ inches to the foot, respectively.

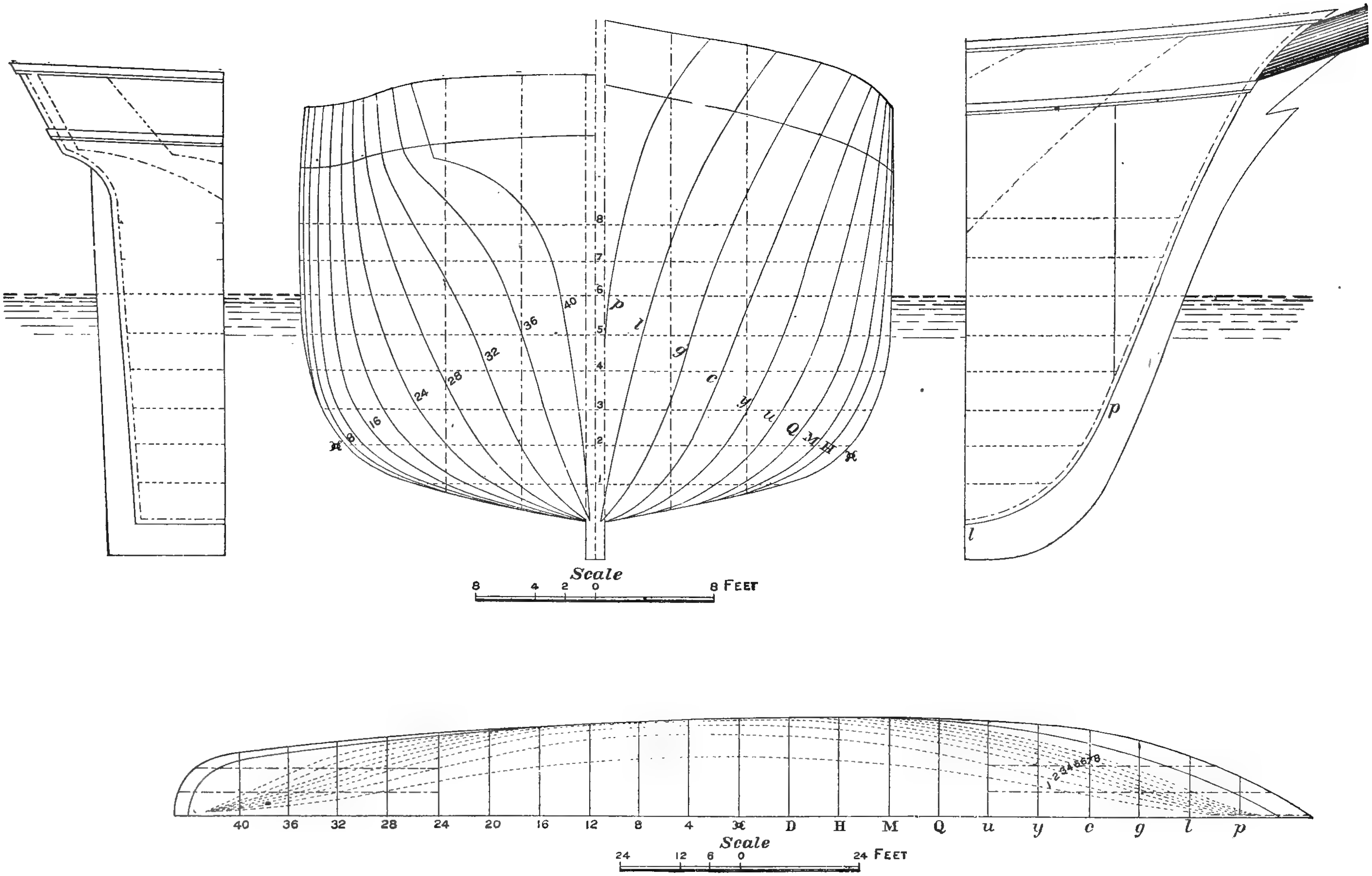

Fig. 34.—Clipper ship Flying Cloud.

**Built at East Boston** by Donald McKay in 1851. Register, 1,782 tons; displacement at 20 feet, 2,375 gross tons; displacement at 17½ feet, 1,951 gross tons; displacement per inch at 17½ feet, 13.91 gross tons; length on deck, 217½ feet; register length, 229 feet; length on load-line, 209½ feet; beam, molded, 40 feet; beam, extreme, 40⅝ feet; depth, molded, 23¾ feet; coefficient of D., 0.5146; coefficient of load-line, 0.682; coefficient of midship section, 0.82.

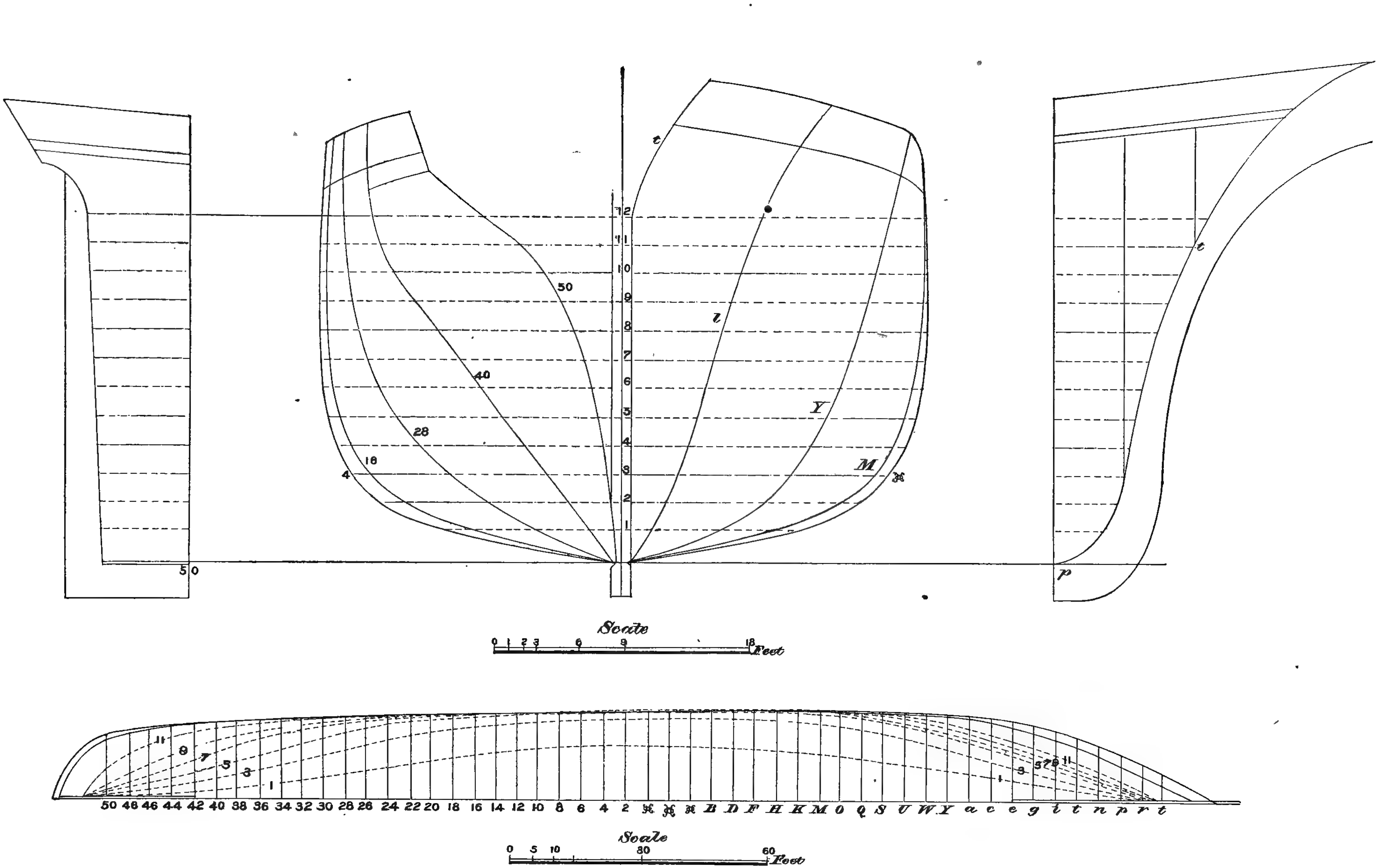
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Fig. 35.—Clipper ship Red Jacket.

Designed by Samuel M. Pook, and built at Rockland, Maine. Register, 2,006 tons; displacement, 3,100 tons gross; length between perpendiculars, 251¾ feet; beam, molded, 42⅓ feet; depth, molded, 26 feet; coefficient of D., 0.54; coefficient of water-line, 0.74; coefficient of midship section, 0.82.

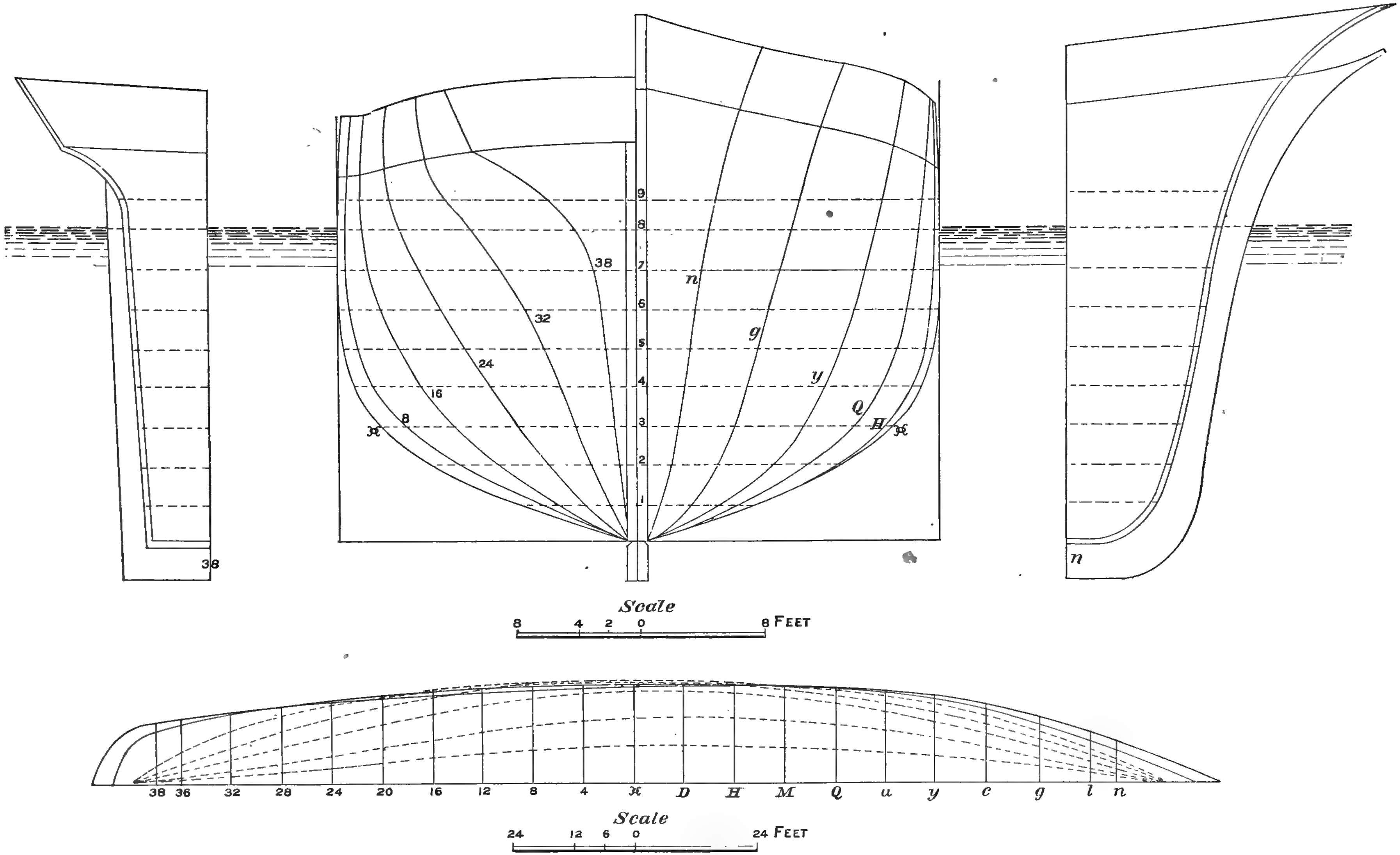

Fig. 36.—CLIPPER SHIP STAG-HOUND.

Built and designed by Donald McKay at East Boston. Register, 1,534 tons. Register dimensions; Length, 209 feet; beam, 39¾ feet; depth of hold, 21 feet.

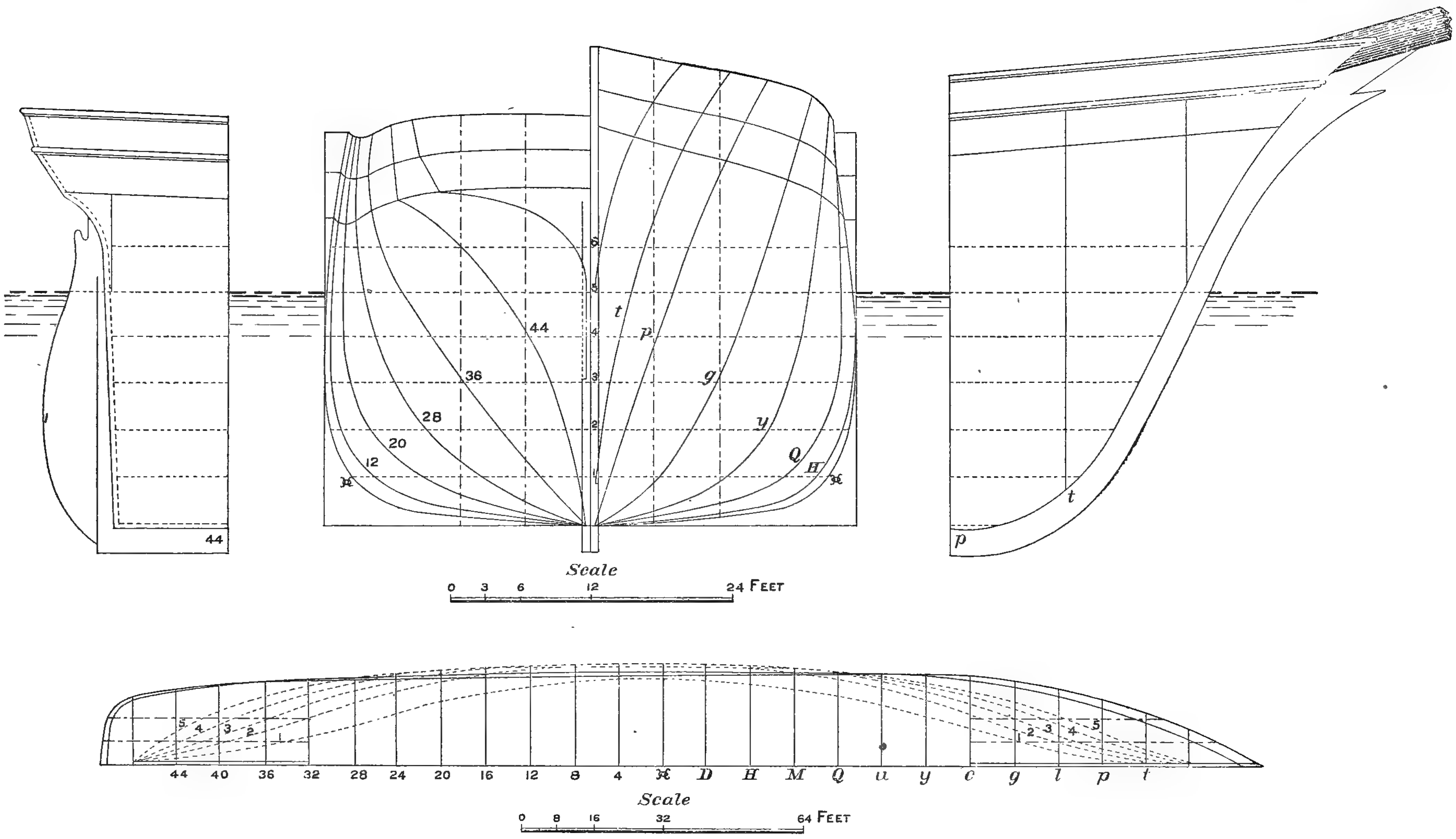

Fig. 37.—CLIPPER SHIP JAMES BAINES.

**Built by Donald McKay at East Boston in 1854.** Register, 2,515 tons; displacement to 22½ feet draught, 3,639 tons gross; displacement per inch at load line, 19¾ tons gross; register length, 266 feet; length on load-line, 240 feet; beam, molded, 45 feet; beam, extreme, 46$\frac{7}{12}$ feet; depth, molded, 30 feet; coefficient of D., 0.594; coefficient of load-line, 0.759; coefficient of midship section, 0.914.

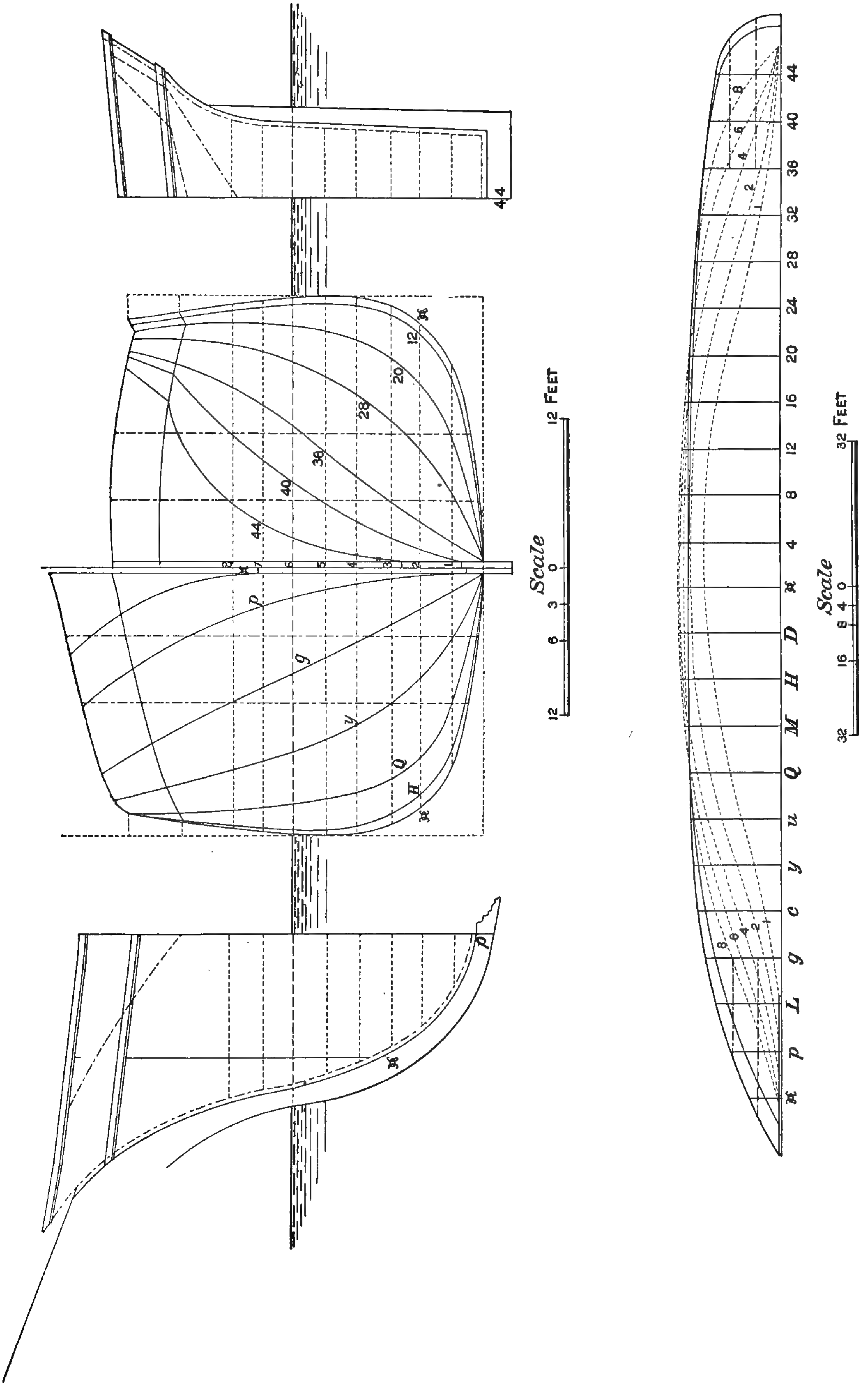

Fig. 38.—Clipper ship Lightning.

Built by Donald McKay at East Boston in 1854. Register, 2,084 tons; displacement at 16¾ feet draught, 2,367 tons gross; displacement per inch at load-line, 16¾ tons gross; register length, 243 feet; length on load-line, 228 feet; beam, molded, 42¾ feet; depth, molded, 25 feet.

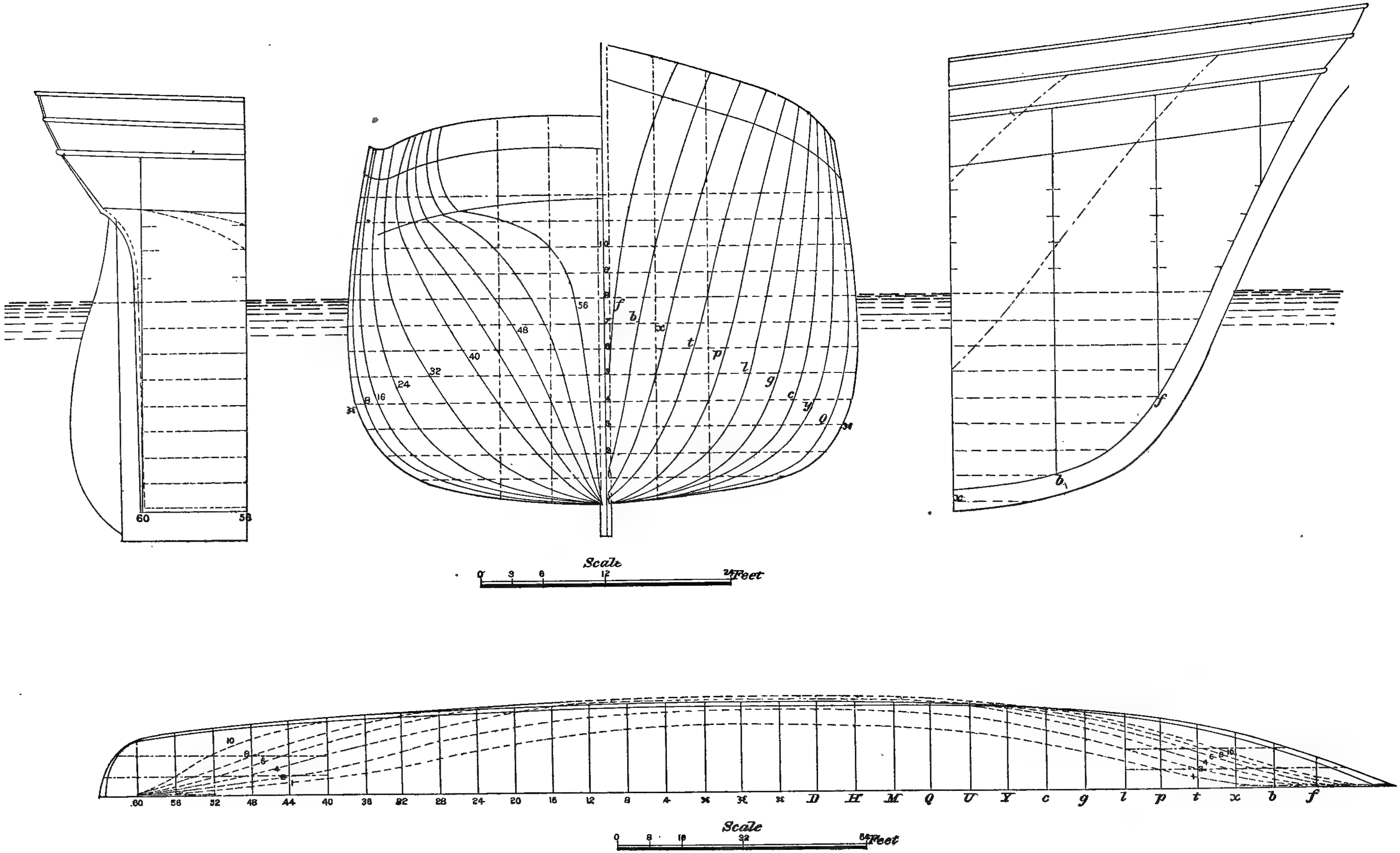
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Fig. 39.—CLIPPER SHIP GREAT REPUBLIC.

Built by Donald McKay at East Boston in 1853. Register, 4,555 tons; displacement at 25 feet draught, 5,923 gross tons; displacement at 23 feet draught, 5,273 gross tons; displacement per inch at 23-foot water-line, 26⅞ gross tons; length on deck, 325¼ feet; length on load-line, 314 feet; beam, molded, 49¼ feet; beam, extreme, 50½ feet; depth, molded, 32 feet.

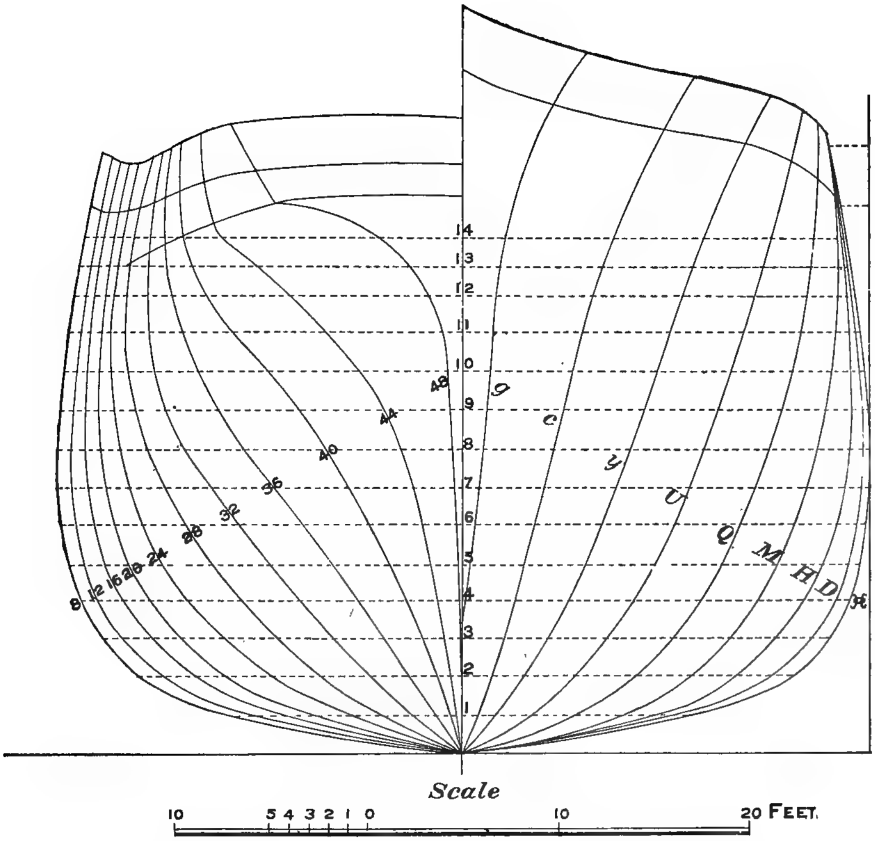

Fig. 40.—CLIPPER SHIP YOUNG AMERICA.

**Built by William H. Webb at New York in 1853. 1,962 tons register: length, 236½ feet; beam 42 feet hold, 28¼ feet.**

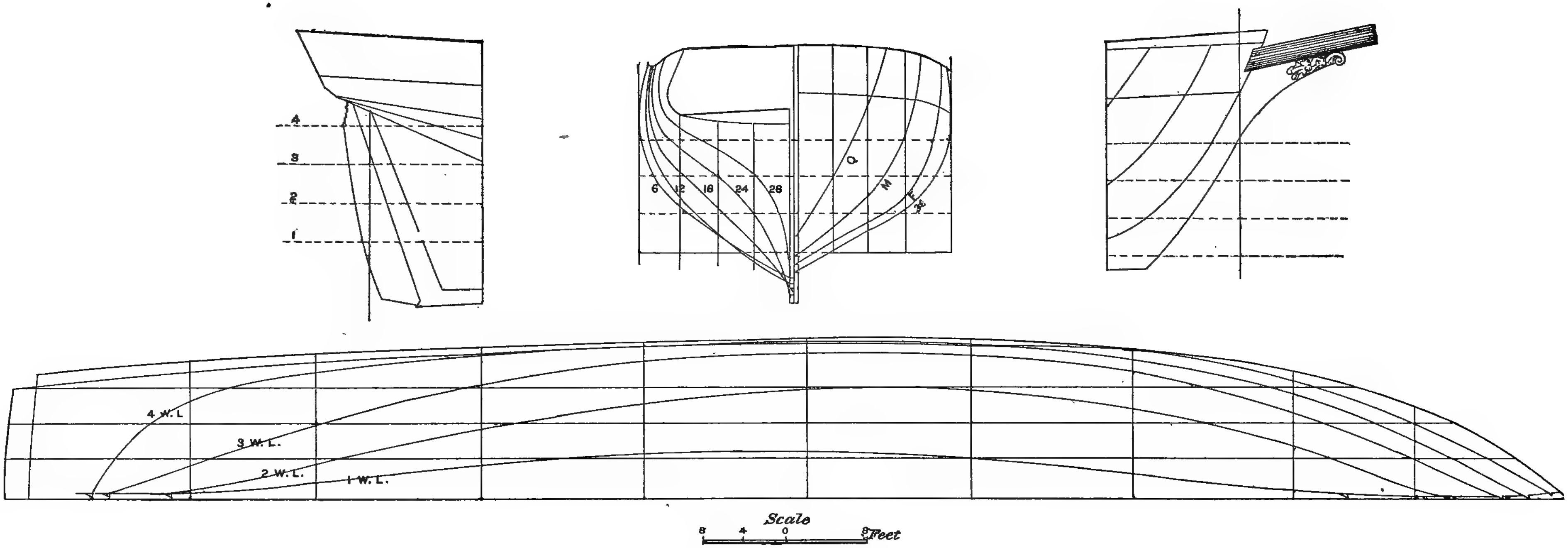

Fig. 41.—Clipper ship Ann McKim.

Built at Baltimore in 1832. Length, 143 feet; beam, 31 feet; depth, 14 feet.

The following are the more important facts relative to the principal clipper ships of the period from 1840 to 1861:

| Year when built. | Name of ship. | Place where built. | By whom built. | Registered tonnage. | Dead rise to the foot, in inches. | Length on deck to after side of stern-post. | Depth molded to water-line. | Depth from keel to deck-plank. | Greatest breadth on planking. | Center of buoyancy forward of middle. | Displacement to water-line, net tons. | Cargo at load draught, net tons. | Coefficient of displacement. | Coefficient of midship section. | Coefficient of water-line. | Angle of entrance. | Angle of run. | Remarks. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| ..... | Mary Whiteridge. | Baltimore, Md .. | .............. | | ...... | ...... | ...... | ...... | ...... | .... | ...... | ...... | .... | .... | .... | .... | .... | Baltimore to Liverpool in 13 days, 7 hours. |
| 1851 | Flying Cloud . . . | Boston, Mass.... | Donald McKay.. | 1,782 | ...... | 229 | ...... | 21½ | 40⅔ | .... | ...... | ...... | 0. 51 | 0. 82 | 0. 68 | .... | .... | 374 miles in one day; from New York to' San Francisco in 89 days, 18 hours; in one day she made 433⅓ miles, but reducing this to exactly 24 hours, she made 427⅓ miles. |
| 1851 | Gazelle ........ | New York, N. Y. | William H. Webb | 1,244 | 5⅔ | 184 | ...... | $22\tfrac{9}{12}$ | 38½ | .... | ...... | ...... | .... | .... | .... | .... | .... | Sharp below and broad above. |
| 1851 | Comet ........ | ....do .......... | ....do .......... | 1,836 | 2½ | 229 | ...... | 24⅝ | 42 | .... | ...... | ...... | .... | .... | .... | 45° | 75° | Beautiful model and good ship; she made many rapid voyages. Her first voyage was made from New York to San Francisco in 103 days, thence to Hong Kong in 37 days, and on the return she made 332 knots in 24 hours, and 1,512 knots in 120 consecutive hours; from San Francisco to New York in 86 days, and afterward in 76⅝ days; from New York to Liverpool in 19 days, and from Liverpool to Hong Kong in 84 days. |
| 1851 | Invincible ...... | ....do .......... | ....do .......... | 1,769 | ...... | 221½ | ...... | 27¾ | 41½ | .... | ...... | ...... | .... | .... | .... | .... | .... | |
| 1851 | Challenge ....... | ....do .......... | ....do .......... | 2,006 | 3 | 230½ | ...... | 27⅓ | 43⅓ | .... | ...... | ...... | .... | .... | .... | 30° | 34° | A handsome, fast, and good ship; originally oversparred. |
| 1851 | Nightingale..... | Portsmouth, N. H. | Samuel Hanscom | 1,066 | ...... | 178 | ...... | 21¾ | 36 | $1\tfrac{5}{12}$ | 1,240 | ...... | 0. 47 | 0. 70 | 0. 74 | 44° | .... | In 1852, on the way home from China, she ran 336 nautical miles in 24 hours; the distance from Batavia roads to London, 13,726 nautical miles, she made in 70 days; in 1854 she ran from New York to Melbourne in 76 days, 16 hours. |
| ..... | Trade Wind..... | .............. | .............. | ...... | ...... | ...... | ...... | ...... | ...... | .... | ...... | ...... | .... | .... | .... | .... | .... | New York to San Francisco in 75 days; homeward in 84 days. |
| 1852 | Sovereign of the Seas. | Boston, Mass ... | Donald McKay.. | 2,421 | 25 | 258 | ...... | 28¼ | 44⅓ | .... | ...... | ...... | 0. 52 | 0. 84 | 0. 60 | .... | .... | From Honolulu to New York she ran 6,245 miles in 22 days; 436 miles in 1 day; for 4 days her average was 398; she made the trip to New York in 82 days. |
| 1852 | Flying Dutchman. | New York, N. Y. | William H. Webb | 1,200 | 3½ | 187⅝ | ...... | 24½ | 38½ | .... | ...... | ...... | .... | .... | .... | .... | .... | She made 4,620 nautical miles in 16 days. |
| ..... | Andrew Jackson | Boston, Mass.... | .............. | ...... | ...... | ...... | ...... | ...... | ...... | .... | ...... | ...... | .... | .... | .... | .... | ... | New York to San Francisco in 80 days, 4 hours. |
| ..... | Enterpe......... | Rockland, Me... | .............. | ...... | ...... | ...... | ...... | ...... | ...... | .... | ...... | ...... | .... | .... | .... | .... | .... | From New York to Calcutta in 78 days. |
| 1853 | Flying Scud .... | Damariscotta, Me. | Metcalf & Norris | 1,713 | ...... | 221 | ...... | 25½ | 41 | .... | ...... | ...... | .... | .... | .... | .... | .... | From New York to Melbourne in 80 days; is claimed to have run 460 miles in 24 hours, but this is improbable. |
| 1853 | Panama......... | New York, N. Y. | Thomas Collyer. | ...... | ...... | ...... | ...... | ...... | ...... | .... | ...... | ...... | .... | .... | .... | .... | .... | A fast but wet ship; rolling heavily; from Shanghai to New York in 85 days. |
| 1843 | Rainbow......... | ....do .......... | Smith & Dimon . | 750 | ...... | ...... | ...... | ...... | ...... | .... | ...... | ...... | .... | .... | .... | .... | .... | |
| 1844 | Montauk........ | ....do .......... | William H. Webb | 540 | 2¾ | 127 | ...... | 19½ | 14½ | .... | ...... | ...... | .... | .... | .... | 70° | 55° | |
| 1850 | Stag-Hound..... | Boston, Mass.... | Donald McKay.. | 1,534 | 4 | 200 | ...... | 23⅓ | 39⅔ | .... | ...... | ...... | .... | .... | .... | .... | .... | Sailed from New York to San Francisco in 110 days; her mistake was in lack of stability and capacity. |
| 1853 | Young America. | New York, N. Y. | William H. Webb | 1,962 | 2 | 236½ | ...... | 28¼ | 42 | .... | ...... | ...... | .... | .... | .... | 45° | 55° | A very fast and popular ship, which made many rapid voyages. She was always fast. Five trips from San Francisco to New York were made in from 83 to 92 days, and the voyage was once made in 83 days, loaded; five trips were made in from 97 to 101 days. She once ran from New York to Liverpool in 18 days, and back in 23 days; from Liverpool to Melbourne in 81 days; from San Francisco to Liverpool in 102, 103, 105, and 106 days, and one return voyage in 99 days. |

| Year when built. | Name of ship. | Place where built. | By whom built. | Registered tonnage. | Dead rise to the foot, in inches. | Length on deck to after side of stern-post. | Depth molded to water-line. | Depth from keel to deck-plank. | Greatest breadth on planking. | Center of buoyancy forward of middle. | Displacement to water-line, net tons. | Cargo at load draught, net tons. | Coefficient of displacement. | Coefficient of midship section. | Coefficient of water-line. | Angle of entrance. | Angle of run. | Remarks. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | *Feet.* | *Feet.* | *Feet.* | *Feet.* | | | | | | | | | |
| 1854 | Lightning....... | Boston, Mass.... | Donald McKay.. | 2,084 | 228 | 243 | $15\frac{1}{2}$ | 25 | $42\frac{3}{8}$ | .... | 2,590 | ...... | 0. 52 | 0. 84 | 0. 71 | 14° | .... | Ran 436 miles in 24 hours, drawing 22 feet of water; from England to Calcutta, with troops, in 87 days, beating other sailing vessels by from 16 to 40 days; from Boston to Liverpool in 13 days, 20 hours; Liverpool to Melbourne, 77 days, back in 64; again in 75 and 65; once in 63. |
| 1854 | James Baines ... | ....do ........... | ....do ........... | 2,515 | ...... | 266 | ...... | 31 | $46\frac{7}{12}$ | .... | ...... | ...... | .... | .... | .... | .... | .... | From Boston to Liverpool in 12 days, 6 hours; from Liverpool to Melbourne in $62\frac{1}{2}$ days; a return was made in 60 days. |
| 1853 | Red Jacket ..... | Rockland, Me... | ................. | 2,006 | ...... | 260 | ...... | $26\frac{3}{4}$ | 44 | $3\frac{5}{12}$ | 3,460 | ...... | 0. 54 | 0. 82 | 0. 74 | 42° | .... | From New York to Liverpool in 13 days, 11 hours, 25 minutes; New York to Melbourne, 69 days, 11 hours; from New York to Fastnet Light, 10 days. |
| .... | Northern Light . | ................. | ................. | ...... | ...... | ...... | ...... | ...... | ...... | .... | ...... | ...... | .... | .... | .... | .... | .... | From San Francisco to New York, 72 days: to Boston, 76 days, 8 hours. |
| .... | Dreadnaught ... | Boston, Mass.... | ................. | ...... | ...... | ...... | ...... | ...... | ...... | .... | ...... | ...... | .... | .... | .... | .... | .... | Honolulu to New Bedford, 13,470 miles, in 82 days; from Sandy Hook to Liverpool, 13 days, 8 hours. |
| 1869 | Glory of the Seas | ....do ........... | Donald McKay.. | 2,102 | ...... | $240\frac{1}{8}$ | ...... | $30\frac{7}{12}$ | $44\frac{1}{12}$ | .... | ...... | 4,000 | .... | .... | .... | .... | .... | With 4,000 tons of cargo ran 161 miles a day for over three weeks; from New York to San Francisco in 94 days. |

The enthusiasm of the times found expression in the names of the clippers and in the literature of the day, and no title was too grand for a good ship. The song of the day was:

> An open sea and a flowing sail,
> A clipper ship and a driving gale;
> A golden broom at the gallant mast
> That fearless sweeps the ocean vast.

A great many improved appliances were invented for use on the clipper ships, among them the idea of double topsails. Captain R. B. Forbes, of Boston, was the first to divide the enormously large and high old-fashioned topsail and make the lower topsail yard stationary at the cap of the lower mast-head. He made the mast-heads long, to suit the rig. The upper topsail yard kept the place occupied by the original yard, and was raised and lowered in the same manner. This idea was not original with Captain Forbes, for he saw topsail schooners as long ago as 1819 with topsails hoisted on the head of the lower mast and a square sail above on a pole mast; but he was the first to revive the old idea and apply it, in 1841, first to schooners and afterward to ships, to obviate the extreme size to which topsails had grown. Captain Forbes also invented the idea of topmasts fidded abaft the lower mast-head, in order to house them without interfering with the lower yards. This idea did not become popular, but double topsails did after 1850, and are now a common rig throughout the world.

As American clippers gave to their builders a world-wide reputation, this had the practical effect of bringing millions of dollars' worth of business to the United States from foreign countries, especially from the governments of Spain, France, Turkey, Italy, and Russia, and frigates of great size, strength, speed, and cost were built in large numbers for those governments in New York, Philadelphia, Boston, and elsewhere. American ships were in demand in all parts of Europe for the merchant service, and a number of private fortunes were accumulated by builders in filling the profitable foreign orders which were continually coming to this country.

The construction of great ships led to some changes in the manner in which mechanical labor was performed at the ship-yard. In the first place, the labor became differentiated. The old fashion was for the ship-carpenter to be a man of all trades. He would aid in hewing out the frames and setting them up; would line out his streak of planking on the timbers of the ship, dub off the surface of the frames so that the plank might fit truly, put on the plank, bore the holes for the treenails and bolts, fasten the plank, and perhaps even calk the seam; but when business became active this plan would not do, and the work was divided, the separate parts being allotted to different gangs of men, and carpentry, calking, fastening, joining, painting, etc., all became different trades—a system under which time was saved and better work secured. Various devices were introduced to save labor. Previously all the frame timbers were hewed out of the rough log or the flitch plank with broad-axes in the hands of the men, and timbers that needed to be cut lengthwise were sawed through by two men by hand; but Donald

McKay set up in his yard in East Boston a steam saw-mill to perform both of these operations. The saw was hung in such manner that it could be tilted first one way and then another while in motion, and thus all the frames could be sawed out to the proper bevel by three men as fast as twelve men could put them together and set them up. All the heavy sawing being done by steam, the work of the yard was immensely facilitated, and a frame could be got out and put together in less than one-third the time it formerly took. Another improvement was effected by setting up a derrick in the yard to lift the heavy timbers and beams to their places in the ship. That work had previously been done entirely by manual labor, and in building a vessel the master carpenter always required a force large enough at any rate to pick up a large keelson piece or a beam and carry it on their shoulders to its home on the vessel. The heavy ceiling and planking had to be carried from the steam-box to the vessel in the same way. There was an immense loss of time in this clumsy and laborious way of doing business, as all hands had to be called off from the work from time to time, often as much as once an hour, to spend twenty minutes or more in carrying about a huge plank or stick of timber. To change this teams of oxen and horses were brought to drag the pieces about and large derricks were set up, worked by other teams, to lift them to their place. Various other devices were adopted from time to time by smart builders. Treenails were formerly made by hand in the shed on rainy days, and were chopped out of sticks of wood with axes; but a treenail lathe machine was invented to do this work. A machine worked by a hand lever was also invented to cut the long, round bars of iron into suitable lengths for bolts. These bolts had previously been cut by hand with a hammer and cold-chisel. The auger was also improved; and the saving of labor by these various improvements was worth thousands of dollars to the builder of a large vessel, and aided greatly to cheapen the cost of a ship. These improvements were adopted chiefly in the cities of Baltimore, Philadelphia, New York, and Boston, the country towns still adhering to the old-fashioned way of doing things. It was long before Bath, Maine, bought even a bevel saw, and the first that went there was the one previously used by Donald McKay, which was sold after he had built his last ship in 1869. To this day the bevel saw, derrick, and bolt-cutter are unknown in the majority of the ship-yards of the Atlantic coast outside of the five cities above named.

Changes also took place in the kinds of timber used for building ships, as about 1835 the supply of oak timber began to grow scant in New England. Two hundred years of occupation and settlement, with the pursuit of ship-building and other industries, having nearly cleared the primitive forests from such parts of the country as were accessible from water-courses, southern timber was now finding its way plentifully to the northern markets, and between 1830 and 1840 was introduced into the ship-yards. The peninsulas of Delaware, Maryland, and Virginia were overgrown with splendid forests of towering white oak, and the getting out of the timber for the frames of vessels in that region soon became a regular industry. A complete set of patterns, or molds as they are called, having been made for the timbers of the vessel, they were turned over to contractors, who went out into the woods in the winter time with a party of men armed with axes. The party encamped in rough board or log huts, and remained until the trees had been felled and the complete frame of the ship hewn from them. Each piece was then marked, and the whole was hauled to the nearest water-course before the snow disappeared in the spring and put aboard a coasting schooner and sent north. This industry of getting out frames on these peninsulas is still a marked feature of ship-building as now pursued on the north Atlantic coast, nearly all the frames of the large New England ships being now obtained from the region named.

Southern pitch-pine timber was also introduced, the sticks of which could be obtained of such great lengths that they strengthened the ship. This timber was first used for beams and decking and the various longitudinal ties, such as water-ways, clamps, keelsons, etc.; but as soon as the insurance companies were induced to approve of pitch-pine its use also became general for the ceiling and planking of ships, its great length making it desirable for both purposes. Pitch-pine remains the favorite wood for all the parts of a vessel of over 100 tons except the stem, keel, stern-post, and frames, for which oak, hard wood, and hackmatack are preferred. For the masts and spars preference is given to white pine and spruce, but a great many lower masts are made of strips of oak or maple and yellow pine, doweled, bolted, and hooped over with iron. Topmasts and bowsprits are frequently made of pitch-pine sticks.

There was a difference in the cost of ships in this period in favor of American owners. In 1825 a 300-ton ship cost from $75 to $80 per ton in the United States, from $90 to $100 per ton in Canada, and from $100 to $110 per ton in England. In 1847 a large ship, first class in every respect, cost from $75 to $80 per ton here, against $87 to $90 in England.

The interest felt at this day in the ships of the clipper period centers principally in those of the largest size, as large ships alone will now do for transoceanic trade.

The Champion of the Seas, of 2,448 tons, was built by McKay for James Baines & Co.'s Liverpool and Australian line of clippers. This firm owned 20 first-class sail in that trade, and had under charter about as many more. The following are the principal details of this ship: Length of keel, 238 feet; length on deck, 252 feet; extreme beam, 45½ feet; depth of hold, 29 feet; dead rise at half-floor, 10 inches; swell of sides, 10 inches; sheer, 4½ feet. The concavity of load-line forward was 2½ inches, the bow above flaring decidedly outward. Figure-head, a sailor, hat in right hand, left hand extended. Keel, white oak and rock maple, sided 16 inches, the upper part molded 20 inches, the lower 12 inches; false keel, 6 inches; four scarfs, 12 feet in length, fastened with ten 1-inch copper bolts. Stem, white oak, sided 16 inches, molded 20 inches at the head and 26 inches at the foot, in two pieces; main stem bolted to the keel with copper bolts. The gripe of white oak tapered to 4 inches at the front edge. The stern-post was of white oak, sided 16 inches at the keel, 20 inches at the top; molded 24 inches at the keel, 21 inches at the top, and fastened to the keel with 16 bolts of 1¼-inch copper. Deadwoods white oak, sided 16 inches, fastened with 1¼-inch bolts of iron and copper. The entire frame was seasoned white oak. Room and space, 30 inches; timbers sided 12 and 14 inches over the keel and molded 20 inches, so that the double frame was 26 by 20 inches. The second futtocks sided 12 to 13 inches, and each succeeding shift of timbers diminished in siding to 10 inches at the plank-sheer and 9 inches at the rail. Frames molded 13 inches at the bilge, 11½ inches at the lower deck, 9 inches at the middle deck, 7 inches at plank-sheer, and 6 inches at rail, and tapered truly between these points. Floor timbers 24 feet long, and the timbers of each frame fayed closely from keel to plank-sheer. From four to seven iron bolts in each futtock, from 1 to 1⅛ inch in diameter. Every second floor was bolted to the keel with 1⅙-inch copper bolts, driven through and clinched. Cant frames tenoned and bolted to deadwood with 1⅛-inch bolts. Apron white oak, sided 30 inches at the bowsprit, and fastened to the stem with 1¼-inch bolts 18 inches apart. Inner stern-post molded 20 inches at the head, 16 inches at the foot. Stern-post knee, the arms 16 and 7½ feet long, molded 46 inches in the throat. Stern timbers, the two at the side of post 10 by 14 inches, with 1⅛-inch bolts through the post; other stern timbers 10 by 10 inches. Main keelson pitch-pine, in three tiers, 64 inches deep in all, sided 16 inches, the lower piece fastened to every other floor with 1¼-inch copper bolts, the bolts going clean through keel, the second tier with 1⅜-inch iron bolts, going to within 2 inches of the lower edge of the upper piece of the keel; 1⅜-inch iron bolts through the upper piece of the keelson down through the navel timbers. Scarfs of keelson, 8 feet; sister keelson, 14 by 30 inches, bolted with 1¼-inch iron through every futtock. Ceiling on bilge, and thence to deck, 14 inches thick, bolted to every timber, and fastened edgewise with iron bolts every second frame space, all of pitch-pine. Clamps 14½ inches, bolted edgewise to the next strake below. Beams of lower deck pitch-pine, sided 15 inches, molded 14 inches at middle and 10½-inches at ends. Middle deck beams, sided 15 and 16 inches, molded 15 inches at middle and 10½ at ends; upper deck beams, 16 by 10 inches. Lower deck knees white oak; arms 6½ to 7 and 4½ to 5 feet; sided 11 and 12 inches; 24 inches thick in throat; twenty 1⅛-inch bolts through each knee; lodging knees, sided 8 inches, molded 30 inches in the throat, eight bolts through each knee. Middle deck hanging knees oak, sided and molded about 1 inch less than above, and arms a foot or two shorter; lodging knees sided 8 to 9 inches. Upper deck hanging knees, hackmatack; arms 4½ feet, sided 10 to 12 inches; 21 inches in the throat; 1 and 1⅛ inch bolts; lodging knees hackmatack, sided 7 inches. Lower deck water-ways, of pitch-pine, lay flat on ends of beams 14 inches deep, 15 inches wide, 6 feet scarfs, riveted to every timber with 1⅛-inch iron rivets, and bolted to the clamps; a binding strake, 10 by 12 inches, on beam outside of water-way; deck plank, yellow pine, 3½ inches thick, 6 inches wide; thick strakes in the middle of the deck to receive stanchions, two 14 inches wide by 6 thick. Two standing strakes above water-way, each 20 inches wide and 10 inches thick. Main deck clamps, pitch-pine, 14 by 10 inches; water-way, 15 by 14 inches; binding strake, 12 by 10 inches; deck plank, 3½ inches, 6 and 7 inches wide; thick strakes in middle, 5 inches thick; standing strakes above water-way, two 18 inches wide by 10 inches thick; the upper deck clamps 15 inches wide by 10 thick; water-way 14 inches wide, 12 inches deep, fastened with 1⅛-inch iron bolts; binding strake, 8 by 10 inches; deck plank, pitch-pine 3½ inches thick by 6 inches wide. Partners of mainmast and foremast, 15 by 15 inches; of mizzen-mast, 14 inches thick by 15 inches wide. Plank-sheer and main rail, 6 by 15 inches. Planking, all pitch-pine; garboard, 15 inches wide, 9 inches thick; the next strakes, 14 inches wide by 8 thick, and 14 inches by 7; bottom plank to bilge, 7 to 5 inches thick; wales, 24 strakes, 7 inches wide, 6 thick; waist plank, 4½ inches thick. The bulwarks, solid like a man-of-war, 4½ feet high, with monkey rail, strapped diagonally on the outside of frames with bands of iron 5 inches wide, ⅞ of an inch thick, and 38 feet long. Top-gallant forecastle for crew; aft of foremast, a house 50 feet long, 18 wide, 6½ high, with kitchen, second-class cabin, and state-rooms for forward officers. A double staircase from the forward part of the house leads to the deck below. Aft of the mainmast a house 16 feet square, with chief mate's state-room and large staircase leading to the vestibule below, from which the cabins are entered. Aft of the mizzen-mast was a house for smoking-room, to shelter helmsman and approach to staircase to captain's cabin below. All the passenger cabins were below and aft. The after one, 30 feet long, 14 feet wide, and 7½ feet high, had two recess sofas, with costly mirrors, pictures, tables, carpets, gilding, panels, etc. The dining saloon, 40 feet long, was plainly finished, and the pantry, mess-room, bath-room, and other apartments were grouped around the entrance to the dining saloon. The deck forward of the cabins was fitted up for accommodation of the passengers. There were also arrangements below this deck for passengers, for use if needful. Her spars were as follows:

|  | Diameter. | Length. | Mast-heads or yard-arms. |  | Diameter. | Length. | Mast-heads or yard-arms. |
|---|---|---|---|---|---|---|---|
|  | *Inches.* | *Feet.* | *Feet.* |  | *Inches.* | *Feet.* | *Feet.* |
| Foremast | 40 | 63 | 17 | Jib-boom | 21 | *a*16, 15, 6 |  |
| Foretop | 20 | 47 | 10 | Foresail yard | 24½ | 88 | 5 |
| Foretop-gallant | 15 | 26 |  | Fore-topsail yard | 19½ | 69 | 5½ |
| Fore-royal | 13 | 17 |  | Foretop-gallant | 19½ | 51 | 4 |
| Fore-royal pole |  | 8 |  | Fore-royal | 9 | 37 | 2 |
| Mainmast | 42 | 71 | 17 | Mainsail-yard | 24½ | 95 | 5 |
| Main-topmast | 20 | 50 | 10 | Main-topsail yard | 19½ | 74 | 5½ |
| Main-top-gallant | 15 | 27 |  | Maintop-gallant | 13½ | 54 | 4 |
| Main-royal | 13 | 17 |  | Main-royal | 9 | 42 | 3 |
| Main-royal pole |  | 12 |  | Cross-jack yard | 20 | 74 | 4½ |
| Mizzen-mast | 36 | 61 | 14 | Mizzen-topsail yard | 15 | 57½ | 5 |
| Mizzen-top | 16 | 42 | 9 | Mizzen-top-gallant | 9½ | 42 | 3½ |
| Mizzen-top-gallant | 12 | 24 |  | Mizzen-royal | 7 | 30 | 2 |
| Mizzen-royal | 10 | 15 |  | Spanker boom |  | 58⅛ |  |
| Mizzen-royal pole |  | 8 |  | Spanker gaff |  | 42 |  |
| Bowsprit | 40 | *a* 22 |  | Main spanker gaff |  | 22 |  |

*a* Outboard.

Mast-heads and yards painted black; lower masts, white; studding-sail booms unpainted, but with black ends; hemp rigging; chains and iron work for bobstays, bowsprit shrouds, martingale stays and guys, topsail sheets and ties, patent trusses, iron futtock rigging, caps, etc.; three backstays on each side to fore and main topmasts; double top-gallant backstays; 12,500 yards of canvas in the sails. This ship was painted black outside and white inside, with blue water-ways.

The Ocean Monarch, of 2,145 tons register, built by William H. Webb, at New York, was 240 feet long over all and 46 feet wide, with 30½ feet depth of hold, 3 decks, a forecastle for 50 men, two deck-houses, and a large after-cabin. She had 7 hatchways. The keelsons were of five tiers of white-oak logs from 50 to 64 feet long. The side keelsons were 3 logs deep, and were placed at the floor heads. The timbers were of live oak and locust, at least the principal pieces; the rest were white oak and cedar. The frames were spaced 30 inches, and the keel sided 16 inches. The between-deck spaces were 7 and 7½ feet. This ship was double strapped with 4½ by ⅝ inch iron, and could carry 900 passengers and 4,000 tons of cargo. A year after she was built this strong and handsome ship, on account of being improperly loaded, was thrown on her beam-ends in a violent gale, and foundered in consequence.

The Great Republic (Fig. 42), built in 1855 by McKay, was 334½ feet long, with 53½ feet beam and 38 feet depth. For 60 feet from the bow the keel gradually rose from a horizontal line and curved upward into an arch, blending with the stem, and was of rock maple, two tiers, 16 by 32 inches, with five 12-foot scarfs, the end tiers being in six pieces; shoe, 4½ inches. The frame was of seasoned white oak; dead rise, 20 inches. The floor timbers sided 13 and 14 inches, and were molded 22 and spaced 28 inches from center to center; the timbers tapered to the plank-sheer, where they were from 11 to 13 inches in siding and 8 inches in molding. Molding on the bilge 14 inches; at the main deck 12½ inches; and the frames were bolted together and the ends of the timbers wedged. The floors and first futtocks were 25 feet long, and the stem was molded 30 inches at the foot, 26 inches at the head, with the cutwater tapered to an edge. The apron was 51 inches through, with heavy stemson inside, and the bolts in the stem, apron, and stemson were of 1¼-inch copper, and about 6 inches apart. The stern-post was oak, in three upright pieces, molded in all 5½ feet, and was sided 16 inches at the keel and 24 inches at the top. The stern knee was sided 16 inches and molded 36 inches in the throat, with arms 8 and 20 feet in length scarfed to the lower keelson and bolted with copper. The frames on the inside were strapped with iron by braces 4 inches wide, 1 inch thick, and 36 feet long, there being 90 straps on each side of the ship. The keelsons, ceiling, and deck frames were of pitch-pine. The midship keelson was in four tiers, 15 by 60 inches in all, and the sister keelsons in three tiers, the first two of which were each 15 by 15 inches, while the upper one was 12 by 14 inches, and all were wedged, bolted, lock-scarfed, and keyed. There were two 1⅜-inch copper bolts driven through every floor timber and the keel, the first through the timber and keel alone, the other also through the two lower tiers of the keelson, and riveted. Iron bolts were driven through all the navel timbers and keelsons into the keel, and the sister keelsons were bolted diagonally through the navel timbers into the keel and horizontally through the midship keelsons. Whole depth of backbone, 9 feet 10 inches; ceiling (nine strakes), 10 by 12 inches on floor, square fastened through frames and edge-bolted every 5 feet; over the floor heads two bilge keelsons, each 15 inches square and in two depths, square-bolted with 1¼-inch iron through each timber and edge-bolted with 1⅛-inch iron; ceiling of floor, 10 inches. The bilge was double ceiled with 6- and 9-inch stuff, square-fastened and edge-bolted at every second beam, the double ceiling extending to a lap-streak, 6 by 15 inches, on which the lower edge of the hanging knees rested. The lower deck clamps, in two depths, were 6 and 10 inches thick; the beams of the lower and main decks 15 by 16 and 18 inches amidships, tapering to 12-inch molding at the ends, there being 38 beams to the lower and 40 to the main deck; while the upper deck beams, forty-one in number, were 12 by 20 inches in the center, tapering to 10-inch molding at the ends, twenty-five of them being double and bolted together, and the spar-deck beams varied in size and were close together, there being eighty-nine of them. The lower- and main-deck hanging knees were of oak, sided from 10 to 13 inches and molded from 22 to 24 inches in the throats; bodies, 5 to 6 feet long; arms, 4 to 4½ feet, each fastened with twenty 1¼-inch bolts; and the lodging knees were also of oak. The upper- and spar-deck knees were of hackmatack, and were all light and diagonal. Between the main and upper decks the ceiling had diagonal braces of pitch-pine from the throat of one hanging knee to the foot of the one next aft, bolted through ceiling and timbers. The lower deck clamps were 12 inches wide, in two thicknesses, 6 and 9 inches; the water-ways 16 inches square, the binding strake 12 by 14 inches, and the standing strake 24 inches wide by 10 inches thick. Main-deck clamps, 16 inches wide, 10 inches thick; water-ways, 16 inches square; binding strake, 12 by 10 inches; standing strakes, 18 by 12 inches thick; filling-in strakes to deck above, 8 inches thick, 14 inches wide. Upper-deck clamps, 12 inches thick, 15 inches wide; water-ways, 12 inches deep, 15 inches wide; binding strake, next the water-ways, 10 by 8 inches. Ceiling up to the spar-deck, 3½ inches; planking of lower three decks, 3½ inches, of pitch-pine; of spar-deck, 3 inches. Plank-sheer at upper deck, 16 by 7 inches; one at spar-deck 7 by 20 inches, having upon it a chock 12 by 6 inches, into which turned stanchions are fitted, supporting a main rail, 3½ feet high from the deck, 5 by 12 inches square. Beam-stanchions of hold, 8 by 24 inches, tenoned into the keelson and strapped with iron to the same; also strapped at the head over the beam and to the heel of the stanchions of the deck above. This system was carried clear to the spar-deck. Planking: First garboard, 10 inches thick, 14 inches wide, bolted clear through into the opposite garboard with 1⅛-inch bolts 5 feet apart, and through every third frame into the sister keelson; next strake 9 inches thick, 14 inches wide; the next 8 inches. Bottom plank, 6 inches thick, 14 inches wide, treenailed with 1¼-inch locust through the timbers; butt bolts, 1-inch copper. Bilge planking, 8 inches thick, 12 inches wide, four in number and projecting, square treenailed with 1½-inch locust, with a copper bolt driven into every fourth timber of the frame. Wales, 6 inches thick, 8 inches wide, double and single fastened. Waist plank, 5 inches thick, 6 and 7 inches wide, treenailed and iron butt bolted; plank above plank-sheer, 4 inches. There were heavy hooks and pointers of white oak, three in the forward hold 30 to 40 feet long and 11 by 12 inches in section, one under each of the decks. The ship had four masts, the after one being called the spanker. The other lower masts were built of pitch-pine, doweled, bolted, and hooped with iron. Her spars were as follows:

| | Diameter. | Length. | Length of head or yard-arms. | | Diameter. | Length. | Length of head or yard-arms. |
|---|---|---|---|---|---|---|---|
| | *Inches.* | *Feet.* | *Feet.* | | *Inches.* | *Feet.* | *Feet.* |
| Foremast | 44 | 130 | 36 | Fore upper topsail yard | 19 | 76 | 4½ |
| Foretop-mast | 24 | 76 | 12 | Foretop-gallant yard | 15 | 62 | 4 |
| Foretop-gallant | 18 | 28 | ... | Fore-royal yard | 12 | 51 | 3½ |
| Fore-royal | 15 | 22 | ... | Fore sky-sail yard | 9 | 40 | 3 |
| Fore sky-sail mast | 11 | 19 | ... | Mainyard | 28 | 120 | 6 |
| Fore sky-sail pole | ... | 12 | ... | Main lower topsail yard | 24 | 92 | 5 |
| Mainmast | 44 | 131 | 36 | Main upper topsail yard | 19 | 76 | 4½ |
| Main-topmast | 24 | 76 | 12 | Main-top-gallant yard | 15 | 62 | 4 |
| Main-top-gallant | 18 | 28 | ... | Main-royal yard | 12 | 51 | 3½ |
| Main-royal | 15 | 22 | ... | Main sky-sail yard | 9 | 40 | 3 |
| Main sky-sail mast | 11 | 19 | ... | Cross-jack yard | 24 | 90 | 5 |
| Main sky-sail pole | ... | 12 | ... | Lower mizzen topsail yard | 19 | 76 | 4½ |
| Mizzen-mast | 40 | 122 | 33 | Upper mizzen topsail yard | 15 | 62 | 4 |
| Mizzen-topmast | 22 | 69 | 10 | Top-gallant yard | 12 | 51 | 3½ |
| Mizzen-top-gallant | 16 | 22 | ... | Royal yard | 9 | 40 | 3 |
| Mizzen royal | 10 | 19 | 6 | Sky-sail yard | 6 | 29 | 2 |
| Mizzen sky-sail mast | 8 | 15 | ... | Spanker boom | 11 | 40 | 2 |
| Mizzen sky-sail pole | ... | 8 | ... | Spanker gaff | 8 | 34 | 8 |
| Spanker mast | 26 | 110 | 14 | Bowsprit | 44 | *a* 30 | ... |
| Spanker topmast | 15 | 40 | ... | Jib-boom | 22 | *a* 18 | 4 |
| Foreyard | 26 | 112 | 6 | Flying jib-boom | 5 | *a* 14 | 6 |
| Fore lower topsail yard | 24 | 90 | 5 | | | | |

*a* Outboard.

Fore and main rigging and fore- and main-topmast back-stays, 12½-inch patent hemp rope; fore- and main-topmast rigging, 8-inch hemp; mizzen rigging and topmast back-stays, 11-inch hemp; 8 shrouds on each side, 4 topmast shrouds, 3 topmast back-stays, shifting breast back-stays, double top-gallant and royal back-stays. The lower and topmast stays were double. She had iron futtock rigging, chain bobstays and bowsprit shrouds, martingale stays and guys, topsail sheets and ties, and iron patent trusses and jack-stays. The amount of canvas in her sails was 15,653 yards, and her lower studding-sails were triangular, terminating in a point below. There were four complete decks, and the height between the upper and spar decks was 7 feet, between the others 8 feet. Abaft the foremast was a house, 23 feet long by 16 wide, for a work room, shelter for the watch, and hospital. Aft of the fore hatchway a house, 25 feet long by 16 wide, and 6½ feet high, contained the galley, blacksmith-shop, and

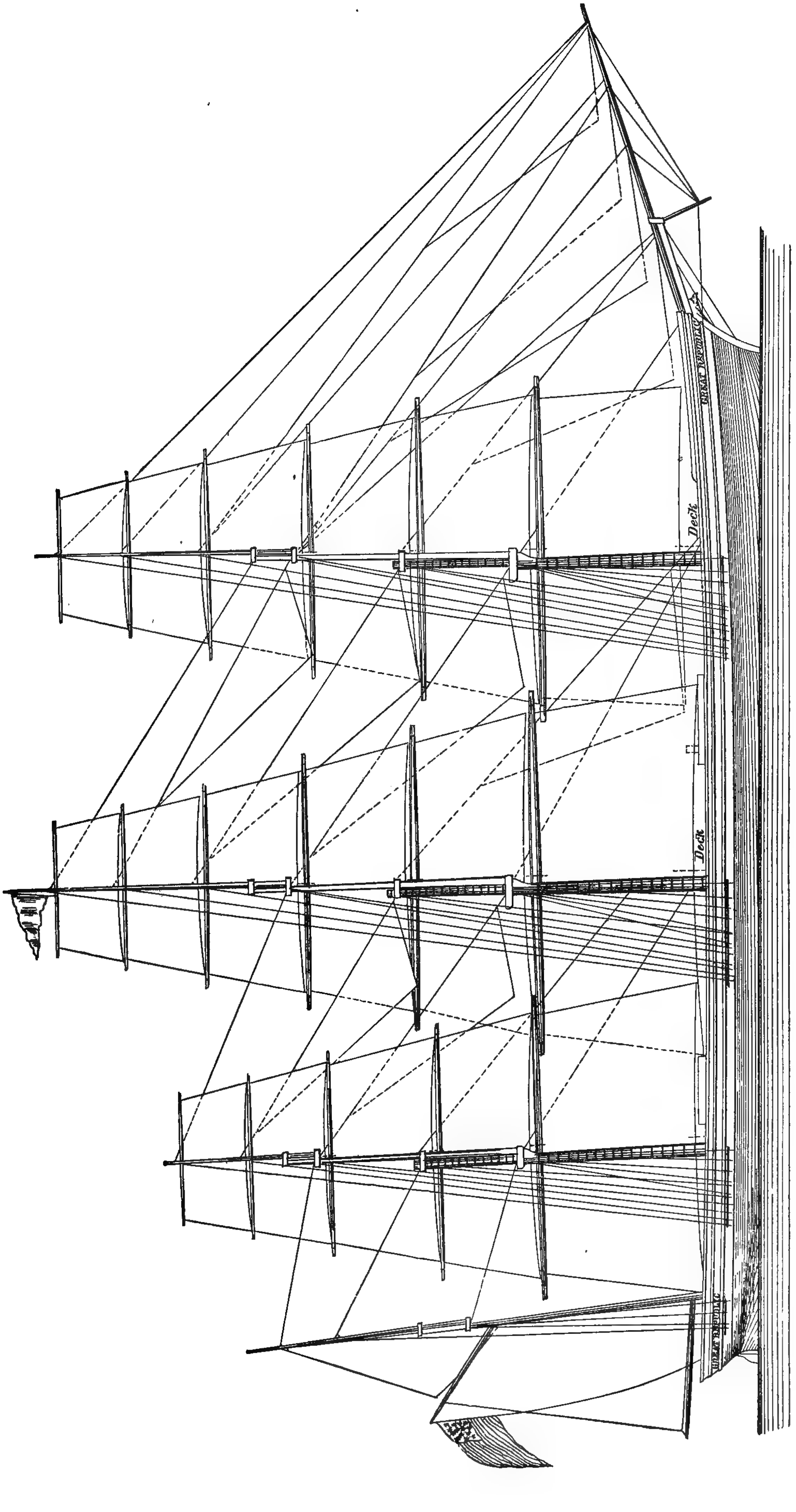

Fig. 42.—Sail plan of the four-masted ship Great Republic,
Showing the fashion now prevalent of dividing the topsail into upper and lower topsails.

engine-room for a donkey engine of 15 horse-power. Abaft the mainmast a house, 40 feet long by 12 wide and 6½ feet high, served as a mess-room for the officers, and had a staircase to the quarters of the petty officers and boys on the deck below, while farther aft a house, 17 feet long by 11½ wide, protected a staircase to the vestibule of the cabins below. Near the taffrail there was a small wheel-house. Under the spar-deck were accommodations for a crew of 100 forward, space for spare spars and rigging, a tonnage space aft of the foremast, a large sail-room aft, a store-room, rooms for 30 boys, state-rooms for the lower officers, and a dining-saloon 30 feet long by 14 feet wide, with four state-rooms on each side; and aft of that a vestibule, with stairs to the deck above and the cabins below, the captain's and chief officers' state-rooms, and an after cabin, 25 feet long by 14 wide, with six state-rooms. The chain lockers in the lower hold were ample. She had four chains of 120 fathoms each, two of 2½-inch iron, with 6,500- and 8,500-pound anchors, and two of 1½-inch iron, with 2,500- and 1,500-pound anchors, and two hemp stream cables and several hawsers. There were three hawse-holes. To build this vessel required 1,500,000 board feet of pitch-pine, 986,000 feet of white oak, 336½ tons of iron, and 56 tons of copper, besides her sheathing. There were about 50,000 days' work upon her hull.

There was little timber in the Great Republic longer than 50 and 60 feet, but the oak was in much shorter lengths. If ships of this size are to be built hereafter, the best timber in the United States for the purpose is the Puget Sound fir, on account of its length and other qualities. The Great Republic never sailed as a four-master except to New York city for a cargo. While loading she caught fire, her upper works being burned off, and she was cut down one deck and refitted as a three-master. She lived the usual life of a ship, but, with her shortened sail area, did not develop remarkable speed.

After 1857 there ceased to be a necessity for great speed and size. Too many ships had been built, and a reaction set in, which lasted for many years. The California excitement was over, the rush to the gold mines had slackened, and the settlers of the new territory had begun to produce for themselves the common necessaries of life, which had previously been sent to them from the East by clipper ships. Owing to the enormously high prices of food, agriculture had made rapid progress in California, and when it became so productive as to answer the requirement of the territory for food ships sailing around cape Horn experienced much difficulty in getting cargoes. By 1857 there were from 100 to 150 large ships in the California trade (more than were needed to transact the business), and rates of freight fell off one-half, and the ships were thrown into the general trade of the world. In the next place, steam vessels had been built to run on all the principal ocean routes. Steamers took all the passenger, mail, and express freight business at once, and in consequence, except in the case of a few scattered lines of packets sailing to Australia, South America, and Asiatic ports, there was no longer any need for sailing vessels to be fitted out with large cabins and roomy passenger accommodations. Three-deck sailing ships were useless for many years, and when those in existence had worn themselves out they were not replaced, the large sailing tonnage being reduced to two-deck ships. The reaction in American shipping circles that began in 1857 was helped by the extraordinary losses of vessel property in the winter of 1856 and the first part of 1857. There were several disastrous storms, the coast was strewn with wrecks, and more than 400 American vessels were lost, worth over $11,000,000. The loss of capital was itself a severe blow. The reaction was helped by the high prices of merchandise that prevailed in the world at large at that time, export trade being checked in various countries. In the general freighting business across the Atlantic there was also a reaction, owing to the falling off in immigration and to the importation of railroad iron to America which followed the financial panic of 1857. The Crimean war had come to an end, liberating a large amount of tonnage which had been in the service of the allied armies for the transportation of troops and munitions of war. To complete the list of depressing causes, the war of 1861 broke out in the United States, and the foreign and coasting trade of the southern states was completely cut off for four years. Cruisers from English ports were sent out to capture and burn American vessels. The rates of insurance rose so high on American vessels and cargoes that no one could afford to pay them, and the owners of American tonnage, finding themselves in a position where, to save themselves from bankruptcy, they were obliged to sell off all their ships, sold a large quantity of shipping to the United States government for war purposes and 800,000 tons to foreigners, our merchant marine declining heavily from 1861 to 1865 in consequence. All in all, that whole period of eight years from 1857 to 1865 was unfavorable to the production of ships of large tonnage; in fact, it almost put an end to American ship-building. The reaction on some coasts was painful. When, to use the expressive phrase of the Maine men, "the bottom dropped out of things" in 1857 there was great havoc among the ship-building firms of the whole country. Many towns in New England which had been building and launching large sailing vessels every year since the great expansion began, 30 years before, ceased entirely to build, and large ships then under way often lay idle a whole year at some wharf awaiting a purchaser in vain. In many of these towns there has not been another large ship built down to the present day. Numbers of builders were completely ruined, and in Maine the ship-yards of Bath and Thomaston were about the only ones that withstood the shock. From 1861 to 1865, in New York, Philadelphia, Baltimore, and Boston, the building of large sailing vessels ceased on account of the war; when the war ended the high prices of labor in those cities prevented the industry from reviving, and those who wanted ships went to the country towns to have them built, both labor and materials being cheaper in those places. No traces of the industry remained at the four great ports named, except the construction of vessels requiring the greatest mechanical skill and ingenuity, such as yachts and steam vessels, and excepting also the repair of old vessels—a class of work which is naturally required in ports frequented by large fleets of vessels, where repairs have to be made immediately.

Since 1865 there has been a change for the better, and sailing ships have again come into demand in spite of the great increase in the employment of steam in ocean navigation. One cause has been the fact that the eight years of reaction diminished the world's supply of shipping and made new vessels necessary. There was, however, an enormous expansion of the foreign trade of the United States, and that has been the main cause of the improvement. Railroad building had made a demand for iron beyond the power of the United States to meet. Nearly every species of iron and steel has been required, and those articles, with coffee, sugar, manila hemp, jute, tea, and European, South American, and Asiatic goods of every description, have been imported in immense quantity. On the other hand, the productiveness of the farms and forests of the United States has been greatly developed, and the exportation of grain, tobacco, cotton, provisions, kerosene, lumber, etc., has grown to five and six times what it was before 1865. A special feature of the export trade has been that from the Pacific coast. Before the war that coast had no export trade, and ships sailed thither from every part of the world with cargoes and departed in ballast, a few cargoes of lumber, canned salmon, and seal skins being all that were sent away from that 1,500 miles of coast.

After 1865 the wonderful fertility of California wrought a change. A good crop of wheat in the eastern states would average from 20 to 25 bushels to the acre, while on the wheat ranches of the Pacific 25 bushels per acre was a small crop. Forty bushels would be an average, and a production of 50 and 55 bushels to the acre was so common as to cause no particular comment, and wheat raising became as profitable as gold mining. In Oregon the soil was found to be equally productive, and one plowing and planting was often good for two crops. The first year's crop would be 40 bushels and more, and that of the second year, springing up from the seed shaken out naturally in gathering the first year's crop, would sometimes amount to 20 and 25 bushels per acre. As soon as the coast began to have wheat to export San Francisco became one of the most profitable ports in the United States for traffic, and American ships at first had the advantage in the trade. Sailing from the Atlantic states with miscellaneous cargoes of goods, they not only got the freight out, but had a good freight of wheat back to England. The general trade of the world having revived, tonnage was in demand, and wheat freights from San Francisco to Liverpool accordingly rose to a profitable figure. A complete revolution in the carrying trade of the Pacific coast was the result, and ships have ever since sought that coast from all parts of the world in ballast, coming even from England without a cargo to get one of wheat back. The coast now exports 850,000 gross tons of wheat annually, and supplies about 600 ships with outward cargoes. This business all accrues to sailing vessels. A very few steamers have taken cargoes of wheat from San Francisco to England, but, in the main, this was only because they had brought a cargo to the coast and could not afford to go away in ballast. The voyage of 13,600 miles from San Francisco to Liverpool is too long to make it profitable to employ steamers in the business, sailing ships paying better, on account of their large available capacity and smaller expenses, and it is this profitable trade chiefly which has caused the revival of ship-building in American yards since 1865, and is again leading to the production of large sailing merchantmen. The newest ships, those built in Maine within the last two years, are from 2,000 to 2,400 tons register, carrying from 3,000 to 3,600 tons of wheat; and they are again growing larger year by year.

The California vessel of to-day is no longer an extreme clipper, nor is it the bluff freighting ship of 1840, but it is a handsome, medium clipper, with towering masts and spars, full on the floor, with a good bow and fair run, capable of carrying a great cargo at an excellent rate of speed. The midship section is in the center of the length, the ship floats on an even keel, its carrying power is 1½ times the register tonnage, and it draws from 20 to 24 feet of water. A few of those built at Thomaston and Bath, Maine, within the last five years out of the profits of the California wheat trade are of about 2,000 tons register and carry 3,000 gross tons of freight. Four-masters are now talked of, though none have as yet been built; there are a few British four-masters in the California trade.

Another class of sailing vessel which grew into great repute before 1861 was the schooner. It has been noted that the original coaster was the sloop, its broad beam, shallow draught, big fore-and-aft sail and one or two jibs, simplicity of rigging, and ease of management by about three men making it the right vessel for running along the coast and into and out of rivers. Ketches and brigantines were used for voyages as long as from Salem to Chesapeake bay, for instance, and the two-masted schooner followed. During the packet times trade and travel increased so fast that large vessels were required for coasting, the square rig being preferred. Brigs, barks, and ships were much in favor, but after 1840 they went out of use for coasters, their places being taken on the one hand by steamboats, which were built for the passenger and mail service between all the large Atlantic and Gulf ports, and on the other hand by two- and three-masted schooners, built for freighting. The fore-and-aft rig came to be preferred for coasting vessels for several reasons. Fewer sailors were required to handle the vessel, and a schooner could be worked into and out of harbors and rivers more easily than any square-rigged craft. Her trips could also, as a rule, be made in quicker time, as she could sail closer into the wind, and it was hardly necessary for her to sail from Maine to New York by way of the Bermudas, as some square-rigged vessels have done during baffling winds. The schooner rig became universal in the coasting trade about 1860, and there is probably not a bark or a ship left in this trade anywhere except on the Pacific coast, where the voyages are long and the winds blow in trades, and even there there are few purely square-rigged vessels in the trade. On the lakes the schooner is the popular rig, a few square topsails being sometimes added on the forward mast. Originally registering no more than 40 or 50 tons, the schooner has become in course of time a large vessel, the two-masters ranging from 100 to 250 tons, the three-masters from 300 to 750 tons. The popular size now for a three-masted coasting schooner on the Atlantic is about 550 or 600 tons, and it is probable that more vessels of the schooner rig are built in the United States every year than there are of all other rigs put together. With square sails on the foremast the vessel is called a barkentine, and many of this class are used for transoceanic service, for which they are well adapted. The hulls of American schooners are as strongly built as those of any other vessels of their size; in fact, the scantling is far heavier than it was in full-rigged ships 75 years ago. They are constructed with a view to class A 1 on the books of the American Shipmasters' Association, and no large ship can do better than that. The best materials and workmanship are put into them. For transoceanic trade, and on the Pacific coast, where the waters are deep, the schooners are keel vessels with some dead rise; but on the Atlantic coast, where the harbors are so frequently shallow and obstructed with sand-bars, the schooners are center-board vessels with flat bottoms. In all cases, however, the models are full, the beam large, the bow sharp and long, the run clean, and the sheer considerable forward. Above the water an American schooner has the jaunty air of a yacht. Schooners with sharp bottoms do not pay, and few are built.

In 1880 an advance was made in the building of the William L. White, of Taunton, Massachusetts, at a ship-yard in Bath, Maine. The hull of the vessel was large enough for a Californian. She was 205 feet long on deck, 40 feet beam, and 17 feet deep in the hold, being 309 feet in length over all from the end of the jib-boom to the end of the spanker boom. She registered 996 tons, and was able to carry 1,450 tons of anthracite coal. This vessel was rigged as a four-masted schooner. To have fitted her out with three masts would have required such large lower sails that the strain upon the masts would have been destructive, and she was therefore furnished with four, the after spar being called the spanker mast. This divided her 5,017 yards of canvas into smaller sails and made her a good schooner, sailing well, easily handled, and requiring a crew of only five men before the mast, besides her two mates and captain. This was the first four-masted schooner built for actual ocean service in America, and probably the first ever so employed in the world, although there is on record a case where a small one was built in England in 1800 for packet service to India. This was the Transit, a little vessel 98 feet long on deck, 22 feet beam, drawing 11½ feet of water. She was rigged with four fore-and-aft lower sails, and there were three square upper sails on the foremast and two fore-and-aft topsails on the after three masts. The lower topsail was spread by a gaff above, and the upper topsail was the usual triangular sail. There were three head sails. A few small vessels were built in imitation of the Transit, but it was left to the Americans to adopt a rig for heavy freighting on the Atlantic ocean. The same yard in Maine which produced the William L. White has since built two other four-masters. One launched in the fall of 1882 is of large size, being of 1,137 tons register. She is 192 feet long on deck to the after side of the stern-post, 40 feet beam, and 16 feet depth of hold, having two decks and 5,000 yards of canvas in her sails. The four-masted rig is a common one on the northern lakes.

Before leaving the subject of ships to describe the localities where they are built reference ought to be made to the ingenious invention of bending wooden frame timbers and hanging knees. This subject occupied attention for many years, especially about 1850, in New York, Boston, Philadelphia, and in the United States navy-yards, and it is probable that the invention would have come into extended use except for the decay of the American merchant marine and the introduction of iron hulls. It is well known that the outside planking of a wooden vessel must be well softened by steaming in a long steam box before being fastened to the vessel's side, especially on those parts of the hull where the surface is greatly curved, this process being necessary in order to allow the plank to be bent without breaking. In the construction of yawls and other small boats the frames are not generally cut from crooked timber, but are composed of slender pieces of white oak, steamed and bent to the proper curvature on molds and allowed to harden in shape by cooling. In iron vessels the frames are all gotten out of straight angle iron, cut to the proper length, heated in a furnace, and bent to the curvature required on a large slab made for the purpose, and it was considered one of the triumphs of the invention of the iron ship that the frames could be made in one continuous length. J. Scott Russell says: "A single tree never furnishes an entire frame. If trees could be found to grow to the right curves for complete frames, it would be glorious times for wooden ships." It has always been one of the disadvantages of wooden hulls that the frames can only be made of a large number of separate short pieces lapped together and given such heavy molding thickness as to compensate in part for the large number of joints. There is no doubt that frame timbers in one piece from keel to plank-sheer would impart greater strength to the ship and lessen the weight of wood, and lighter scantling could be employed. About 1850 it was the inspiration of several men at New York and Boston to experiment in this direction. Machines were made for the bending of straight pieces of white oak, steamed, into ship's knees, and afterward three or four were made of large size and at great cost for the production of bent frame timbers. J. W. Griffiths, of New York, and Thomas Blanchard and C. Allen Browne, of Boston, were prominently identified with this matter. In 1853 futtocks, steamed and bent by machinery, were introduced into the steamer Ocean Bird at New York. In July, 1856, a number of 10½-inch white-oak knees, steamed and bent, were tested at the Novelty iron works, in New York, by Lieutenant J. T. Worden and Naval Constructor B. F. Delano, and the same year a full set of bent hanging knees was put into the bark Lexington, built by Edward F. Williams, in

Brooklyn, New York, and another set for both decks into the bark Jane Daggett, built by Webb & Bell at Greenpoint. In consequence of the favor with which the new idea was regarded in naval circles, the steam sloop-of-war Pawnee, which was built in Philadelphia in 1858, was supplied with 60 machine-bent timbers from 20 to 24 feet in length. These were the longest futtocks which had been used up to that time, and were inserted in the difficult curvatures of the bilge amidships. In 1858 the ship Richard S. Ely, at East Boston, was supplied with bent hanging knees. New notions are proverbially and necessarily slow in winning general favor, and the pioneers of this new invention had the usual experience and expended and lost a great deal of time and money in their experiments. But having worked out their ideas on a small scale, the owners of the invention determined upon a bolder policy. In 1864 all the patents became concentrated in the hands of Mr. Browne, and Mr. Griffiths continued his indefatigable championship of the new idea. Bent knees continued to be occasionally used. In 1869–'70 a two-decked ship for the California and East India trade, with bent frames, was built for Glidden & Williams and M. D. Ross at East Boston. This vessel (called the New Era) was finished in May, 1870, and left for Liverpool (via Saint John's, New Brunswick) in June of that year on her first voyage. She was enthusiastically claimed by her owners to be the strongest built ship and the best carrier of her size in the world, and she certainly was a good ship. The details of her construction were as follows: Length at load-line, 183 feet; breadth, $38\frac{2}{12}$ feet; depth, $23\frac{4}{12}$ feet; height between decks, $7\frac{1}{12}$ feet; register, $1{,}146\frac{3}{4}$ tons. Two decks, half poop, trunk cabin; house on main deck; open topgallant forecastle. Keel, gum wood, 12 by 20 inches, in four pieces; stem and apron, white oak; stern-post the same. Every frame timber, floor, sharp rise, knee, breast-hook, rail forward and aft, and chocks thereon, was bent. Frames, white oak, in one length from keel to gunwale and rail, 11 by 13 inches over the keel, tapered to 6 inches molding at the plank-sheer and spaced 21 inches, the joint over the keel strengthened by a floor timber extending from bilge to bilge. Ceiling, pitch-pine, 6 inches, except on bilge, where it was 8 and 9 inches. Keelsons: main, pitch-pine, 15 by 30 inches; sister keelsons, each 12 by 13 inches. Planking, pitch-pine; garboards, 7 and 8 inches, thence to wales 5 inches; wales, 6 inches. Lower deck beams, $7\frac{1}{2}$ by 10 inches, spaced 21 inches, with pitch-pine stringer 6 by 12 inches. Upper deck beams, 7 by 10 inches, spaced 21 inches, with strake 5 by 14 inches, bolted to the under side of beams, and a water-way above 12 by 13 inches. Two hanging knees of white oak, bent, at each end of all beams, sided 5 to 6 inches, with 4-foot arms, bolted to the sides of the beams and to the frame timbers. Besides the bent deck hooks forward and aft there were two pairs of pointers, with large bent hooks in the throat, at each end of the lower hold. Fastening, iron and copper. The ship was well salted. In model she was very full on the floor and otherwise adapted to large capacity. Draught, 20 feet. Anchors, 3,675, 3,500, and 1,000 pounds; standing rigging, wire rope. The New Era proved to be strong, dry, and satisfactory in every respect, and obtained high rates of freight and low rates of insurance, the final test of a good ship. Her actual cargoes were as much as 1,460 tons of coal and 1,555 tons of wheat. Her original rating was A 1* for 12 years, and after survey she was pronounced a model vessel in type of construction. She saw much general service in carrying ice, coal, grain, and mixed cargoes in all latitudes, and her bent frames showed remarkable freedom from decay.

The experiment with the New Era was sufficiently satisfactory to promise a more extended popularity of the principles on which she was built. But the times did not remain favorable to American shipping interests, the continual agitation for "free ships" and the general uncertainty as to the future checking enterprise in this as in many other directions. The machines were costly, and none except a few large contract yards could afford to own them; and finally their most energetic advocate, Mr. Griffiths, died. It is believed that the idea of bent frames has now been practically abandoned.

# CHAPTER III.—SHIP-BUILDING ON THE OCEAN COASTS.

It is now proposed to note the present state of the wooden ship-building industry on the various ocean coasts of the United States, beginning with Maine and taking up the different localities in geographical order.

## MAINE.

Maine has long been the largest builder of merchant sailing vessels, her ship-yards producing the most and the largest of this class in the United States. Cheap timber, low wages, and the nearness of the fisheries, gave her this precedence originally. Her timber is now almost entirely gone, and she only keeps the lead through her low wages and the enterprise of her builders. Ship-building and ship-owning are the only trades the people know in more than fifty towns on the sea-coast, but they practice both callings in dull times because they do not know what else to go into, and in good times they follow them because both are profitable. These fifty towns are composed mainly of ship-owners, ship-carpenters, calkers, riggers, sail-makers, anchor-makers, rope-makers, shipsmiths, painters, boat-builders, lumber dealers, fishermen, sailors, and other persons, who live by the various branches of the industry; in all there is a population of about 200,000 souls dependent on the prosperity of shipping for their support. In some of the smaller places the building, repair, and operation of fishing vessels are the specialties followed; in others the building is all of large class ships and coasting schooners. Since 1857 these towns have had a varying fortune. In some the old builders were ruined by the reaction of that year, and have never attempted an ambitious class of work since; in others, while ship-building is not what it was once, a large vessel or two is built every year, serving to keep the industry so far alive that if there should ever be a large demand for ships the men would be there to build them; but the tendency of late years has been toward a concentration of the business in Camden, Rockland, Thomaston, Bath, Yarmouth, Freeport, East Deering, Portland, and Kennebunkport, to the detriment of the smaller towns, the latter having experienced stagnation and loss of population in consequence.

In the following notes of the state of the industry in different localities no attempt at entire completeness is made, the intention being merely to present such general and important facts as could be gathered from the leading men of each place by necessarily brief personal visits or by correspondence.

At Eastport and Calais, on Passamaquoddy bay, there was formerly an extensive industry in the building of fishing vessels and coasting sloops and schooners, and from 1871 to 1876 every yard on the bay was busy. The people owned the vessels, and but few were sent away. In the five flush years every man who had anything to do with the industry in any way became loaded down with shares in vessels varying from one thirty-second to one-fourth part, and as long as freights were good and fishing paid this activity continued. Vessels cost from $24 to $43 per register ton; but freights declined in consequence of the steamboats that were built to run along the coast, and fishing, by reason of the fishery treaty with Canada, as well as the vessels, ceased to pay. The local taxation amounted to about 2½ per cent. annually, and every one then wanted to sell, but no one to buy. Building virtually stopped, and has ever since been confined chiefly to fishing boats of from 16 to 25 feet in length; occasionally a brig or a small schooner of from 10 to 50 tons, with now and then a tug, is built. There has latterly been a change for the better, but it is a slight one, and vessels do not yet pay more than 4 or 5 per cent. clear of insurance and taxes. The woods used are beech, birch, and maple in the bottoms of vessels, with very little oak. Spruce and hackmatack frames and planking are popular; they cost less, and in most cases last as long. White pine is put into the decks. There are few professional builders of either boats or vessels on the bay, and those who build generally hire a master carpenter to superintend the job, who employs the men, while the owner pays the bills. On the islands there are a large number of men, half landsmen, half seamen, who farm, fish, and build boats by turns, and so much of the smaller class of work is done by them that little is left for the professional builders. During the census year wages varied from $1 50 to $2 per day of ten hours, according to the skill of the man. At Calais there was a marine railway for the repair of small vessels.

On the Aroostook river, in Maine, there is as yet no vessel building. During the census year there was one flat-bottom stern-wheel steamboat, carrying about 50 tons, and that was the only vessel in the whole region. The other craft employed was the batteau, a flat-bottom skiff with pointed ends and flaring sides, which was used in driving rafts of logs down the river. It is estimated that about 75 of these light and fragile boats are made every year for lumbermen. They are constructed of pine boards, at a cost of from $10 to $25 each, and will carry about half a ton.

East Machias formerly built many vessels of good size. There are four yards in the town, but they have been lying idle since 1876. In one of them the plant was quite complete and expensive, including a machine-shop, saw-mill, and carpenter-shop. At Machiasport the same state of facts existed, only one small schooner being built in the census year. Local taxation was complained of by the owners, who declared that assessments ought to be made on the net income of the vessel, and not on the cost.

At Cutler the principal builder was M. B. Stevens, who had built 28 brigs, schooners, and barks, during the census year; but none were built during the preceding four years, the losses of capital by armed cruisers during the war, the taxation of shipping, and the general decline of business having produced the result. Here, as elsewhere, there was much complaint that the national laws were not framed to protect the owners of shipping.

At Brookline coasting was once the life of the place. Fifteen years ago the town owned 40 or 50 good sized vessels, but there were not half a dozen left in the census year. There was no repairing, and a few small sloops and boats were all that were being built.

Harrington, once a prosperous village, is now becoming depopulated by the loss of its main industry, and there has been a heavy loss to the town by the decline in the value of vessel property in the coasting trade, some men having lost $50,000 each. The large ship-yard of H. W. Ramsdell has been sold for saw-mill purposes, and the inhabitants were moving to other parts of the country, as there was little other business they could follow to advantage at home.

At Millbridge there is still some building, but not much. This town has many skillful workmen, but ship-building is no longer depended upon for a livelihood. Wages, in consequence, were low, seldom exceeding $1 50 per day. The shareholders in vessels complained of the burdens of tonnage duties, local taxation, and compulsory pilotage at the principal harbors, while the captains of coasting vessels were so familiar with the different ports that they claimed to be able to get into and out of them all in safety without pilots, and the extravagant charges they had to pay, for no good purpose, were a source of constant complaint.

At Bluehill ship-building was the principal business 20 years ago. Several families were engaged in it extensively, owning parts of all the vessels they built, and the town was prosperous. The industry has since entirely died out, and only a few old vessels lingered in the possession of the town in the census year, the owners all hoping soon to be rid of the burden of repairing even those. There is still enough timber on that part of the coast to do considerable building if there was any call for it. A large number of the small towns on this part of the coast east of the Penobscot told the same story as Bluehill.

There is no ship-building at present at Ellsworth, and a gloomy view of the future of shipping was taken there. The cause of this dullness and the desirable remedies were given by builders to the following effect: Tonnage taxes should be abolished, especially in the coasting trade; duties should be remitted on all materials in American ships; a certain amount of the duty on goods imported in American bottoms should be remitted, and some of the heavy consular charges should be abolished.

At Bucksport there is still some work done, a bark of 568 tons and three schooners of 15, 17, and 86 tons each being built in the census year. There are two marine railways in the place, one capable of hauling vessels of 300 tons out of the water for repair, the other for vessels of 1,200 tons. The owner charges a fee of 10 cents per ton for hauling out, which he does with horse-power and windlass, and the vessel employs the carpenters, calkers, and painters to make the repairs. From thirty to fifty vessels are taken out per year; but the business is dull, the maritime interests of the town having greatly decayed. The woods used at Bucksport were: Frames, hard wood, oak, and hackmatack of local growth, worth $30 per thousand board feet; keelsons, beams, ceiling of hold, and outside planking, pitch-pine from the southern states, worth $35 per thousand feet; stem and stern posts, white oak; deck plank and cabins, white pine of local growth, worth $30 per thousand; knees, hackmatack; masts and spars, white pine and spruce. Spruce, being light, able to withstand the heat of warm climates, and costing only $15 per thousand, is somewhat used in frames. A deterioration in the hard wood now used is noticed, owing to its being from second-growth trees. Carpenters' wages were $1 75 per day; fasteners, $1 50; joiners, dubbers, calkers, and spar-makers, $2 and $2 25. The Bucksport vessels cost from $45 to $50 per register ton, but builders and owners said that taxation, consular charges, pilotage fees, the laws concerning seamen, etc., weighed heavily on shipping.

On both sides of Penobscot bay there are many ship-building communities, the principal ones being Rockland, Camden, Searsport, and Brewer. At Rockland there are several marine railways for hauling coasting schooners out of the water for coppering, repair, and rebuilding. The limestone quarries of this town have given a great deal of employment to coasters, and a great many of the shipping men own from ten to twenty vessels each, either wholly or in part. Repairing and coppering are, however, the principal work of the yards. Spruce from Isle au Haut and other parts of the coast is much used here; the local supply of timber is almost completely exhausted.

Searsport was formerly an active ship-building town. All the vessels built were owned there, and it is said that there never was a vessel built on contract at Searsport for outside owners. A few years ago, when coasters became unprofitable, builders and investors turned their attention to other forms of business, and the industry has nearly died out in consequence, two or three small schooners a year being about the only product of the town. Excellent ship-yards exist, but their value is not rated above one-third what it used to be.

At Camden three schooners of 383, 415, and 436 tons register, respectively (three-masters), were built in the census year, and there is always more or less work going on in the yards of the town, although nothing to compare with earlier years. Ten years ago and previously such wood as could be obtained in Maine was used in Camden vessels, especially in the smaller ones. Floor timbers were hewn from hard wood; that is to say, from beech, birch, or rock-maple, which is what is meant in Maine by "hard wood". Hackmatack and spruce tops were used with oak planking, and sometimes oak frames and oak planking; but of late years Virginia and Maryland white-oak frames have been obtained for large vessels, and southern pitch-pine has come into universal use for ceiling, planking, deck frames, stanchions, plank-sheer, etc. This southern lumber costs very little more than that of Maine; and as the importation of it makes business for the coasting vessels, it has become the favorite at Camden, as well as at many other building centers. The prices are: Hard wood, hewn, $29 per thousand board feet; hackmatack, $38 per thousand feet; pitch-pine, $26; southern white oak, $35. Pitch-pine has the advantage of coming in longer lengths than any other lumber; besides it is durable and strong. The Camden builders say that hard wood and hackmatack frames, or white oak frames planked and ceiled with yellow pine and well salted while building in the frame spaces above light water mark, are an improvement upon the old custom of white-oak frames with white-oak plank and ceiling, as oak in contact with oak is said to decay. The wages at Camden varied from $1 50 to $2 per day of 10 hours, according to the skill of the men, and the cost of building a vessel ranged from $45 to $55 per register ton. One firm, when asked about the prospects of sailing vessels as compared with steam, replied to the effect that they had less fear of steam vessels, except between large ports, than of bad laws in regard to taxation and the shipment and discharge of seamen and of inattention to shipping interests abroad by the consuls. Three months' extra pay and the discharge of the sailor are demanded abroad whenever a technical flaw can be found in the articles of agreement, and it was claimed that the consul too often looked after the interest of an unprincipled seaman rather than after that of an American ship. The seamen are mostly foreigners, and the consul aids them to take thousands of dollars out of the ship. A good seaman need never be without a good ship in any part of the world, as the ship is more often in need of good seamen. The law requiring ships to transfer wrecked or destitute seamen from Calcutta to New York for $10 was severely condemned, and tonnage dues and local taxation were also deemed hard burdens when a ship was earning little money. One member of the firm said:

> I think we shall require sailing vessels, like those of the present model, wide and shoal, for the coasting trade, such as for coal and pitch-pine lumber, and also for lighter cargoes, as steam cannot take their place. A three-masted schooner of 600 tons will pay better for the amount invested than a steamer in the coal business. No one would think of carrying pitch-pine on a steamer. I think that to build up our commerce the burdens on shipping ought to be taken off, so that the man who invests either in a sailer or a steamer shall get back a return equal to that on other investments. There would then be little trouble about our having a commerce, both sail and steam, to compete with any other nation.

It should be explained that on Penobscot bay, as, indeed, throughout Maine generally, the majority of builders are also owners of vessels.

Belfast is one of the old ship-yard towns of Maine, but the industry is quiet at present. Some work was done in the census year, but not much, and very little had been done for the previous five years. The vessels of Belfast are generally coasters, and cost about $48 a ton. Hard wood (beech, birch, and maple), spruce, and hackmatack are somewhat used for floor timbers and keels; but oak is preferred, especially in large vessels. Oak and pitch-pine cost one-third more, and are now known to be more durable. Hard wood costs $28 a thousand at Belfast; hackmatack, $36.

At Brewer the work done is principally repairing, two large marine railways being employed there to haul out the steamboats of the bay and river and any other vessels needing repair. Steamboats and small vessels are occasionally built for the river.

Thomaston is famous for her large ships. The first vessel, so far as can be ascertained, was built in 1787. Some of the early vessels were partly owned by General Henry Knox (the friend of Washington), who lived on a fine estate in Thomaston. Sloops, schooners, and occasionally small ships were built in the early years; but not over three or four were built in any one year until 1825, when the business began to be more active. In 1845 came the first rush, but ships of no larger size than 565 tons were built until 1848. After that large vessels were in order, one of 991 tons being constructed in 1850 and one of 1,146 tons in 1851. Several vessels of about 1,200 tons and upward were launched yearly until after the crash of 1857. Thomaston has given birth to many of the finest builders of vessels and most proficient sea captains in the United States, one of the leading builders, Edward O'Brien, having built since 1850 the following full-rigged ships:

| Year. | Name. | Register tonnage. | Register length. | Breadth. | Depth of hold. |
|---|---|---|---|---|---|
| | | | *Feet.* | *Feet.* | *Feet.* |
| 1850 | Edward O'Brien | 797 | 158 | 33 | $16\frac{7}{12}$ |
| 1854 | S. Curling | 1,697 | 205 | 40 | $29\frac{4}{12}$ |
| 1855 | Vesper | 1,497 | $213\frac{7}{12}$ | $38\frac{9}{12}$ | $19\frac{3}{12}$ |
| 1856 | Mary O'Brien | 1,297 | 191 | $38\frac{5}{12}$ | $19\frac{2}{12}$ |
| 1858 | Mary A. Campbell | 1,373 | 195 | 39 | $19\frac{7}{12}$ |
| 1860 | Ellen Creighton | 1,287 | $193\frac{7}{12}$ | $37\frac{1}{12}$ | $18\frac{2}{12}$ |
| 1863 | Edward O'Brien | 1,552 | $211\frac{3}{12}$ | $39\frac{6}{12}$ | $19\frac{10}{12}$ |
| 1866 | Wm. A. Campbell | 1,535 | $209\frac{10}{12}$ | $41\frac{3}{12}$ | 24 |
| 1866 | Andrew Johnson | 2,006 | 215 | 41 | 30 |
| 1869 | John Bryce | 1,968 | $217\frac{11}{12}$ | 42 | $21\frac{8}{12}$ |
| 1870 | A. McCullum | 1,951 | 215 | 42 | $29\frac{5}{12}$ |
| 1874 | Alida | 1,672 | 223 | 42 | $24\frac{6}{12}$ |
| 1875 | Belle O'Brien | 1,903 | $237\frac{6}{12}$ | 42 | $26\frac{2}{12}$ |
| 1877 | Alex. Gibson | 2,194 | $247\frac{4}{12}$ | $42\frac{7}{12}$ | $37\frac{7}{12}$ |
| 1877 | Baring Brothers | 2,167 | $243\frac{8}{12}$ | $42\frac{4}{12}$ | $29\frac{6}{12}$ |
| 1878 | Frank F. Curling | 2,201 | $245\frac{3}{12}$ | $42\frac{6}{12}$ | $29\frac{6}{12}$ |
| 1879 | J. B. Walker | 2,178 | 247 | $42\frac{2}{12}$ | $27\frac{2}{12}$ |
| 1881 | Gen. Knox | 2,218 | 251 | $42\frac{5}{12}$ | $29\frac{1}{12}$ |
| 1882 | Edward O'Brien | 2,157 | 259 | $42\frac{6}{12}$ | $28\frac{10}{12}$ |

The large ships are generally three-deckers, have billet heads and square sterns, and carry sky-sails on every mast. The frames are of white oak from the South; the planking and ceiling, keelsons, deck beams, deck plank, lower masts, and topmasts pitch-pine; the knees hackmatack, from Maine and Canada; the treenails locust; the light spars spruce; and the cabins white pine, oak, and walnut. In the new Edward O'Brien and the Andrew Johnson the lower masts and some of the yards are of boiler iron. When the former was launched an anchor of 4,200 pounds was dragged by her from the yard to the river, plowing a furrow 5 feet deep and pulling large trees from the ground.

There has been one other large builder in Thomaston, Captain Samuel Watts, who has built about thirty full-rigged ships for the merchant service, among them the Samuel Watts, of 2,035 tons; the Loretto Fish, of 1,945 tons; the Joseph B. Thomas, of 1,938 tons; the H. L. Gregory, of 2,020 tons; the Alfred D. Snow, of 2,075 tons; the Abner I. Benyon, of 2,044 tons; and the Cyrus Wakefield, of 2,013 tons. The size of these huge merchantmen will be better appreciated when it is understood that few ships under the English flag approach them in register tonnage. The largest iron clippers of England are in the grain trade from California to Liverpool, and seldom exceed 1,600 tons register; but it is not known that many of 1,600 tons ever visit San Francisco.

The large California ships of Chapman & Flint, of New York, until within a few years have also all come from Thomaston; but a few years ago their yard was spoiled by a new railroad running through it, and it was removed to Bath.

These three firms have always built for themselves, and belong to that class of old shipping families in New England which grew up after 1812 whose enterprise and family pride made the fortune of American shipping. The history of all is about the same. Beginning modestly with small vessels, they put smart young men in charge of them, were prudent in all their expenses, used good judgment and great energy in the management of their affairs, and made money. Every year or two these firms would build a new vessel out of the profits of the old ones and put it in trade along with the others; but as trade expanded they built larger and larger, and in time each came to have a fleet of from ten to fifteen of the finest and largest class of ocean carriers. They would never sell a new vessel, but would keep it until it was about twenty years old, when they would sell it at half price to Germans, Italians, or other foreigners and build a new ship to take its place. Their vessels were put into the trade that paid them best at the time, the cotton business of southern ports and the trade of California and China employing the most of them. Some of them went into the carrying of guano and nitrate from South America to Europe, bringing back iron, salt, and heavy goods; others traded to India; but of late years the grain trade of California has given them the best occupation. The problems of building good ships have all been solved, the cheap labor and fairly cheap materials at the command of the Maine men leaving them little to desire with regard to cost, and whenever they are asked what is needed to revive American ship-building they invariably reply from their point of view as owners. One reply at Thomaston was to the effect that—

> One of the disadvantages under which we labor is double taxation, governmental and municipal. Another is the shipping commissioner act, which does not allow a ship to trade for its crew direct and to pay them off whenever desired. The three months' pay business is another. This weighs so hard on us that ship-owners have almost come to look on our consuls abroad as enemies to our shipping. The laws make sailors so independent that there is no inducement for them to try and save a ship from wreck when she is in trouble, as they get their pay whether there is anything saved or not.

Besides the three firms above named other persons have built vessels at Thomaston. The handsome ship Harvey Mills, of 2,186 tons, was built there by a gentleman of that name for himself, and is 231 feet long, 43 feet beam, and 29½ feet deep in the hold.

Saint George's harbor is a little place near the mouth of the Penobscot for the repairing of fishing vessels, and considerable business is done at the marine railways there.

Bristol, Bremen, and Friendship, like a large number of other places on the coast of Maine, are fishing towns. Fishing schooners have been built from time to time at Friendship since 1830, and average about 40 tons in register. Most of the building has been of a class commonly called "shore boats". A few vessels have also been built at Bristol at irregular intervals, and some builders have sometimes employed as many as 25 men at one time. There are only two or three regular yards. Some of the building has been done by men who constructed one or two vessels and then no more. A. & M. Gammage & Co., at Bristol, have built about 55 schooner-smacks since 1854—8 of them ranging from 105 to 127 tons, the rest averaging about 40 tons—nearly all for owners at other places in Maine and Massachusetts. Most of the work in these towns, however, is on fishing boats, particularly in Bremen, which is noted for the number of its boat-builders and the excellent product of their labor. The boats are mostly sailing boats, from 18 to 26 feet long over all and from 6 to 9 feet wide, with center-boards, wash-boards along the gunwales, and with a cuddy forward, in which is placed a small stove. These boats are mostly used as lobster boats, and are largely employed in winter; and as they go out some distance from land a stove is necessary, both for the men and also to keep the lobsters from freezing until they can be transferred to live-cars and sent to market by sailing smacks. The house adapts them also for shore fishing, and in the right seasons they go out beyond the islands of Monhegan and Matinicus, take their fish, and then sail with them to the port which promises the best market. The boats are generally built during the winter. The keel of the boat is laid in the early part of the season, and the owner works on it at odd times, taking the entire season to complete it. One man working steadily could build a 16-foot lobster boat, worth $80, in about a month, and a 25-foot boat, worth $200, in two months. The builders are fishermen themselves, and usually have a small shop, in which the molds and tools are kept and the work is done. By long practice some of these fishermen have become expert boat-builders and have got orders for boats from other men, and with the aid of a lad or two it is not unusual for one of them to build from five to eight boats in a winter. Five Bremen builders have already built and sold from 20 to 100 boats each, ranging in length from 15 to 25 feet. In the yards where the smacks are built the workmen are often fishermen who have learned the art of carpentry, but a portion of them are small farmers. The rest consist of regular carpenters, who go to Bristol, Bremen, and Friendship in winter and roam for work elsewhere in summer.

Dennysville is little interested in shipping now, but there has been a great deal of work at this place in the last 15 years, and a large amount of money has been put into coasters. Losses and shrinkage of values being so heavy that it did not pay to repair the vessels, these have depreciated greatly, and the town is depressed in consequence. Complaint was made here of taxation and of the compulsory pilotage fees at New York and elsewhere.

Waldoboro' is a little town supported mainly by its shipping interests. Large vessels have been built for coasting and foreign trade here, and during the clipper-ship period the town was prosperous, carpenters earning high wages and bosses receiving from $5 to $7 a day each. Only a bark and a schooner were built at Waldoboro' in the census year, and the manner in which the bark was provided for illustrates the way in which a great many of the Maine vessels originate. One of the owners, having $7,000 of surplus cash on hand, proposed to build a bark and to pay the carpenters as his share in the vessel. The other shares were taken up by those who supplied lumber, iron work, sails, and other materials and work, each contribution being rated at $\frac{1}{4}$, $\frac{1}{8}$, $\frac{1}{16}$, or $\frac{1}{32}$, as the case might be. This vessel was built, sent out to sea, and had paid two dividends before application was made for the facts about her for the census. The owners had never had a settlement; no one knew what the shares of the others had cost them and what was the actual cost of the ship, and it had to be figured up especially for the census. Every one in Waldoboro' was discouraged. The ship-yards were idle, with little prospect of anything good ahead; the supply of local timber was exhausted; and to build a ship all the lumber, iron, etc., had to be brought by coasting vessels from other parts of the country. Complaint was made of taxation, pilotage fees at the great cities, and competition of steamboats in the coasting trade. Enterprise was almost at an end, and the town was losing its population. The Waldoboro' vessels cost about $55 per register ton.

Damariscotta and New Castle, two villages divided by a small stream, have carried on the building of large vessels for a long time, schooners, brigs, barks, and ships having been constructed extensively for local owners, and often by the owners for themselves. Before 1861 packets and clippers were built here, but the later ships have been for the California trade, and are of about 1,300 tons register. Wages are low, owing in part to the stagnation of business, and on that account ships can be advantageously built, as the cost would not exceed $45 or $46 per register ton. The death of some of the more enterprising men, and the general decay of the American carrying trade, have seriously affected the town. The ship-yards lie idle nearly the whole year round, and people are moving away.

Wiscasset was formerly engaged in building to a considerable extent, but the business is now virtually dead. In the latter part of 1880 a schooner was launched, however, and there are quite a number of persons who occasionally build scows and gondolas for river use; still they do not follow the business regularly, and what they do cannot properly be regarded as ship-building.

Boothbay was formerly an active town, and before the reaction of 1857 a great deal of large-class tonnage was produced there. At Boothbay and East Boothbay 100 sail of large brigs, barks, and ships had been launched, many of them being built on speculation for the general market; the demand was so great after 1845 that most of them were sold on the stocks long before completion. Boothbay vessels were famous for their excellence, the fruiters, all schooners, being very smart and able vessels, long and sharp, and carrying a great deal of sail. When the crash came building stopped at Boothbay, not to be resumed down to the present time, and many builders were ruined. The vessels on hand were unsalable at any price, and one that was sent to New York to find a purchaser lay there for 11 months before she was sold. Since that time only fishing craft have been built at these little towns, smacks and menhaden steamers being the product. At Boothbay, however, there is considerable repairing done, and the two railways are pretty constantly employed. Fishing vessels are generally hauled out twice a year, once for painting the bottom, and once for a general calking, repainting, and refitting, paint, oakum, pitch, iron, a little timber, cordage, and canvas being the materials consumed. In heavy weather Boothbay is often the resort of hundreds of vessels, which run in for shelter and bring considerable work to the railways.

At Georgetown the first builders were tempted into the business by the fine growth of native white oak and pine on the island. Vessels were built here long before the Revolution, and more than 150 sail in all have been launched from the different yards. The industry saw its best days, however, in the prosperous times before 1857. A great many ships and barks of from 1,100 to 1,454 tons were built in 1854, but the reaction of 1857 ended the business for Georgetown so far as anything except fishing vessels were concerned. A few fishing smacks of from 40 to 100 tons have since been built by the people on the island, but the business has been limited. Those who went into the construction of smacks did so at first because they owned farms with groves of white oak on them, and the work was generally done in the winter, when the men would otherwise have had nothing to do.

At Phippsburg there is one yard, at which the owner builds a schooner or a large ship every year or two for his own use. There has always been some work at this place.

At Richmond there are two yards, in one of which the owner has built for himself about 50 vessels. He never sold a new ship. His beginnings were small, but he now builds about one ship a year of large size. The Theo. W. Allen, finished in the census year, was of 1,537 tons, and the Eureka, in 1876, registered 2,101 tons. The timber for Richmond vessels is imported from the southern states, only the knees and a little hard wood being of Maine growth. The cost of building is about $48 per register ton.

At Bath, the principal ship-building town of the United States, the business dates back to 1745, sloops and small schooners having been built at that early date for the coasting trade. This town enjoyed the advantages of a broad, deep river, which seldom, if ever, froze over in winter, and of an abundant supply of the finest white-oak and white-pine timber, the banks of the river, as well as the whole of the surrounding country, being covered with dense forests of this valuable wood. The roads were bad, and traveling and trade were chiefly by water; but the town prospered more than any other on the coast. The first few experiments were successful, as the vessels made money, and the town went on building, increasing the size of its vessels and the field of their operations year by year. In 1762 Captain Swanton built the first ship-rigged vessel on the Kennebec, the Earl of Bute, for a merchant in Scotland. He afterward built a ship every year until the revolutionary war, and in 1776 built a privateer of 18 guns, which did good service in the war. After the Revolution quite a number of ship-yards were in existence in the town, launching sloops, brigs, and schooners of from 100 to 300 tons, an occasional bark and ship of from 200 to 400 tons, and now and then a privateer. Both in the building and in the management of vessels Bath men have been successful from the earliest times. About 1800 the cost of building was $30 a ton. The ship Reunion, of 281 tons, cleared her cost three times in as many successive voyages to England. After the war of 1812 this business grew considerably, from 7 to 15 vessels being launched yearly. By 1840 the capacity of the larger vessels had increased to 680 and 725 tons; they were owned on the river, were square-rigged vessels, and were used in the general trade to Europe, South America, and Asia. In 1841 the daring experiment of the Rappahannock, 1,133 tons, was made by Clark & Sewall, followed by the construction of other large craft; and the years from 1841 to 1857 constituted a period of great prosperity, in which several Bath families built up large fleets of vessels and accumulated much wealth. In 1851 the town launched 25 vessels, and in 1854 about 35, eleven of them being from 1,080 to 1,580 tons register each. It is remembered that in the latter years 25 large square-rigged vessels lay at the wharfs of Bath at one time receiving their sails and outfits, while a large number of ship-yards were busy along the river all the way up to Augusta. The crash of 1857 wiped out nearly all the ship-yards of the Kennebec, except at Bath, Richmond, and Phippsburg, and the bulk of the business has ever since been concentrated at Bath. The principal shipping families of this town have been the Houghtons, the Pattens, and the Sewalls, who owned large fleets of fine vessels. They and others have built an average of one and two large merchantmen every year. A few yards were owned by contractors. Bath finally became the principal building place of sailing tonnage in the United States; a distinction it has enjoyed to the present time. The building of large vessels has brought a great deal of business to Bath, and about 1,300 vessels, of a total of 720,000 register tons, have been built in this enterprising place down to 1882.

The production of fishing vessels never assumed important dimensions in Bath until after the late war. Before that time fishing schooners had been built at irregular intervals by the larger firms, chiefly as a means of keeping their men employed; but about 1865 several firms made a specialty of smacks and fruit schooners of from 50 to 200 tons burden. For ten years a great deal of this business was done, about 20 vessels being launched yearly, and the activity in this branch of the industry was the more appreciated because work in the larger yards was dull. The schooners were of a superior and much admired model, and orders came in for them so fast that there were often two or three building in each yard at the same time. Contracts were generally made in the fall, and the work was completed in the spring; but after 1877 this branch of the business fell off considerably. Bath has no fishing interests of any account, and the tendency of fishermen is to have their vessels built near their own homes, nothing except very low cost tempting them to go far for their craft. Besides, 1877 was a time of losses and shrinkage. Owners were not always willing and able to take what they had ordered and pay for it, and vessels built for sale found no buyers. One smack of 82 tons which cost $4,100 was left on the builders' hands for 18 months, and was finally sold for $2,800. At present few smacks are built in Bath; but the yards launch plenty of schooners, principally coasters and fruiters.

There are at present eleven ship-yards in Bath; the proprietors of six of them build only for themselves. One firm has been known for making remarkably good vessels, which always sailed in the cotton trade to Liverpool, bringing back salt and manufactured goods. This firm brought the first southern pitch-pine to Bath to use for planking. The lower deck beams would not always be planked, and pine lumber was taken on in the southern ports and laid in loose, to aid in storing cargo. On returning to Bath after a round trip the masters left the dunnage lumber behind, and it was used in ceiling new vessels. Yellow pine came in such long pieces that its value was appreciated as soon as it was necessary to build large sized vessels. This firm now builds full-rigged ships only of from 1,700 to 2,000 tons register, employing them in the California trade, and, to some extent, in the great ice business of the Kennebec to American ports. The durability of these vessels has been great, owing to care in the selection of materials and judicious salting. The ordinary mode of salting a ship is to fill the frame-spaces from the plank-sheer to the stops, put in at light-water mark, with mingled shavings and rock-salt, and sometimes with salt alone, from 50 to 70 tons of salt being required for a large vessel. This firm often bored auger holes in the top timbers, filling them with brine, which percolated through the heart of the timbers the whole length of the stick. Timbers thus treated were often as bright after 20 years' service as when first put in.

The Sewalls began just after the Revolution, being led into the business, in part, by the possession of a large farm, coming down to the bank of the river, heavily timbered with oak, hard wood, and pine. The regular building by the concern began in 1823, and the brig Diana and several other vessels were made from timbers cut from this farm. This house first engaged in the lumber trade to the West Indies and the cotton trade to Europe, some of their vessels also doing packet service. The list of vessels built by them and a description of the Rappahannock have been given elsewhere in the paragraphs speaking of the increase of size in shipping. The house is now extensively engaged in the California trade, building 1,900- and 2,000-ton ships at the rate of about one a year, besides a few schooners.

At two other yards the owners build vessels of the largest class for themselves. In clipper times their vessels were sharp, and were heavily strapped with iron. Iron knees 25 feet in length and weighing 1,700 pounds were used in some of them. The ships are all large class, and are of about 2,000 tons register.

The Pattens have built about sixty square-rigged vessels, all for themselves. They began small, but all the later vessels have been from 1,000 to 1,500 tons register. Adams & Hitchcock and the Morses also build only for their own use. Their product is all in large coasting schooners, principally for carrying ice and coal.

There are other concerns in Bath who build their own vessels from time to time, but the work, other than that of the houses named above, is chiefly contract work for the general public. William Rogers generally has two or three vessels under way at once; and Goss & Sawyer and Goss, Sawyer & Packard have seven or eight schooners, barks, and ships, with an occasional propeller or steamboat. At the two yards last named there were built, in 1881 and 1882, 44 vessels, registering 34,000 tons.

The workmen in these yards are mainly Americans, three-fourths of whom have houses and families in the town; some have bank accounts. Although working for day's wages, their regular employment and prudent habits enable them to lay up money. They are nearly all men of middle age and upward, as few young men have been learning the trade in Bath of late years, owing to the gloomy outlook for American shipping.

Bath vessels are famous for their excellent models and their handsome appearance, and are popular with captains on account of the pains which have been taken to fit up the cabins in style and comfort. Nearly all the New Bedford vessels are now built in Bath, and business has been brought here from all the principal shipping towns of the north Atlantic coast, as also from the Pacific coast. A great many lumber vessels owned in San Francisco and on Puget sound were built in Bath.

All the early Bath vessels were built of native oak and hard wood, with white-pine houses, decks, and masts. Oak and hard wood were put into the keels, elm rarely, and sometimes black gum from the South. The stem and stern-posts, as also the planking, were always of oak; and this fashion, even after the introduction of pitch-pine, was retained for a while for the bow. The knees were formerly of oak. But the local timber of any value has been all cleared away, a century and a half of active ship-building and a large export trade in lumber having destroyed the old forests of this region. A little hard wood is still hauled in for use, and is prized for the bottom of a ship. White oak, beech, yellow birch, and maple are used indiscriminately for keels. Beech, birch, and maple are good for floor timbers where they are covered with salt water, Goss & Sawyer considering them better than oak, as they are stiff woods, and, being free from the acid contained in oak, do not rust the fastening. Many of the frames, even of the smaller vessels, however, and nearly all of those for the larger ones, are cut in Delaware, Maryland, and Virginia in the winter time from the superior white oak of that region. Hackmatack (or tamarack, as it is sometimes called) is used now to a large extent for the top timbers of the frames, as it is lighter than oak and more durable, and holds the iron fastening as does no other wood, its resinous nature protecting the bolts from corrosion. Ships with "hack" tops carry more cargo and are a trifle more stable than those with oak tops. The keelsons and all the other parts of the vessel are of southern pitch-pine, save the decks, houses, and spars, which are of white pine and spruce, and the knees, which are of hackmatack, brought in by rail from the backwoods or from Canada; the white-pine masts come from Michigan. Two cargoes of Oregon pine (yellow fir) have been brought to Bath and utilized for decking, masts, and spars. It is a remarkable fact that while Bath builds the cheapest wooden vessels in the United States at present, nearly every ton of timber, iron, pitch, hemp, salt, canvas, etc., entering into their composition is imported into the town from places outside the state. As the cost of material is two-thirds the cost of the ship, the state of Maine has a smaller interest in her own vessel building than the rest of the country. The price now paid for ship timber delivered in Bath is as follows: Oak plank, $45 per thousand feet; oak timber, hewn to the molds, $33; pitch-pine, sawed, $28; hard wood in the round log, $20, for what can be squared out of the log; white pine, $35; hackmatack timber, $35. Knees cost about as follows, the prices being governed by the siding thickness and freedom from defects:

| | |
|---|---|
| 5-inch knees | $0 75 to $0 90 |
| 6-inch knees | 1 25 to 1 30 |
| 7-inch knees | 2 25 to 2 50 |
| 8-inch knees | 3 50 |
| 9-inch knees | 4 20 to 4 50 |
| 10-inch knees | 7 00 |
| 11-inch knees | 8 00 |
| 12-inch knees | 9 00 |
| 13-inch knees | 10 00 |

Prices vary somewhat with the season of the year and the demand for them. Knees are obtained from the root, and rarely more than one can be obtained from a tree. A two-deck ship of 2,000 tons requires about 650 knees; one of 1,600 tons, about 550 knees; a bark of 850 tons, two decks, 425 knees; a large single-deck schooner of 450 or 500 tons, 260 knees; and a schooner of 300 tons about 210 knees.

The cost of building vessels at Bath is kept low on account of the system of operation, the low rate of wages, and the great efficiency of the men. The system prevails of contracting for the frames, which are cut in the South by cheap hands and delivered in Bath ready for putting together. In the contract yards such of the local hard-wood timber as is utilized is sawed to the proper shape by a steam jig-saw which will tilt to any angle and cut the timber of any bevel, two men doing the work more rapidly than a dozen men would with axes. The fastening, blacksmith work, joinery, calking, spar-making, sail-making, and rigging are all done by contract. The system practically amounts to this: The labor is divided among men skilled in their respective branches, and is thus more quickly and efficiently performed; and the contractor makes $2 or $3 per day more than the men, and that is about all. The carpentry work is all done by the day, the men getting from $1 50 to $2, according to their efficiency. One system which prevails in Bath, as well as throughout the whole of the United States, is that carpenters, calkers, and joiners supply their own tools. The outfit of a carpenter or joiner costs from $50 to $75; of a calker, $15. The fastening requires a special outfit of augers, etc., which is supplied by the contractor, costing about $175. The blacksmith contractor's outfit costs him about $400, the rigger's $300, the sail-maker's $200, and the block-maker's $1,200. This system saves the builder a great deal of expense. During the census year the average cost of building large vessels in Bath was $45 per register ton. Schooners cost $55 and $60, but there was a difference between the cost of contract work and that which the large houses did for themselves. In the latter case a good ship, regardless of expense, was the object, and large ships ranged from $43 50 to $54 per register ton in consequence. By taking time, watching the market, and buying when materials were low, a first-class ship did not need to cost over $45 per register ton, and a large schooner not over $53.

The Houghton Brothers supplied the following data about the cost of materials and of building large ships in the following years:

| | 1825. | 1835. | 1845. | 1855. | 1865. | 1880. |
|---|---|---|---|---|---|---|
| White oak, Maine ........ per thousand feet.. | $21 | $25 | $27 | $27 | $33 | $35 |
| White oak, southern ........ do...... | ........ | ........ | ........ | 35 | 33 | 35 |
| Pitch pine ........ do...... | ........ | ........ | 26 | 28 | 50 | 30 |
| White pine ........ do...... | 10 | 24 | 26 | 30 | 40 | 35 |
| Hard wood ........ do...... | 15 | 15 | 21 | 22 | ........ | ........ |
| Iron bolts ........ per ton.. | 85 | 80 to 90 | ........ | 45 | 90 | 60 |
| Cost, per ton, to build ........ | 45 | 50 | 45 | 60 | 70 | 45 |

There was much complaint in Bath of excessive taxation of vessels and of governmental regulations which interfered with the freedom of a ship both at home and abroad, the payment of compulsory pilotage at such ports as New York and Boston being especially complained of. The code with regard to the shipment and discharge of seamen was also strongly condemned, and the consular service was much criticised. Bath is the home of not only a large circle of ship-builders and ship-owners, but of a large number of men who have followed the sea all their lives. They have visited every part of the world, have had every possible opportunity to study the workings of the American consular system from the shipping point of view, and are unanimous in declaring that a complete remodeling of the system is necessary.

As to taxation of vessels in Bath, I give the following letter from Captain George A. Preble, the surveyor for the Bureau Veritas, in Bath:

> Taxation of shipping in Maine is the same as that on all other kinds of property—a state tax, a county tax, and a town or municipal tax. The state tax is assessed on the several towns on a valuation established for every ten years. This valuation includes all the property of the towns, shipping included, and the tax varies, from year to year, usually about ½ per cent. The county tax is assessed, like that of the state, on the valuation of each decade. The municipal tax is levied each year by the towns, and is more or less, according to the expenses, indebtedness, etc.. of the different municipalities. This tax is upon a valuation taken each year.

Take Bath for an example: Our state tax is $26,600; county tax, $8,550. To cover these and our municipal expenses, interest on debt, etc., requires a tax of 2½ per cent. on all the property, real and personal, owned in the city.

Here you see we have a tax of 2½ per cent. on the value of our shipping. In Portland the rate is the same. In other towns it ranges from 1 to 2½ per cent., and in some cases even higher.

April 1, 1879, there was owned in Bath 82,627 tons of vessels, valued by the assessors at $2,000,536; tax, at 2½ per cent., $50,013. At the same date, as returned by the assessors of the cities and towns, the valuation of all the tonnage of the state was $10,045,835, the taxation on which would probably average about 2 per cent., amounting to about $200,916.

Of course immunity from this load of taxation would be a great boon to our ship-owners, and the question is as to its practicability.

The constitution of the state of Maine provides that all property shall be taxed equally, a provision which I believe is in the constitution of nearly all the states. To exempt shipping from taxation would require amendment of the constitution, which can only be effected by a two-thirds vote of each house of the legislature, and must be ratified by a majority vote of the people.

As the shipping is owned in a few towns along the coast, and none of it in the interior of the state, it would be impossible to get the required vote in the legislature or by the people. Men never vote to exempt others from taxation if the amount exempted is to be laid upon themselves. It is in the power of the general government to relieve the shipping interest from federal taxation. The tonnage duties or tax ought to be taken off. Oppressive laws, such as the law requiring three months' pay to seamen discharged abroad, ought to be repealed.

The consular service ought to be overhauled and its many abuses corrected. All materials entering into the construction and equipment of vessels ought to be admitted free of duty.

All these measures of relief to the navigation interest are within the power of Congress.

Yours, very truly,

GEORGE A. PREBLE.

In Freeport there was once much building. In 1854 ten yards were actively employed, and 13 vessels were launched. It was the era of big freights, one Freeport vessel clearing $21,000 more than her first cost on one voyage of 21 months. After the reaction of 1857 building declined, and only two yards are left in Freeport, which produce one large vessel each per year for the owners of the yards. A good deal of local timber is used here: hard wood for floors, oak for center work, and hackmatack for tops. Yellow pine is used for the keelsons, beams, and planking in and out.

Brunswick, once extremely active, is now dull and depressed, one or two large vessels a year being the only product of the town.

Yarmouth, the next building point going down the coast, still has two yards and builds a few vessels every year. The experience of the town is the same as that of others on the coast, and what is left of building here is merely to keep up the fleets of local owners. The vessels are large, however, and engage principally in the California and the East India trade.

Portland is a large and ancient shipping town. Coasting and fishing vessels were employed here as long ago as 1700. Before the Revolution this was one of the principal lumber ports for the exportation of masts, spars, and ship timber, generally to England. The royal charters had always reserved to the crown the timber suitable for masts and spars, and a great many large vessels came to Portland to obtain cargoes. These vessels were of about 400 tons register, carrying crews of 25 men, and took away from 45 to 50 masts, with a large quantity of lighter spars and timber, at a time. Masts 36 inches in diameter were worth $750 each delivered in England. A ship was built at Portland as early as 1728, but the tonnage of the town was chiefly in large sloops and schooners for coasting and for the West India trade. Many privateers were sent out from this town during the Revolution, and a sloop of 10 guns is spoken of. After the war was over the shipping of Portland increased rapidly; there were several yards around the harbor, and the building industry was active; but of late years the business has fallen off, and while the several large commercial houses still own considerable fleets of coasters and some large vessels, the ship work at the port now consists chiefly of repairing and of ceiling large vessels for the carrying of cargoes of grain. A large number of ship carpenters here devote their whole time to repair work, while a great deal more of that kind of business is done by the owners themselves at their own wharves. Portland has one large fixed dry-dock, built with stone walls, the gateway closed with a heavy caisson and the dock emptied with powerful pumps. This dock is the resort of a large number of the new ships built in Maine to receive their copper sheathing, the vessels also obtaining their outfits of sails, rigging, anchors, chains, etc., in the city while there. There is one shop at which good engines are made for steamers. At Cape Elizabeth, across the bay, a small marine railway, worked by horse-power, is used in the service of coasters and fishermen for hauling out the vessels to calk, paint, and repair. There are two or three yards for new work in the town, and two good ones over at East Deering. A propeller of 18 tons, one of 286 tons, and a barkentine of 349 tons were built in the census year; the steamers, barks, and schooners of the port are chiefly produced at East Deering, the high prices, and consequent higher wages, of the city tending to keep the industry down at Portland. One drawback of late has been the decline of the fishing business. In 1878 and 1879 several menhaden steamers, worth about $20,000 each, were built at East Deering, but the fish ceased to come into those waters and the demand for steamers fell off. W. S. Jordan & Co. replied to a question in regard to the future of the sailing vessel and the burdens on American shipping as follows:

Although steam is driving sailing vessels from one trade after another, and although improvements are constantly being made in marine engines, and it is impossible to tell where these improvements will end, still, on account of the relative cheaper cost of sailing vessels as compared with steam, they will be used for the freighting of the less valuable cargoes, such as lumber, coal, iron, and also for cargoes not easily and quickly handled, for many years to come. Steam has superseded sailing vessels for these cargoes to a large extent in the Mediterranean, the Black sea, and the Red sea trade; but it has a peculiar advantage there on account of the narrowness of the seas. Congress, by the removal of several annoying laws and exactions, could assist the navigation interests largely. These exactions are: 1. The payment of three months' extra wages to a crew when discharged in a foreign port; 2. Consular charges and extortions; 3. Compulsory pilotage on coasting vessels; 4. Our laws for admeasurement should be amended so as to conform to the English law, which measures cargo space only.

Kennebunkport is an old ship-building town. It originally enjoyed the advantage of an abundance of local timber, and in the prosperous days before the war of 1861 large numbers of trading vessels of all classes were built both for Boston houses and for local owners, the cotton ships being reputed able to carry more cargo to the register ton than any except those built at Boston. Losses and shrinkage of values have borne heavily upon the town. Two years ago the principal builder built a bark and a ship, which, in consequence of the decline of vessel property, brought $20,000 less than they had cost. Two or three large vessels a year, a few smacks, and a few menhaden steamers are the average product of the town. Fishing steamers register from 70 to 130 tons, and cost from $20,000 to $30,000 each. The local timber supply is now exhausted, but in early years, about 1830 for instance, Kennebunkport could build vessels of 1,000 tons and upward for $23 a ton. The price rose to $70 after 1861, and has latterly been about $55.

At Saco ship-building is now a thing of the past, as there has been nothing built at that port for seven or eight years except a few fishing smacks of 10 or 12 tons. Formerly a great deal of large tonnage was built there, but the general causes affecting the interests of owners have made the Saco people cautious about investing in new shipping property. The same is true of the York district, and for fifteen years there has been little or nothing done in that region.

At Kittery, on the western boundary of the state, there is some building and a good deal of small repairing at a marine railway.

It will be seen from the foregoing notes that ship-building in Maine is now carried on chiefly by those who build only for their own use. Contract work for other parts of the country is done at Bath and Kennebunkport, and fishing and other schooners are occasionally ordered from a number of the smaller places for owners in Massachusetts, Connecticut, and New York; but nearly all of the large ships and coasting vessels constructed in Maine are owned in the towns, usually by the firms that built them, and if not wholly owned by one house the shares are all taken up in the town. The large majority of fishing boats and vessels are also built by their owners. This peculiarity of the industry in Maine will account for the fact that the state possesses so few well-equipped ship-yards. The contract yards at Bath have the modern appliances of bevel steam saw, bolt-cutters, planers, treenail machines, etc.; on the other hand, the proprietary yards of Maine are almost wholly without these things, the work being performed by hand, and the difference in cost between ships built by contract and those built by owners for themselves is due in part to this fact. Some of the ship-building towns are fast going to decay; the young men are going off to other parts of the country, while the old men linger idly in towns they dislike to leave, but which provide them with little work by which they can live. The eight ship-building counties of Maine have not gained in population in 10 years, while the rest of the United States has gained an average of 30 per cent. The population of those counties, as shown by the census, is as follows:

| | 1870. | 1880. |
|---|---|---|
| Hancock | 36,495 | 38,129 |
| Knox | 30,823 | 32,863 |
| Lincoln | 25,597 | 24,821 |
| Penobscot | 75,150 | 70,476 |
| Sagadahoc | 18,803 | 19,272 |
| Waldo | 34,522 | 32,463 |
| Washington | 43,343 | 44,484 |
| York | 60,174 | 62,257 |
| Total | 324,907 | 324,765 |

A slight development of general manufacturing interests in a few places in these counties and the rise of summer resorts on their sea-coast are all that have prevented a marked actual decline.

## NEW HAMPSHIRE.

Ship-building was carried on extensively at Portsmouth, New Hampshire, in early years, as there was a large supply of superior white oak and white pine in the neighborhood of the town. Several cargoes of masts were shipped to the royal navy-yards in England every year, and agents were employed to go into the woods, mark the best trees, and procure them, roughly formed into spars. The shore fisheries gave the first impulse to the building business, shallops, sloops, and ketches being built in great numbers for local use. Afterward the people went into coasting, and did a great deal of building for foreign owners. Ships of 200 and 300 tons were built on speculation, and were loaded with fish, oil, provisions, lumber, etc., and sent to the West Indies. If they returned, they brought sugar, molasses, coffee, rum, etc.; but they were often either sold with their cargoes in the West Indies, or, going to England, were sold there, and with the proceeds the owners bought canvas, anchors, cordage, and outfits for new vessels. When the revolutionary war began a considerable balance was due to the people of Portsmouth from England, about a dozen ships having been sold every year. There was also considerable trade to the southern states, and West India goods, with fish and provisions, were sent, to be exchanged for rice, naval stores, corn, and flour. The Portsmouth builders made a great reputation, and in consequence large vessels and frigates were ordered from them. The Faulkland, a 54-gun ship, was built as early as 1690; the America, 50 guns, in 1740 for the British government; and one of the same name, of 74 guns, was begun for the American Congress toward the close of the revolutionary war, but was afterward presented to France. Portsmouth vessels whose ownership was retained at home have been used chiefly in the West India, coasting, and cotton trades, and since 1853 have ranged in size from 900 to 2,000 tons register. The course of the building of the port since 1800 has been as follows:

VESSELS BUILT IN THE DISTRICT OF PORTSMOUTH FROM THE YEAR 1800 TO 1881.

| Years. | Vessels. | Ships. | Barks. | Snows. | Brigs. | Schooners. | Sloops. | Total tonnage. |
|---|---|---|---|---|---|---|---|---|
| 1800 | 18 | 5 | 1 | ...... | 12 | ...... | ...... | 3, 403 |
| 1801 | 14 | 9 | ...... | 1 | 4 | ...... | ...... | 2, 925 |
| 1802 | 11 | 5 | ...... | ...... | 3 | 2 | 1 | 2, 045 |
| 1803 | 14 | 9 | ...... | ...... | 3 | 2 | ...... | 2, 796 |
| 1804 | 18 | 10 | ...... | ...... | 1 | 7 | ...... | 3, 288 |
| 1805 | 16 | 11 | ...... | ...... | ...... | 5 | ...... | 3, 258 |
| 1806 | 13 | 8 | ...... | ...... | 3 | 2 | ...... | 2, 702 |
| 1807 | 10 | 4 | ...... | ...... | 2 | 4 | ...... | 1, 608 |
| 1808 | 11 | 5 | ...... | ...... | ...... | 6 | ...... | 1, 666 |
| 1809 | 9 | 3 | ...... | ...... | 2 | 2 | 2 | 1, 514 |
| 1810 | 10 | 8 | ...... | ...... | 1 | 1 | ...... | 2, 800 |
| 1811 | 15 | 10 | ...... | ...... | 5 | ...... | ...... | 4, 375 |
| 1812 | 4 | 1 | ...... | ...... | 1 | 2 | ...... | 626 |
| 1813 | 1 | ...... | ...... | ...... | ...... | 1 | ...... | 21 |
| 1814 | 11 | 1 | ...... | ...... | 3 | 7 | ...... | 1, 315 |
| 1815 | 13 | 2 | ...... | ...... | 3 | 8 | ...... | 2, 057 |
| 1816 | 14 | 2 | ...... | ...... | 2 | 9 | 1 | 1, 612 |
| 1817 | 7 | ...... | ...... | ...... | 2 | 5 | ...... | 594 |
| 1818 | 20 | 3 | ...... | ...... | 6 | 10 | 1 | 2, 733 |
| 1819 | 13 | 3 | ...... | ...... | 1 | 9 | ...... | 1, 626 |
| 1820 | 9 | 3 | ...... | ...... | 2 | 3 | 1 | 1, 450 |
| 1821 | 7 | 3 | ...... | ...... | 2 | 2 | ...... | 1, 370 |
| 1822 | 9 | 4 | ...... | ...... | 1 | 4 | ...... | 1, 656 |
| 1823 | 10 | 4 | ...... | ...... | 4 | 2 | ...... | 2, 420 |
| 1824 | 12 | 5 | ...... | ...... | 3 | 4 | ...... | 2, 650 |
| 1825 | 15 | 5 | ...... | ...... | 3 | 7 | ...... | 2, 874 |
| 1826 | 6 | 4 | 1 | ...... | 1 | ...... | ...... | 1, 977 |
| 1827 | 11 | 4 | 2 | ...... | 1 | 4 | ...... | 2, 402 |
| 1828 | 10 | 5 | ...... | ...... | 1 | 4 | ...... | 2, 113 |
| 1829 | 10 | 1 | ...... | ...... | ...... | 9 | ...... | 910 |
| 1830 | 7 | 2 | ...... | ...... | ...... | 5 | ...... | 1, 308 |
| 1831 | 3 | 2 | ...... | ...... | 1 | ...... | ...... | 993 |
| 1832 | 7 | 3 | ...... | ...... | 2 | 2 | ...... | 1, 798 |
| 1833 | 8 | 5 | ...... | ...... | 1 | 2 | ...... | 2, 630 |
| 1834 | 8 | 4 | ...... | ...... | 1 | 3 | ...... | 2, 348 |
| 1835 | 9 | 4 | 2 | ...... | 1 | 2 | ...... | 2, 813 |
| 1836 | 8 | 6 | ...... | ...... | 1 | 1 | ...... | 3, 853 |
| 1837 | 5 | 5 | ...... | ...... | ...... | ...... | ...... | 2, 982 |
| 1838 | 9 | 5 | ...... | ...... | ...... | 3 | 1 | 2, 959 |
| 1839 | 5 | 4 | ...... | ...... | ...... | 1 | ...... | 2, 603 |
| 1840 | 8 | 4 | 1 | ...... | ...... | 3 | ...... | 3, 243 |
| 1841 | 5 | 4 | ...... | ...... | 1 | ...... | ...... | 2, 667 |
| 1842 | 1 | 1 | ...... | ...... | ...... | ...... | ...... | 526 |
| 1843 | 3 | 1 | ...... | ...... | ...... | 2 | ...... | 841 |
| 1844 | 5 | 3 | ...... | ...... | 1 | 1 | ...... | 2, 280 |

VESSELS BUILT IN THE DISTRICT OF PORTSMOUTH FROM THE YEAR 1800 TO 1881—Continued.

| Years. | Vessels. | Ships. | Barks. | Snows. | Brigs. | Schooners. | Sloops. | Total tonnage. |
|---|---|---|---|---|---|---|---|---|
| 1845 | 7 | 3 | 1 | | 2 | 1 | | 2,720 |
| 1846 | 9 | 4 | 1 | | 1 | 3 | | 4,113 |
| 1847 | 12 | 7 | 3 | | | 2 | | 6,822 |
| 1848 | 9 | 4 | 2 | | | 3 | | 4,277 |
| 1849 | 10 | 5 | 2 | | | 3 | | 6,010 |
| 1850 | 9 | 9 | | | | | | 8,258 |
| 1851 | 12 | 7 | 1 | | | 4 | | 8,778 |
| 1852 | 12 | 11 | | | | 1 | | 10,271 |
| 1853 | 10 | 9 | | | 1 | | | 10,809 |
| 1854 | 9 | 8 | | | 1 | | | 9,096 |
| 1855 | 13 | 10 | | | 1 | 2 | | 12,039 |
| 1856 | 13 | 13 | | | | | | 13,419 |
| 1857 | 7 | 6 | | | 1 | | | 6,246 |
| 1858 | 6 | 5 | | | | 1 | | 4,683 |
| 1859 | 7 | 4 | | | | 3 | | 4,017 |
| 1860 | 7 | 3 | 1 | | | 3 | | 3,543 |
| 1861 | 3 | 2 | | | | 1 | | 2,042 |
| 1862 | 1 | | | | | 1 | | 24 |
| 1863 | 6 | 3 | | | | 3 | | 3,815 |
| 1864 | 7 | 1 | | 2 | | 4 | | 1,933 |
| 1865 | 8 | 1 | | | | 7 | | 2,605 |
| 1866 | 6 | | 1 | | | 5 | | 2,374 |
| 1867 | 7 | 1 | 2 | 1 | | 3 | | 2,816 |
| 1868 | 6 | 2 | 2 | | | 2 | | 2,733 |
| 1869 | 5 | 1 | 2 | 1 | | 1 | | 1,993 |
| 1870 | 1 | | 1 | | | | | 494 |
| 1871 | 3 | 1 | | | | 2 | | 1,208 |
| 1872, none. | | | | | | | | |
| 1873 | 3 | 2 | | | | 1 | | 3,283 |
| 1874 | 2 | 1 | | | | 1 | | 422 |
| 1875 | 3 | 2 | | | | | 1 | 2,780 |
| 1876 | 6 | | | | | 6 | | 111 |
| 1877 | 5 | 2 | | 1 | | 1 | 1 | 2,984 |
| 1878 | 3 | | | 1 | | 2 | | 536 |
| 1879, none. | | | | | | | | |
| 1880, none. | | | | | | | | |

Until within ten or fifteen years New Hampshire vessels were built out of native white oak. Of the 30 vessels which have been launched by one builder only two or three have had southern frames. The quality of the local oak was remarkably good, and vessels were sometimes built of it almost wholly, frames, stems, keels, keelsons, planking, ceiling, and beams, although hard wood was used in the floors and keels. These vessels were not, of course, so buoyant as they might have been, but they were lasting, being good for at least 20 or 30 years, and the rate of insurance on them was so low that it gave them great celebrity. Of late years southern oak and pitch-pine have been used at Portsmouth; but this is not entirely on account of the destruction of native timber, as the timber for ships of 2,000 tons can still be obtained in the state.

Builders attribute the complete stoppage of building in New Hampshire to the burdens of taxation and the growth of steam navigation and in part to the building of railroads alongshore, limiting the business in coasting vessels. There is now almost no ship work done at Portsmouth. The yards are abandoned, except in one or two cases, where repair work is done, the boat-shops are going to decay, and the principal work is now done at Seabrook, where a number of dories and small fishing boats are made every year.

Vessels are taxed in New Hampshire the same as other property, without regard to whether they are employed or not. In Portsmouth the rate is about $1 75 per $100 of valuation.

## MASSACHUSETTS.

The first place in Massachusetts, coming down the coast, where there are any ship-yards is Newburyport. The Merrimac is navigable for small vessels for about 20 miles from the sea, and on this short reach are situated Newbury, Newburyport, Amesbury, Salisbury, and Haverhill. These towns were all active building places after 1650. The vessels ranged in size from sloops of 20 and 30 tons to ships of 300 tons, and a multitude of small fishing vessels were also built. Good oak grew abundantly near the river, and was not only used for the Merrimac vessels, but was exported extensively to England. Before and after the Revolution vessels of the largest class were built in great numbers, a large proportion of them for English owners. The vessels on this river suffered great loss during this war; 22 of them, with more than a thousand men, sailed from Newburyport and were never heard of again, while there were other heavy losses by capture and wreck. On the other hand, the privateers of the Merrimac brought back fortunes for some of their owners. The famous frigate Alliance was built at Salisbury point in that war. After the Revolution building was a prosperous industry for more than 75 years, from 20 to 35 vessels being built yearly. At first the Merrimac river merchants owned the vessels in large part and sailed them to the East Indies, Europe, and the West Indies, but afterward the East India trade went to Salem. Building continued, however, for such trades as were open to the Merrimac owners. From 1783 to 1882 there have been constructed in this locality 1,600 vessels large enough to register, two of them steamers of 3,000 tons each, measuring 380,000 tons, besides a vast number of small fishing craft. John Currier, jr., built 95 vessels, aggregating 86,000 tons; and about 50 vessels of from 1,000 to 1,600 tons register have been built, but the owners are now merely looking after their old vessels. It is related at Newburyport that among the vessels built many years ago there were a few of the class popularly known as "Jew's rafts". These vessels were constructed of good timber and lightly calked, and were dispatched with cargoes of lumber to Europe, where they were taken to pieces and sold for lumber. The majority of these rafts were safely navigated across the Atlantic, but one, at any rate, was never heard from after leaving port. The following is a summary of vessels built on the Merrimac from 1781 down to 1880:

| | Sloops. | Schooners. | Brigs. | Barks. | Ships. | Steamers. | Total. | Tonnage. |
|---|---|---|---|---|---|---|---|---|
| 1781 to 1789 | 10 | 21 | 12 | ........ | 5 | ........ | 48 | 4,148 |
| 1790 to 1799 | 19 | 89 | 96 | 1 | 56 | ........ | 261 | 32,133 |
| 1800 to 1809 | 9 | 86 | 93 | 3 | 93 | ........ | 284 | 47,406 |
| 1810 to 1819 | 11 | 121 | 70 | 1 | 44 | ........ | 247 | 37,042 |
| 1820 to 1829 | 1 | 93 | 19 | ........ | 30 | ........ | 143 | 20,265 |
| 1830 to 1839 | ........ | 106 | 14 | 10 | 36 | ........ | 166 | 19,097 |
| 1840 to 1849 | ........ | 55 | 15 | 22 | 43 | 1 | 136 | 43,484 |
| 1850 to 1859 | ........ | 47 | 2 | 13 | 66 | ........ | 128 | 72,156 |
| 1860 to 1869 | ........ | 34 | 6 | 20 | 32 | 4 | 96 | 57,310 |
| 1870 to 1880 | ........ | 51 | 2 | 12 | 19 | 8 | 92 | 45,936 |

These vessels were built in the following places: Newbury, 473; Newburyport, 427; Salisbury, 291; Amesbury, 256; Haverhill, 120; Bradford, 30; Rowley, 2; Ipswich, 2.

At present, except at Newburyport, ship-building has been completely abandoned on the Merrimac, and that town in the census year presented a desolate array of abandoned ship-yards, boat-shops, and rope-walks. The reaction of 1857, the war of 1861, and the burdens on shipping had nearly killed the industry. There was a boat-shop in the town in which the decay of the business was forcibly illustrated. A firm which had been in business in that shop for 54 years, and had made 1,300 yawls, gigs, and other boats for vessel use, had on hand in the census year 3 yawls made two or three years before, for which they could not find a purchaser. The repairing of vessels, the launching of an occasional scow or schooner, and work on a few small fishing and pleasure boats were all there was of the industry in Newburyport in 1880. Owners have put considerable capital into government bonds, railroads, and factories, and the old carpenters have become scattered, many of them being in the factories of the town, where they like their new work and will not leave it. The timber is pretty much all gone, and all that is at command must come from a distance. However, gloomy as was the prospect in 1880, there has been a change for the better, and a ship of 1,800 tons has been launched, one of 1,600 tons is building, and a schooner or two have been built.

Marblehead was once famous for her large fishing vessels, and the town did much building; but Essex has drawn away her business, and the town is running down in population.

Essex has always lived by ship-building. Her Chebacco boats brought her into prominence at a very early period, and the little town grew into existence and thrived for 200 years on this one industry of building fishing and trading boats, aided by the occupation of fishing. It has had its ups and downs, but in the main was prosperous until the fishery treaty with Canada made trouble and the use of tug-boats on the coast robbed her of a part of her business. Nearly all the clipper fishing schooners of Gloucester are built at Essex, and trading vessels and pleasure boats, as well as fishing craft, have been produced there in goodly numbers. In former years Essex vessels were all rigged in the town, and sail-making and rigging work flourished actively; but the invention of the steam tug-boat has wrought a change, and nearly all the new vessels are now towed to Boston or Gloucester to be fitted out. Essex vessels were formerly built of oak that grew near the town, the material, except the pine boards for cabins, which came from Maine, being hauled in by teams from within 25 miles of the place. Vessels are still framed and planked with oak, maple being used for the keels. Pitch-pine is also somewhat used for planking, and the keelsons are of either pitch-pine or oak. The decks and houses are of white pine. Oregon pine has been used for decking one or two vessels, but it is too expensive to compete with white pine on this coast. The pine spars come largely from Pennsylvania. Hackmatack supplies all the knees. There are now five yards in Essex, and all of them had something to do in the census year. In one of them a yacht was built 90 feet long, decked with Oregon pine and planked with pitch-pine. The other yards built schooners, and one yard had a wooden coasting propeller in course of construction. The builders were all despondent, and their business was steadily declining; and every year they were doing less work, as they had to compete so for contracts that there was no chance left for profits. Besides that, work was irregular, and they had great difficulty to keep gangs of men together large enough to build a schooner when they had got a contract. The men were scattering away to other towns and getting work at house-building, and in boot and shoe factories, cotton-mills, and other establishments; sometimes these men came back to the ship-yard when called for, but were showing more and more reluctance to do so, preferring the regular work and sure pay of the factory, and the result was the same as along the whole coast north of them. There were fewer old carpenters than there used to be, and no young men were learning the business. One leading builder had not taken an apprentice for twelve years, and did not know of one in the town.

The most profitable vessels that are built at Essex are sharp two- and three-masted schooners of from 150 to 250 tons register, as the river is not large enough to launch and float out a large hull. The model for which the town is famous is described in the chapter on fishing vessels, and is sharp, broad, low, and fast, sacrificing capacity to speed. Essex vessels are the best that can be put into the fruit business and for trading round the West Indies, as they can beat to windward with remarkable speed, and when loaded with fruit, if there is any wind, blow which way it may, they will make their passage quicker than any other vessel except a steamer. The cost to build and equip for sea at Essex is about $60 or $65 per register ton, but it must be remembered that the smaller a vessel is the more it costs in proportion to size. The above figures are not excessive, considering the tonnage of Essex vessels. Wages here were from $1 50 to $2 a day in the census year. Spar-makers got $2 25 a day; riggers, on account of the irregularity of work, $3; the joiner work, calking, blacksmith work, cabins, and spars were usually sublet to contractors, who, however, made no money on their contracts except to get a little more wages than the men.

Gloucester was once a large building center. Notes of the early operations in this line here have already been given in the chapter on fishing vessels. This town is the center of the fishing business of New England, and of late years has devoted itself almost entirely to enterprise in that direction; but all the timber in the vicinity having been cleared away, the building industry has been gradually transferred to towns where it could be carried on to better advantage. Of the 475 vessels in the district in 1880 (tonnage, 27,456), more than 215 had been built in Essex, about 133 in Gloucester, and the rest principally in Maine. The town retains its repairing business, and perhaps is better off than it would be if it did all its own building and none of its repairing. At Gloucester there are three marine railways, upon which fishing schooners are hauled out twice a year regularly, once to paint the bottom, and once to calk, repair, and paint the whole vessel. A great deal of repairing of sails, refitting of rigging, blacksmith work, and the replacing of lost anchors, cables, boats, and fishing apparatus are also done every year. One large boat-shop in town, at which seine- and whale-boats, dories, and pleasure boats are made to the number of about 300 yearly, had produced 3,700 boats down to the date of the census. Gloucester is one of the most interesting ports in the United States, its harbor being crowded with hundreds of fishing vessels of every description known on the New England coast. There was much complaint among fishing firms of the operations of the Canada treaty.

There are several other towns on Cape Ann at which some small work is done, Beverly and Rockport being the principal. The work is all in the way of sloops and fishing boats; but some of the small craft are yachts, and are used for the pleasure of summer visitors.

Salem, once the leading ship-building center of New England, does nothing in building now except to construct pleasure yachts and repair vessels of small tonnage on its one marine railway. The ship-yards of the town and the mercantile houses in the West India, East India, and South American trades were what made the place originally. Her people began with fishing and boat-building, but their maritime business gradually changed to the coasting and foreign trade. Salem sent the first vessel around cape Horn to the East Indies, and many of her ships were extremely profitable. The first marine railway in America was established here. It was necessary to provide facilities for taking large square-rigged ships out of the water for repair, and Endicott Peabody is said to have been sent to Europe about 1822 to get plans and designs, the railway being built on his return. A windlass was planted to haul the hulls on the ways and was worked by means of horse-power, and the gearing was so crude that the horse was driven around in a circle a distance of 17 miles in order to get the vessel up the bank a distance of 450 feet. The first experiment was with a large ship of 700 tons, which was successfully handled and repaired; but when the time came to let her go back into the water some men took hold of the capstan bars to ease her down, and the momentum of the vessel was too much for them. After she started the capstan began to revolve at great speed, and the men lost control of her, and one of them had some bones broken; they afterward learned to knock out a pin from the gearing and let the vessel go. From 1781 to 1834 the building at Salem amounted to 61 ships, 4 barks, 53 brigs, 3 ketches, and 16 schooners, measuring 30,557 tons; but since 1834 the building interest has run down, the East India trade has gone to Boston, New York, and Philadelphia, and with it has departed nearly all that had kept the ship-yards alive. Schooners, brigs, and sloops have since been built, but not to any great extent. The cost of new trading vessels of late years has ranged from $60 to $80 a ton, the yachts costing from $100 to $150 per ton, according to the style in which they are fitted up. Salem schooners of 160 tons have been sent on long voyages, one going as far as California, paying 100 per cent. on its cargo. There is no timber or any especial advantage enjoyed here, and the merchants and capitalists who once had to have vessels for their business have gone into other branches of enterprise.

BOSTON.—More than one-half of all the vessels other than fishing craft built north of Narragansett bay before the Revolution were owned in Boston, and the enterprise of that port naturally took the direction of the coasting and foreign trade. The people of other portions of the New England coast caught the valuable fish that swarmed in the ocean in that latitude, and the merchants of Boston took the large proportion of the catch and marketed it abroad, bringing back West India and other foreign goods for sale in the communities that did not trade direct. Boston had no particular advantage for building vessels except the deep water of her harbor, as timber was so scarce that a large fleet of sloops was employed every year in bringing to her wharves even the fire-wood needed for cooking and for heating the houses. However, indeed for a long period, Boston was the first of American cities in the amount of merchant tonnage owned by her merchants, and she has always ranked as one of the first four. Her merchants, devoting themselves to trade, rather neglected ship-building, and bought their vessels at Salem, Scituate, Medford, Duxbury, Charlestown, and other places having timber. Medford was more immediately the resort of the Boston ship-owners after 1812, as a number of smart builders had established large yards there, who did a flourishing business as long as vessels were not required of any larger size than could be floated down the little Mystic river. After 1840 the Mystic men became cramped for room. Large ships were the order of the day, and large yards were established by them and by others in East Boston, where there had previously been some little building, and the industry sprang up almost all at once to magnificent proportions. Samuel Hall came from Duxbury and Donald McKay from Newburyport, various of the builders of the Mystic river transferred their yards to the place, and the thriving community of East Boston came rapidly into being, deriving its chief importance from this one trade. The principal builders in the great period from 1845 to 1855 were Donald McKay, Samuel Hall, Paul Curtis, Robert E. Jackson, A. & G. T. Sampson, and D. D. Kelly, the vessels built by them being packets for the Liverpool, Havre, Mediterranean, East Indian, South American, and Australian trades, and afterward clippers for the California trade. One of the first jobs of work at East Boston was the construction by McKay, at the instance of Enoch Train, of four packets to sail to England; he built many ships for Mr. Train in after years. The building business reached large proportions about 1854 and 1855, there being in one year 30,000 tons of shipping in process of construction at one time in the port of Boston. The wharves were crowded with vessels receiving their spars, rigging, and sails, and every shop and loft was crowded with orders and driven to its utmost capacity.

Few of the Boston builders took shares in their vessels, but built on contract or on speculation. Studying closely the requirements of trade, they devoted themselves to the production of vessels especially suited for the various employments of the day, leaving to others the operation and management of the ships. They often made voyages to Europe and to the West Indies, and even to the Mediterranean, in order to study the behavior of vessels at sea and the various considerations that should govern form of hulls and arrangement of the spars and sails, and it is probable that the superior excellence of Boston vessels sprang from the particular fact that builders gave their whole attention to the art. Their success depended on the making of good ships. In order to employ the force of skillful and well-trained men which they had got together and the capital which they had accumulated they were often forced to set up a ship without waiting for a contract. In such cases, as it would not do to build anything except a good vessel, their ingenuity was taxed to devise improvements in models and rig, and they were compelled to exercise sleepless care in regard to materials and the manner of putting them together. In the yards north of them, where people built for themselves, there was not the same attention to fine points in construction; but in Boston building was differentiated from owning, and the result was the natural one of superiority in the work produced. The Boston yards launched the best, largest, and finest specimens of marine architecture in New England; their packets were unexcelled, their clippers were the finest in the world, and their cotton ships carried more than any other vessels. The building on contract and speculation also compelled Boston men to do everything in their power to save labor, and their yards adopted every appliance that could be thought of for that purpose—bolt-cutters, derricks for lifting, steam-saws, treenail machines, etc.; and while they had to contend with high wages, and often with dearer materials, their ability as builders enabled them to keep their business until some time after 1861.

The best era at Boston was from 1840 to 1860, and during that time there was an astonishing production of packets, clippers, cotton ships, and coasting schooners. Some of the shipping houses of the port owned large fleets in the foreign trade. One firm had more than 20 vessels sailing to Australia; another once owned 33 ships and barks, with several steamers; and besides there were numerous packet and clipper lines of from 6 to 12 vessels each. It was seldom that a contract to build was given out to other parts of the coast, and when steamers were required for the coasting trade, they, too, were built in East Boston. The business reached large proportions, and about 1855 gave employment to several thousand men. The reaction of 1857 was a hard blow to the place, the establishment of subsidized lines of British steamers a still worse one, and the war of 1861 was still another disaster. Few builders of the clipper period survived all these shocks, and nearly all of them failed. There was much work for the yards through the war in the way of government vessels; but after 1865 the industry was a struggling one, and steadily declined. High wages and strikes among the carpenters and calkers gave the finishing blow; nearly all the old builders went out of business so far as new work was concerned, and the few that kept their yards going have had a hard time of it. In the census year the only merchant vessels built at East Boston were three coasting schooners, a few barges and tugs, and two ferry-boats, and there was nothing else, except a number of small yachts, pleasure boats, and ship boats. At South Boston, where large vessels have often been made, there was nothing except sail-boat building; at Chelsea the same; and on the Boston side a little boat-building was all that was done.

The principal ship work at the port of Boston now is the repairing and coppering of vessels, the necessary incident of every great commercial port. The water front of East Boston and Boston is lined in places with long rows of shops of shipwrights, joiners, riggers, sailmakers, and blacksmiths, who live by repair work, and there are several marine railways and three large fixed and two floating dry-docks, at which the heavy work is chiefly done. The fixed dry-docks are of the following sizes: One is 165 feet long, 46 feet wide, 32 feet at the gate, and 13 feet depth of water. The second is 250 feet long, 75 feet wide, 45 feet at the gate, and 16 feet depth of water. The third is of large dimensions, namely: 365 feet in length, 86 feet wide, 68 feet at the gate, and 17 feet depth of water. The docks are built on solid foundations. Repairing can be as advantageously performed in Boston in respect to materials, workmanship, and dock fees as in any part of the country; like the other branch of the business, however, it is in a state of decay. The business saw its best days in the era of the clipper sailing ship. The Boston vessels never returned to port without giving a good job of work to all the trades, and often spent from $5,000 to $8,000 in repairs of various kinds; but the old clippers have been driven off by British steamers and by foreign sailing vessels, both wooden and iron, which now throng the port almost to the entire exclusion of American tonnage. The master of a foreign ship will go to extraordinary trouble to avoid spending money on this side of the water. Repairing has declined as well as building. One firm of shipwrights that used to do $120,000 worth of business yearly did only $40,000 worth in the census year; another that used to do $18,000 worth only did $3,500 worth in that year, while the business of another shipwright had fallen from $22,000 to $6,000. A firm of ship painters, who in 1849 were painting 32 vessels at one time, had work in the census year only occasionally. Four-fifths of the old-time rigging work, sail-making, and boat-building has gone, and so much has repair work fallen off in late years that the painters, joiners, carpenters, and blacksmiths are often compelled to take up other work to make a living. Nothing except the coasting trade keeps this branch of the business at all alive.

The vessels coppered at Boston in the census year numbered 128, consuming 625,830 pounds of metal and nails. Wages were from $2 25 to $2 50 per day for carpenters and calkers, $2 for fasteners, $2 50 for painters, blacksmiths, and spar-makers, and $3 for riggers.

The timber used by the Boston builders was originally oak and white pine, but Donald McKay and others used pitch-pine when the era of large ships came on. During the war of 1861 oak was again resorted to; but since then the builders have returned to pitch-pine for planking, keelsons, and beams, using southern oak for the frames and center work. The spars were of white pine and spruce from Canada and Maine. Here, as elsewhere, oak and hackmatack frames, with yellow pine for planking, ceiling, beams, and keelsons, were regarded as making the best ship, and that combination of timber was said often to be strong and staunch for 30 years. Nothing was so good for iron and metal as hackmatack and yellow pine.

At North Weymouth, on the lower side of Massachusetts bay, a little work is still done, either a bark or a schooner being built at the one yard there nearly every year. Massachusetts white oak is used for frames, although it costs a third more than southern oak, and yellow pine is used for planking, ceiling, beams, and decking. A bark of 858 tons, built there in 1879, cost $46,000 fitted for sea, or about $54 a ton. The builder at North Weymouth complained that there is little profit in a contract now, not enough to encourage a contractor to build on his own responsibility.

South of Boston ship-building, except at a few scattered points, has ceased entirely. At Scituate, Cohasset, and Duxbury there is nothing left of the ancient industry. It is said that in 1846 and 1847 Duxbury built as many large and small vessels as were built at Medford, and of about the same class. There is good timber left for frames at Duxbury, and every facility for building exists; but the industry is dead, and nothing has been built since 1876. At Provincetown, on cape Cod, a little repair work and the building of a few whale-boats were reported, and at Wellfleet and Mattapoisett, where once there was a large business, amounting to hundreds of thousands of dollars, there are now built a few boats and yachts for the sea-side summer resorts. At Hyannis there was a marine railway, but it was out of repair, with no prospect of ever being used again, while from Nantucket and Martha's Vineyard building has fled completely. At Edgartown, on the latter island, there is some repairing and metaling of whaling vessels owned on the island and of vessels wrecked and stranded, amounting to perhaps $40,000 a year. No new vessels have been built for 14 years.

At New Bedford, an ancient and active ship-building port, there is nothing left except whale-boat building and repair work. From 25 to 30 whaling vessels are repaired and refitted at the port every year, and a number of coasting schooners, fishing-smacks, sail-boats, and steamboats are calked, painted, and kept in order. There are two marine railways employed; several firms are engaged in boat-building, and this trade at least is active and prosperous, though it does not compare with that of 30 years ago.

At Taunton there is now little or no building. This place once built a great many vessels for the coasting trade, now supplanted in great degree by barges towed by steamers. The first firm to come from New York past Point Judith with coal barges in tow of steam-tugs began business in 1872 with a steamer and three barges of 500, 600, and 800 tons, respectively. This firm was running two steamers and seven barges of from 800 to 1,100 tons in 1881, and other barges were being built. Other firms followed, running barges of from 1,500 to 1,800 tons. This business is growing every year, and there are now some 20 or 25 barges running on Long Island sound to points east of Point Judith with coal. The Taunton barges have each taken the place of as many as 15 or 20 vessels of from 400 to 500 tons.

It is in Massachusetts, taking the state as a whole, that the decay of American ship-building is most apparent. In 1850 the state built 121 vessels large enough to register a total of 36,000 tons; but in 1880, counting even the coal barges, yachts, and tug-boats, there was a total of only 39 vessels, measuring 5,600 tons. A part of the old business of the state has been transferred to Maine, but four-fifths of the decline is an actual loss to the United States, that much of the business having vanished completely. There are more and larger vessels than ever in the foreign commerce of the state, but they are built mostly in Scotland, on the Clyde, are owned in England, and are managed by foreign-born men. Massachusetts has just passed a law relieving vessels from taxation, except on their net income, and this has given general satisfaction.

## RHODE ISLAND.

There is now no ship-building in Rhode Island save in the way of pleasure craft and small vessels, but repairing is carried on to some extent. Newport was once an active shipping port, and a gentleman of New York city has a letter, written over a hundred years ago, in which a Newport merchant says: "We must look out now, lest New York get ahead of us." The town had large interests in vessels and carried on an active trade. Sloops, schooners, and whaling and square-rigged vessels have been built at different places on Narragansett bay; but the business declined soon after 1812, and is now in a state of decay. The tonnage of the bay is small, and there is little left to the once busy ship-yards and boat-shops except small work. At Newport there are a few boat-shops and one large marine railway and yard for the repairing of steamboats. The port is a harbor of refuge in storms, and is much frequented by fleets of yachts from New York and elsewhere, each of which brings work to the town. At Bristol the Herreshoffs build steam yachts and vidette boats, and there is a marine railway for hauling out coasting vessels, and at East Providence there is a large marine railway for coasting vessels, on which about 480 vessels have been taken out of water for coppering, painting, and repair. There are boat-shops at Tiverton and at Providence. This comprises the interest in Rhode Island, even repairing, the chief feature of the business, being a dull trade in comparison with earlier years, a change in the coasting trade having produced this result. Coal in enormous quantities is consumed in the New England factories reached by the railroads which touch Narragansett bay. This was brought to the bay in former years by two- and three-masted schooners, of which there were probably 300 engaged in the business; and the building and the coming and going of this fleet, with the repair work, boat-building, and outfitting to which the business gave rise, gave active employment to the carpenters of the bay. But the schooners have been largely superseded by coal carriers of another class, the Reading railroad having built a fleet of 13 iron steam vessels exclusively for the coal trade. The first vessel, launched in 1869, was of 420 tons register; but the later vessels are of 1,280 tons each, carrying 1,650 tons of coal. Each steamer has a capacity equal to that of four schooners of medium size, and makes three voyages to a schooner's one, averaging about thirty-three voyages a year each to New England ports. Other firms have gone into the coal trade with large flat-boats and keel barges, which they make up into fleets of from 2 to 6 vessels, carrying from 2,000 to 4,000 tons of coal. These fleets will carry the freight of a dozen medium schooners, and at less expense, though they consume more time. The combined operation of the steam colliers and barges has been too much for the schooners, and they have been unable to withstand the competition. There are now from 100 to 200 schooners less in the trade of Narragansett bay than there were in 1861, and the general decline of all branches of ship work on the bay is the consequence. At Newport there were once 17 boat-shops on Long wharf engaged in making yawls for the trading vessels of the bay. The shops remain, but the occupants of most of them are gone; the doors are locked for weeks, and the few that remain live by work on pleasure boats, fishing, and stray orders for yawls. Some of the boat carpenters have gone to Maine to practice their art there. No vessels of over 20 tons register have been built in Newport district for several years.

The Herreshoff boats are built by a man who has been blind from boyhood; they will be more particularly referred to in the chapter on steam vessels. They are composite; that is, they have iron frames and wooden planking. The shop is a prosperous one, and could probably build large iron vessels if called on for that purpose. It is one of the small resources of the country in the way of iron building establishments.

The tonnage built in the state in the census year amounted to 17 vessels, registering 380 tons. The general industry of building and repairing both employed an average of 343 men ten months in a year, producing $518,000 worth of completed work.

## CONNECTICUT.

The shipping interests of Connecticut now center in fishing craft, steamboats for the trade of Long Island sound, and coal barges. The state owns some coasting tonnage, however, as also a few brigs and barks for the West India and the general trade. Originally there was a brisk building business all along the Sound and on the Connecticut river. Every little village had a ship-yard, and a great deal of capital was employed in operating sloops, brigs, schooners, and barks in whaling and fishing and in the coasting and foreign trade. In 1840 there were built 49 vessels large enough to register, measuring 4,100 tons; in 1850, 47 vessels, measuring 4,800 tons; and in 1860, 35 vessels, measuring 7,700 tons.

The best days of the industry in this state were just before and during the war of 1861, when so many gunboats were built; but at present there is almost nothing doing for the foreign trade, and no whalers are built, the only work being on vessels for local use in and near Long Island sound.

At Mystic there were before the war of 1861 five ship-yards in active operation, building two and three large vessels each every year. Many packets and clippers were built here. Native timber was used largely, the state being well stocked with oak and chestnut, but pitch-pine and southern oak were used when local timber gave out. No large vessels have been built for several years; the old ship-yards are deserted, the town has lost nearly all its carpenters, and its growth is arrested. Only two small yards did any work in the census year, one of which built a schooner yacht, the other a small screw steamer. The location of the town is far up the river, and lacks trade of any kind, so that no repairing is done, the only orders being for an occasional pleasure yacht or a fishing steamer. The decline of the shipping interest of Mystic is attributed, first, to the cruisers of the war of 1861, and next to the general increase of burdens and expenses from the high prices and taxes. The opinion was expressed that the government could reasonably aid in the revival of shipping by taking off burdens, and with that aid, and the decreasing interest on money and government bonds, the shipping trade would gradually reach a state of new prosperity.

Noank is a little fishing village situated in New London county. This place has received an impetus from the building of a large marine railway especially for taking out of the water, for repair, the large steamboats of Long Island sound running from New York to Stonington. The Narragansett, which was wrecked by a collision in the Sound, was rebuilt on this railway, and other large jobs have been done. This railway owes its origin to the high prices of New York city, which made it desirable to create facilities for heavy repairs in some locality where labor was less costly; it is the largest on the Atlantic coast outside of New York, and is operated by steam-power. The cradle holding the vessel is drawn up the ways by a 20 horse-power engine, geared so as to develop several hundred horse-power, and acting on a massive iron chain, attached to the cradle at one end and winding around a windlass at the other. The repair work which comes to this yard keeps a force of from 50 to 100 men steadily employed. This yard has been supplied with a complete equipment of steam saws, bolt-cutters, derricks, and other modern appliances, which puts it in a position to build new vessels to advantage. A large wooden propeller which had been partly built on Long Island was completed at the Noank yard in the census year, as also a schooner and some barges for carrying coal and freight cars in New York harbor. The yard is run chiefly on work ordered from New York. The freight-car floats cost $11,000 each; the barges, having an individual capacity of 400 tons of coal, $9,000 each.

New London, at the mouth of the Thames river, has a broad, deep harbor, into which coasting vessels run for refuge in heavy weather, and sometimes 300 schooners and brigs are lying at anchor in the deep and safe waters of this excellent port. The place is visited annually also by large numbers of pleasure yachts, these visiting vessels furnishing the principal part of the ship work that is done in New London. There are two yards here near the fort, one with two, the other with four small marine railways. The only vessels building in the census year were a sloop yacht of 25 tons and a small schooner of 70 tons, but over 300 coasting vessels and yachts were taken out of the water for painting, coppering, and repair. There used to be some ship-building in New London, and it had extensive whaling interests. Many schooners, brigs, and barks of good size were required, and large numbers of whale-boats were built annually; but the business suffered the decline which took place everywhere when petroleum came into use, and a heavy blow was dealt to the New London firms particularly by the burning of their whale ships in the north Pacific by confederate cruisers and from losses by wreck. The catching of sea-elephants and seals has kept a very few whalers employed, and a few whale-boats are built in the town yearly; but the trade is dull and fast declining.

Along the Connecticut river, from Saybrook as far as Hartford, there was formerly a great deal of ship-building. The valley of the river was covered with a luxuriant growth of excellent timber (principally chestnut and white oak), and large numbers of sloops and schooners for fishing and for the river and coasting trades were built. The Gildersleeves, the oldest firm on the river, beginning in 1821, and building sloops, brigs, and schooners only for 20 years, began in 1841 to send forth barks and ships, of which they built 15 in all. The keels, keelsons, stem and stern-posts, and frames were of oak and chestnut—the oak prized for its strength and elasticity, the chestnut for its lighter weight, ease in working, and durability; the ceiling and planking were of oak, both on account of elasticity and because the hard, tough fiber fitted it to resist chafing and cutting by ice; the deck frames were of oak at the hatchways, with chestnut elsewhere, and the decking was of white pine. Just before the war pitch-pine was introduced for keelsons, ceiling, and beams, and it has ever since been used. This firm has built many steamboats, and during the war constructed several gunboats; but since the war it has built about 17 sail vessels of small size, only one, however, in the last eight years. Of late years the Gildersleeves have built scarcely anything except coal barges. Their principal business is repairing; but they have a marine railway at their landing, and keep a force of 25 men steadily employed. In all they have built 125 vessels.

At Rocky Hill there is a yard for barge building.

At Goodspeed's landing, in the town of East Haddam, there was once much building; but there is none at all now, the only work at present being the repairing of the steamboats of the Hartford line. Ships, schooners, war vessels, and steamboats have been built at this yard, the pay-roll sometimes carrying as many as 400 men, and a year's transactions amounting to over a million dollars. The carpenters are scattered, and a year's work now scarcely supports 25 men.

Essex is a little fishing village lower down the river with a small railway and two boat-shops. There was once some ship-building here, but there has been none worth mentioning of late years. The small boats of the town have been sold extensively in the South, but there is little left of this business.

Middletown, Middle Haddam, and other places on the river once aspired to be ship-building towns, but now the business is entirely extinct.

On the headwaters of the Connecticut river about 20 pine board batteaux are built every year for driving rafts of logs.

At Madison there is a ship-yard where a bark or schooner is still built every year, the cost of which is about $75 per register ton. Chestnut is used in the frames to some extent, as it is in all Connecticut yards, but the main dependence is on southern oak and pitch-pine. The wages in this yard were a little higher than at the extreme east, owing to the proximity of New Haven and New York, and ranged from $2 25 to $3 a day of ten hours.

At New Haven the product of the census year was one sailing vessel of 450 tons, a few coal barges, a few small fishing boats not large enough to register, a few row-boats, and a little repairing at one marine railway in Fair Haven. The town can scarcely be said to have any ship-building other than in the building of coal barges, and what is done is an insignificant fraction of the general business of the town. The first two coal barges were built in 1876 for the Empire Transportation Company. They were almost square, 38 feet long on the bottom, 40 feet on top, 24 feet wide, and 11 feet deep, each with one cross bulkhead amidships and a narrow deck 2 feet wide around the gunwales. The rest of the top was open. The floor timbers were 2½ by 10 inches square, spaced 24 inches; the top timbers 4 by 6 inches, both sets tenoning into a square bilge log; the outside planking 2½ inches; and the grub strake, or what should be a grub strake, 5 by 12 inches. The whole boat was built of yellow pine and oak, the frames being of oak, and each boat weighed about 20 tons and carried 200 tons of coal. These boats had a square resistance against the water, but they have proved a success so far as profitable coal carrying is concerned, and a large fleet of them has been built. They are towed back and forth between New York and New Haven by tug-boats in fleets of from 10 to 20. Seventy-nine box barges were built for this company, including 27 of different shapes and dimensions, but with the same sizes of scantling; the bow and stern were given a rake, to lessen the resistance. The new boats are able to carry 325 tons of coal each. The company built 10 more last fall, carrying 300 tons each. In 1881, inspired by the success of the old company, a new one, which took the name of the New England Transportation Company, was formed in New Haven, and built barges, lighters, coal-hoisters, and all the apparatus required for coal handling and transportation. Mr. Langly built for this company 30 square barges, 30 feet wide, 40 feet long, 11 feet deep, and carrying 250 tons of coal each; also 35 boats 30 feet wide, 11 feet deep, and 55 feet long on the bottom, with ends raking 45°, making them 71 feet long over all, and carrying 450 tons each. The latter boats were partly decked and had two cross bulkheads, and the hatches were 21 feet wide and 50 feet long, with 30-inch coamings, protected with light hatch covers; they were planked with 2½-inch yellow pine, ceiled with 2-inch spruce and decked with 2¾-inch spruce. These two fleets do an immense business in coal transportation from New York harbor to New Haven, as one of them can carry 27,000 tons and the other 24,000 tons of coal at one trip. The fleets are made up of square boats and those with raking ends. They are all lashed closely together, with the bevel-bowed boats ahead and behind, and when in tow of a strong propeller they make pretty fair time and have reduced the cost of coal carrying to a point where coasting schooners and colliers can no longer compete. The boats are often wrecked and sunk, and sometimes capsize. Their flimsy construction makes them unable to withstand much of a shock, and they are loaded down so far as to be in danger of foundering; but if one of them is occasionally lost, it only costs $300 to replace it. These barges are only adapted to the waters of Long Island sound, as they could not venture past Point Judith, nor into any waters where they would catch the heavy ocean swell. They have driven a whole fleet of schooners out of the coal trade of the Sound.

At the Fair Haven marine railway about 60 fishing vessels are taken out of the water yearly, and a few thousand dollars' worth of work is done on them.

At Bridgeport ship-building ended 16 years ago. There was a large ship-yard here, and another at Black Rock, a short distance west. One builder has built 25 or 30 vessels at Bridgeport, many of them square-rigged, and one of his ships, now 33 years old, is still a good vessel. A builder at Black Rock used to build a bark or a ship once a year. The war of 1861, high wages, and foreign competition have destroyed the business of the two ship-yards referred to. The timber in that region has been pretty thoroughly cleared off, large quantities of it having been sent to New York before the war. Chestnut is yet cheap, not exceeding $12 a thousand in the round log, delivered at the saw-mill; but the low price comes from the lack of demand, and a little ship-building would send up the price at once and rapidly exhaust the supply. The only relic of the yard at Black Rock is a small marine railway, worked by horse-power, which lies idle most of the time.

After passing Bridgeport there is no trace of ship-building on the Connecticut coast except at South Norwalk, where there are a marine railway, one large boat-yard, and a few boat-shops, and at Cos Cob, where there are two small railways for the repair of fishing and coasting schooners. Sharpies and fishing boats are owned in large numbers all along the coast, and many are built every year, partly by amateurs and partly by regular builders.

## NEW YORK.

The early vessels of New York consisted of yachts, ketches, brigantines, barks, fishing boats, and sloops, and quite a number were built by the Dutch under the auspices of the Dutch West India Company. A three-masted vessel is spoken of as early as 1650, the shares in her being twenty-five in number; but vessels did not exceed from 100 to 120 tons each. About 1683 New York owned 3 ships, 3 barks, 23 sloops, and 41 small boats; in 1696 there were 40 square-rigged vessels, 62 sloops, and 60 small boats; but after 1700 the business was neglected at New York for many years, probably owing to the superior activity of the people of New England. The sloop was the popular boat at that early period, and having been developed from the old Dutch yacht it kept the round full bottom and broad beam which characterized all Dutch vessels of the seventeenth century. Its light draught fitted it for floating over the shallows of the Hudson river, and it was the universal boat for traveling and freighting on the river to Albany. A sloop cost from $500 to $600 about the year 1650, a canoe $10 or $12. By 1771 the sloops of the Hudson river had become large, powerful boats, and there were 125 sailing between Albany and New York. When occasion required, deep ones were built to venture to places as far away as Barbadoes, Surinam, Santa Cruz, etc., whither many of them did actually trade, and for such small vessels they carried valuable cargoes. For instance, the Olive Branch went to the West Indies in 1770 with 7 tons of flour, 47½ barrels of herring, 7,000 staves, 11 horses, 1 negro, and apples, poultry, onions, etc., to the total value of £591; the return cargo, mostly rum, was worth £448. In 1785 the Experiment, of 50 tons, was fitted out from Albany for China, being manned by 7 men and 2 boys, and carrying an assorted cargo. She left December 18 and was gone 18 months; the return trip, with tea, chinaware, etc., took 4 months and 12 days. These sloops ran out from the Hudson all along the coast, trading and carrying passengers, but were best fitted for the river trade and other local uses, such as fishing and pleasure sailing in the bay. A large fleet is now employed on the Hudson. The rise of New York in commercial activity was slow. The merchants traded to the West India islands and built many vessels to sell in those islands, but neglected the trade of Europe, and were far behind Boston in general enterprise until after the revolutionary war. The best business between New York and Europe was in English hands. The packet lines which were started in 1756 to run to Falmouth with letters, passengers, and freights were all English, and it was not until after the Revolution that New York merchants began to show the energy which has ever since characterized them. Privateering was a marked feature of New York enterprise before the Revolution. During the French war and up to 1758 the port had sent out 48 privateers, 695 guns, and 5,660 men, and others continued to be sent out until the city was captured in the revolutionary war. The privateers were brigs and schooners, long, deep, and sharp on the floors, sitting low in the water, and sailing with a drag, built in defiance of the rules and prejudices of the age, and so fleet that they were seldom overtaken even by the best frigates. New York had a few vessels of the same class in the slave trade, and their forms came down to the years following 1812 in the brigs and fruiting schooners of New York, and are perpetuated in some respects in the pilot boats and yachts of to-day.

A few large ship and brig rigged vessels were built after the Revolution, but the shipping interests of New York were so limited that when the Manhattan, of 600 tons, was built for the East India trade by Samuel Ackerly in 1799 the yard drained the city of its carpenters, and the ship, when launched, took off nearly every sailor left in the port.

The ship carpenters in New York after 1800 comprised many able men, among them being Samuel Ackerly, Henry Eckford, Christian Bergh, Forman Cheeseman, Sneadon & Lawrence, and Adam & Noah Brown. These men were smart in improving their ships, and constructed a great many vessels, both for local and foreign owners, including a number of war ships. The frigate President, built by Mr. Cheeseman, was so famous in the war of 1812 that strenuous efforts were made for her capture. She was fast and able, but was finally taken by three English vessels and sent to England, and by order of the admiralty was there dismantled and taken to pieces for the purpose of ascertaining the secrets of her construction and excellent qualities. This proceeding has often been resorted to in the history of shipping. To Christian Bergh is said to belong the credit of the invention of the close rudder. Rudders had previously been made with a straight stock, and swung on their pintles in such manner that a large opening in the counter was required. This opening was clumsily closed with a piece of tarred canvas nailed to the rudder-stock and the counter. Mr. Bergh fashioned the stock so that the whole apparatus turned on its center, instead of on the fore edge of the rudder. The wood-work around the rudder-head was then fitted close, and the water was thus effectually excluded without the aid of canvas. Ship-building was dull in the harbor of New York during the war of 1812, but privateers were built from time to time, and the art was kept alive. Many builders, including Mr. Eckford and Adam Brown, found employment during the war on the northern lakes, where they built the vessels that won the battles of lake Champlain and lake Erie. After the war of 1812 many large vessels were built in New York; but there was at first a lack of carpenters, which embarrassed the yards extremely, and it was at this period that the practice sprang up of taking a large number of apprentices to train in the yards. Regular work soon made an abundance of new shipwrights and attracted some from other towns, especially from New England, so that by the time New Yorkers began to go extensively into the building of packet ships there was no lack of good men.

Packet building was the best work of the New York yards after the war of 1812. Up to 1814 the best ships on the middle Atlantic coast had been produced at Philadelphia, the fashions of the day having nearly all been set there; but after 1814 building went ahead strong in New York, and the fashions were thereafter set by the builders on the East river. In the construction of packets the best talent of the day was employed; and these vessels and the river steamboats, which were then coming into prominence, gave work to a long row of ship-yards extending from Pike street, all along the East River front of the city, for a mile and a half. A few yards were also employed over in Brooklyn. The timber first used was New York state oak and white pine, oak and chestnut from New England, live oak from Florida, and locust from Long Island, strength, durability, and finish being the main requisites so far as the carpenter's art was concerned. When business had finally become brisk 20 ship-yards and 6,000 men were employed. In early years the majority of the Liverpool packets were built by Smith & Dimon, Isaac Webb & Co., and Brown & Bell, while the London and Havre ships were generally built by Christian Bergh, Thomas Carnely, Jacob H. Westervelt, and William H. Webb. The other builders worked on barks, brigs, schooners, sloops, and steamboats, among them being Fickett & Crockett, Westervelt & Mackey, Eckford Webb, Perrine, Patterson & Stack, and George Steers on sailing vessels, and Lawrence & Folkes, Devine Burtis, Bishop & Simonson, William Collyer, Thomas Collyer, and Capes & Allison on steamboats. After 1850 the New York yards went into clipper-ship building, and then began the greatest period of activity which the port had ever seen, from 50 to 100 vessels being built yearly, or from 30,000 to 60,000 tons. Twenty or thirty grand vessels were often building at one time, and the whole river side echoed with the ring of calking-irons. Bustle and excitement prevailed on every hand. Oak and pitch-pine timber began to be brought from the South, and the enormous quantities of all kinds of wood consumed gave busy employment to large numbers of coasting vessels and made the port the largest lumber-yard in America. The cost of building was about $55 per register ton, the vessel being fitted out at that price ready for sea. This was in ordinary years. The majority of the vessels built were for New York city owners, and every ship launched for a house in the packet, tea, or California trade meant not only the disbursement of from $20,000 to $30,000 for labor among the mechanics of New York city, with a further outlay of from $50,000 to $70,000 for materials, but it had still another significance; it meant the steady support of thousands of skillful men at high wages in the annual repair of the large fleet of wooden vessels produced. The packets and clippers were continually subject to heavy repairs. They were put in charge of men who would put on all sail and drive through all sorts of weather, and it is known that one American clipper, a well-built ship, had to have $15,000 worth of work done on the return from her first voyage. The repair bills of all of them were large, and as long as the bulk of the tonnage that crowded New York harbor flew the banner of America from the peak the repairing at the port was one of the largest and the most profitable of all the industries there carried on.

William H. Webb, the great builder of packets and clippers at New York, and afterward of wooden steam vessels, built more tonnage on foreign account than any other builder at this port (138 vessels). One of his ships was the Ocean Monarch, of 2,145 tons, and another the great iron-clad steam ram Dunderberg, considered in her day the most formidable fighting ship in the world. He probably trained more apprentices than any other builder, and gave an immense impulse to American ship-building thereby, his apprentice boys, now full-grown men, being at this day scattered all over the United States and doing good and honorable work wherever found.

The list of his ships will be useful, as illustrating the growth of the building industry in New York, the size and character of the vessels built in each year being about what was required from all leading builders at the different stages of the history of the port. The list is as follows, the data being obtained partly from the custom-house books at New York and partly from the records of the yard, and is as complete as can be made in the time allowed:

| Year. | | REGISTER DIMENSIONS IN FEET. | | | Tonnage. |
|---|---|---|---|---|---|
| | | Length. | Breadth. | Depth of hold. | |
| 1840 | Brig Malek Adhel | 80 | 21 | 7¾ | 120 |
| | Ship James Edwards | 122 | 31 | 20 | 500 |
| 1841 | Ship Agnes | 122 | 28 | 19 | 450 |
| | Ship Helena | 136 | 32½ | 20 | 650 |
| 1842 | Ship Liberty | 143 | 28½ | 20 | 750 |
| | Ferry-boat Wallabout | 94 | 23 | 8¾ | 199 |
| | Ferry-boat New York | 94 | 23 | 8¾ | 199 |
| | Fishing smack Prouta | 45 | 15 | 6½ | 36 |
| | Fishing smack Viva | 45 | 15 | 6½ | 36 |
| | Fishing smack Ligera | 58 | 19 | 8½ | 76 |
| 1843 | Ship Montezuma | 160 | 35⅔ | 21 | 916 |
| | Ship Cohota | 145 | 33 | 20 | 720 |
| | Ship Yorkshire | 174 | 36⅔ | 21½ | 1,165 |
| | Schooner Vigilant | 55 | 19 | 5 | 50 |
| 1844 | Ship Zurich | 136 | 35 | 20 | 680 |
| | Ship Montauk | 127 | 19½ | 14½ | 540 |
| | Brig Ramon de Zaldo | 90 | 22 | 8¾ | 160 |
| | Ship Panama | 136 | 33 | 20 | 670 |
| 1845 | Ship Havre | 160 | 36 | 21½ | 1,000 |
| | Ship Silas Holmes | 145 | 33 | 20 | 730 |
| | Ship Fidelia | 160 | 35 | 21 | 1,050 |
| | Steamer Genil | 161 | 28 | 10 | 174 |
| 1846 | Ship Marmion | 160 | 36 | 21½ | 1,080 |
| | Ship Columbia | 170 | 36½ | 21⅜ | 1,180 |
| | Ferry-boat Williamsburg | 115 | 26 | 10 | 315 |
| | Ship Admiral | 160 | 35½ | 21½ | 1,080 |
| | Ship Sir Robert Peel | 160 | 35½ | 21½ | 1,080 |
| | Ship Splendid | 130 | 33 | 22¾ | 750 |
| | Ship Bavaria | 160 | 35½ | 21 | 1,060 |
| 1847 | Ship New York | 164 | 37 | 22 | 1,165 |
| | Ship Isaac Wright | 170 | 38 | 22¼ | 1,130 |
| | Ship Ivanhoe | 170 | 38 | 22¼ | 1,130 |
| | Ship Yorktown | 170 | 38½ | 22¼ | 1,150 |
| | Ship London | 170 | 38½ | 22¼ | 1,145 |
| | Steamer United States | $244\frac{7}{12}$ | 40 | $30\frac{10}{12}$ | 1,857 |
| 1848 | Ship Caleb Grimshaw | 170 | 37⅔ | 22¼ | 1,160 |
| | Steamer Ajax | 140 | 24⅚ | 10½ | 370 |
| | Steamer California | 199⅛ | 33½ | 20 | 1,057 |
| | Steamer Panama | 200⅓ | $33\frac{10}{12}$ | 20⅛ | 1,087 |
| | Steamer Cherokee | 214 | 35 | 22 | 1,450 |
| | Steamer Tennessee | 214 | 35 | 22 | 1,450 |
| 1849 | Schooner S. M. Fox | 98 | 26½ | 11 | 250 |
| | Tug Goliah | 145 | 31½ | 10¾ | 411 |
| | Ship Guy Mannering | 190½ | 40⅕ | 28⅗ | 1,419 |
| | Ship Gallia | 171 | 39⅛ | 27¾ | 1,191 |
| | Ship James Drake | 130 | 28½ | 20¼ | 483 |
| | Ship Albert Gallatin | 192½ | 40¼ | 20⅛ | 1,435 |
| | Ship Catherine | $135\frac{10}{12}$ | 31⅓ | $19\frac{5}{12}$ | 611 |
| | Ship Manhattan | 182 | 39½ | 27⅔ | 1,299 |
| | Ship Isaac Webb | 188 | 39¾ | 28 | 1,359 |
| 1850 | Ship Vanguard | 176½ | 38½ | 22½ | 1,196 |
| | Steamer Florida | 214 | 35¼ | 22⅓ | 1,261 |
| | Steamer Alabama | 214 | 35½ | 22 | 1,300 |
| | Ship Celestial | 158 | 34½ | 19 | 860 |
| | Ship Joseph Walker | 181⅓ | 40 | 23 | 1,325 |
| | Steamer Union | 214 | 34 | 22 | 1,400 |
| 1851 | Steamer Golden Gate | 269½ | 40 | 30½ | 2,067 |
| | Ship S. M. Fox | 170¼ | $36\frac{11}{12}$ | 26½ | 1,062 |
| | Ship Isaac Bell | 171 | 37 | 26⅓ | 1,072 |
| | Ship Challenge | 230½ | 43⅛ | 27⅓ | 2,006 |
| | Schooner Clifton | 26¾ | 21 | 7½ | 106 |
| | Ship Great Western | 191⅓ | 40½ | 20¼ | 1,443 |
| | Ship Gazelle | 184 | 38½ | 22¾ | 1,244 |
| | Ship Invincible | 221½ | 41⅓ | 24⅝ | 1,769 |
| | Ship Sword Fish | 169½ | 36½ | $20\frac{1}{12}$ | 1,035 |
| | Ship Comet | 229 | 42 | 22¾ | 1,836 |
| | Steamer Edgar | 137 | 24½ | 9⅝ | 310 |
| 1852 | Schooner Plandome | 100 | 26½ | 11 | 250 |
| | Schooner Manhasset | 100 | 26½ | 11 | 250 |
| | Ship Annawan | 153 | 33 | 20 | 800 |

| Year. | | REGISTER DIMENSIONS IN FEET. | | | Tonnage. |
|---|---|---|---|---|---|
| | | Length. | Breadth. | Depth of hold. | |
| 1852 | Bark Robert Mills | 126½ | 30⅔ | 14 | 488 |
| | Ship Australia | 192 | 40½ | 27¾ | 1,448 |
| | Steamer George Law | 272 | 40 | 32 | 3,000 |
| | Ship Flying Dutchman | 187⅝ | 38½ | 24½ | 1,200 |
| | Schooner Reemplaco | 77 | 21⅓ | 7⅝ | 113 |
| | Steamer Augusta | 220 | 35½ | 22 | 1,600 |
| | Steamer Knoxville | 220 | 35½ | 22 | 1,600 |
| 1853 | Brig Volante | 113 | 26¾ | 11¼ | 307 |
| | Brigantine Fanny | 86¼ | 22⅓ | 9¼ | 158 |
| | Ship John Bright | $191\frac{7}{12}$ | 40½ | $28\frac{7}{12}$ | 1,444 |
| | Ship Young America | 236½ | 42 | 28¼ | 1,962 |
| | Steamer San Francisco | 281½ | 41 | 24⅝ | 2,272 |
| | Steamer George Law | 278½ | 40 | 32 | 2,141 |
| | Bark Snap Dragon | 142⅛ | 30⅝ | 18⅛ | 619 |
| | Ship Flyaway | 190½ | 38 | 21½ | 1,275 |
| | Bark Milton | 134 | 31 | 14¼ | 536 |
| 1854 | Ship Cultivator | 192 | 40½ | 28½ | 1,448 |
| | Ship Harvest Queen | 188¼ | 40 | 28½ | 1,383 |
| | Ship Thornton | 191½ | 40⅝ | 28½ | 1,422 |
| | Bark Houston | 132½ | 30⅝ | 14 | 518 |
| | Steamer Pelayo | 198¾ | 30½ | 14 | 811 |
| | Ship Aurora | 201¾ | 42 | 29 | 1,639 |
| | Ship James Foster, jr | 191½ | 40 | 27½ | 1,410 |
| 1855 | Ship New Orleans | 160⅔ | 35½ | 21⅔ | 924 |
| | Ship Neptune | 191 | 40 | 28 | 1,406 |
| | Bark Alamo | 133 | 30½ | 13⅔ | 507 |
| | Bark Texas | 135 | 30⅝ | 14⅔ | 554 |
| | Brig Josephine | 129 | 23⅓ | 9⅛ | 259 |
| | Brig Sabine | 123 | 28¼ | 12⅔ | 399 |
| | Side-wheeler America | 170⅔ | 28 | 12 | 545 |
| 1856 | Ship Silas Wright | 191½ | 40½ | 28 | 1,443 |
| | Bark Fanny Holmes | 142 | 33 | 17½ | 700 |
| | Ship John H. Elliott | 173 | 36⅝ | 23 | 1,077 |
| | Bark Alice Taintor | 139½ | 32½ | 18 | 667 |
| | Propeller Astoria | 159½ | 23⅓ | 12 | 425 |
| | Steamer Cuba | 200 | 30⅔ | 14 | 821 |
| | Steamer Gautemala | 127 | 22 | 8⅓ | 218 |
| | Ship Intrepid | 179⅔ | 37⅔ | 23 | 1,173 |
| | Ship Ocean Monarch | 240 | 46 | 30¼ | 2,145 |
| | Ship Uncowah | 169 | 35⅔ | 22 | 988 |
| | Side-wheeler William H. Webb | 200 | 33½ | 12½ | 655 |
| 1857 | Ship Black Hawk | 180 | 36⅔ | 23 | 1,108 |
| | Ship Roger A. Heirn | 173⅓ | 37 | 23 | 1,089 |
| | Bark Trieste | 136 | 30 | 14⅔ | 550 |
| | Steamer Moses Taylor | 246 | 34 | 17 | 1,372 |
| | Ship Resolute | 190½ | 40⅛ | 28 | 1,413 |
| | Revenue-cutter Harriet Lane | 179 | 30½ | 13 | 750 |
| 1858 | Steam-frigate General Admiral | 302⅝ | 55 | 34 | 4,600 |
| | Propeller Japanese | 217 | 36⅔ | 17½ | 1,530 |
| | Bark Martinho de Mella | 138⅛ | 31½ | 18⅛ | 623 |
| | Steamer Yorktown | 250 | 37⅔ | 16¾ | 1,500 |
| | Bark Harvest Queen | 115 | 17 | 11¼ | 316 |
| | Steamer Mississippi | 251 | 38⅓ | 23½ | 1,500 |
| | Steamer A. Marshall | 178 | 38⅝ | 22½ | 1,450 |
| 1861 | Steamer Constitution | 342½ | 44⅔ | 22⅓ | 3,315 |
| | Steam-frigate iron-clad Re d'Italia | 275 | 54 | 33½ | 3,500 |
| | Steamer Re Don Luigi de Portugallo. | 273 | 54 | 33½ | 3,500 |
| 1863 | Steamer Golden City | 343 | 45 | 23 | 3,373 |
| | Steamer Colorado | 340 | 45 | 31½ | 3,728 |
| | Iron-clad steam-propeller Dunderberg. | 380 | 72⅝ | 22⅝ | 5,090 |
| 1864 | Steamer Sacramento | 304 | 42½ | 29⅛ | 2,647 |
| | Steamer Henry Chauncey | 320 | $43\frac{7}{12}$ | $27\frac{4}{12}$ | .......... |
| | Steamer Montana | 320 | $43\frac{7}{12}$ | $27\frac{4}{12}$ | .......... |
| | Steamer Bristol | 360 | 47½ | 22 | 2,692 |
| | Steamer Providence | 360 | 47½ | 22 | 2,692 |
| | Steamer China | 363 | 48 | 31½ | ...... ... |
| | Bark James A. Borland | 143 | 32 | 18⅝ | 637 |
| 1869 | Ship Charles H. Marshall | 188½ | 41⅔ | 28½ | 1,630 |

In addition to the above, Mr. Webb built, by subletting the contracts, the following: Schooners Mary C. Allen, Antonia, Cayatino, and Bonita, of from 80 to 107 tons, in 1851; the steamship James Adger, 215 feet long, 33 feet beam, and 21 feet hold, in 1852; the steamboat Pittston, 120 feet long, 19 feet beam, and 6 feet hold, in 1852; and the side-wheel tow-boat Leviathan, 175 feet long, 29⅚ feet beam, and 11¾ feet deep. He also rebuilt the ship Elisha Dennison, 107½ feet long, 27¾ feet beam, and 17⅙ feet deep, only the stem and keel of the original ship remaining after the repairs were completed.

Since 1865 there has been a steady decline at New York. The running of foreign lines of subsidized steamers from Europe to New York resulted in a complete annihilation of the packet lines and of the few American steam lines to Europe, and, followed as it was by the war of 1861-'65, this competition gave a crushing blow to the industry. It is probable, however, that the building of ships would have ceased at the port in time, in consequence of the high prices for labor and plant, even had there been no other moving cause. Property became too valuable in both Brooklyn and New York for use as ship-yards, and the cost of living became so high that the workmen were repeatedly compelled to demand higher wages, and always gained the advance demanded until 1866, when a great strike occurred, in which they were beaten. Wages rose from $1 75 and $2 a day in 1861 to $3 25 and $3 50 in 1865. This advance was a serious embarrassment to the builders of New York, and the strike of 1866 permanently drove the construction of large sailing vessels away from the port. While the men were out a vast amount of work was sent to places farther east, and very little, except part of the repair work, came back; and it has not been possible to build ships of any size at this port since 1865 in competition with the eastern yards. In New York city proper the business is completely extinct. The old ship-yards have been converted to other uses, and are now occupied by wharves, factories, lumber yards, and blocks of buildings; and four floating dry-docks of various sizes, a row of scattered boat-shops and sail-lofts on South street, and a few pump- and block-shops and shipwrights' offices, are all that are left of the original industry. In Brooklyn there are ten yards devoted in part to the construction of small vessels, such as tug-boats, scows and lighters, pilot-boats and yachts, and small pleasure boats. Now and then a ferry-boat or a steamboat is built; but the yards do very little new work in the aggregate in the course of a year, and are all, in the main, supported by repairing. One or two of them are lumber yards, where scow-building is carried on as an incident of the business; but general ship-building appears to have come to a permanent end in this harbor.

Repair work, the coppering of wooden vessels, and the sheathing of grain ships are the principal branches now carried on, the port having immense and admirable facilities for this work. It appears from the returns of the shipwrights of Staten island, New York, and Brooklyn that about 7,000 vessels were repaired on the New York side of the harbor during the census year, the total cost of the work being $4,500,000, and an average of 2,500 men were employed during ten months of the year. The work consisted of carpentering, calking, painting, and metaling. A total of 297 vessels were entirely or in part coppered below water, the old metal being stripped off, the hulls tarred and felted or papered, and new yellow metal put on. In round numbers, the weight of sheathing metal consumed was 2,999,000 pounds, large sailing ships taking from 23,000 to 26,000 pounds each and small schooners from 5,000 to 8,000 pounds. The ship buys the metal, has the nail holes punched by a machine on South street, and then sends the sheets to the dry-dock in New York or Brooklyn, where the ship is being repaired. The average charge for the labor of cleaning the vessel and putting on the metal was 35 cents per sheet, but on a new vessel the charge was 23 cents, including tarring and felting. About half the copper used was foreign, and cost 13 cents a pound; the rest was American, at 16 or 17 cents a pound. On account of the preponderance of foreign tonnage in the port of New York the greatest number of jobs of coppering and of all other branches of repair work were for foreign vessels, which were chiefly Italian, Norwegian, German, and British, and it was the universal testimony that whatever a vessel required could be done here more promptly and substantially than in the majority of other large shipping ports of either America or Europe. As repairs were more costly, however, than in Europe, foreign vessels habitually avoided every possible dollar of expense, and ordered nothing done except that which was strictly required to obtain a fair rate of insurance after the vessels had secured a charter. The repairs to British vessels were very slight, the best and largest jobs being generally upon American vessels, namely, on ships in the California and the East Indian trade, coasting schooners, yachts, tugs, river steamboats, ferry-boats, and coasting steamers.

The ceiling of grain vessels is a special business. As about 2,900 cargoes of wheat, corn, and oats are exported by sail and steam every year, the insurance companies have made regulations for protecting grain from injury in transit and for preventing the cargo from shifting and throwing the ship over on her beam ends. It is required that the bottom of the hold shall be completely floored with two thicknesses of inch board, breaking joints, which is supported on scantling from 12 to 15 inches above the ceiling proper of the vessel. The sides of the hold are clapboarded grain-tight, the stanchions are boarded up, so as to make a fore and aft bulkhead, and about four cross bulkheads are required, one away forward, one in the stern, and the other two between them. The pump well has to be cased up in such manner that a man can go to the bottom of it and work there, and the masts and tanks are also cased. A vessel thus fitted up is allowed to carry grain in bulk in the lower hold, with a little loose grain on the lower deck, which is allowed to run down into the hold as the grain settles to keep it constantly full. Between decks the grain is in bags. All grain vessels have to be ceiled; and as one ceiling lasts only about a year, the business gives steady employment to three large concerns. From 8,000,000 to 10,000,000 feet of spruce, pine, and hemlock are consumed yearly, worth from $250,000 to $300,000, the labor amounting to between $330,000 and $450,000. Ship ceiling began in New York 30 years ago, the Liverpool packets being fitted for bulk grain about that time, and the business has grown gradually ever since.

Another branch of business is that pursued by the Coast Wrecking Company. This company has a yard and a wharf at Staten island, and engages in the specialty of saving vessels that are stranded on the coast or have been sunk by collision or otherwise in and around New York harbor. It owns 2 steamers and 2 schooners, and employs from 60 to 110 men. An idea of the nature of the work may be gained from the report of its operations in the census year. The company's submarine divers examined the bottoms of 1 bark and 4 steamers, pumped out 1 ship and 3 steamers, and stripped the following vessels, which had been driven ashore or saved their cargoes: 7 schooners, 2 barks, 1 brig, and 2 steamers. It raised 1 steamer, 1 schooner, and 1 bark, which had sunk in the harbor, and rescued the following stranded property: 2 schooners, 3 brigs, 1 ship, 6 barks, and 3 steamers. The compensation of the company varied from 10 to 33 per cent. of the value of the property saved in the case of stranded vessels, but in vessels stripped it was about 50 per cent. Large as was the income, the expenses were larger yet, owing to the cost of maintaining the system, and the company made no profit during the census year.

On Staten island there used to be some activity. Oak and chestnut were plentiful, and workmen could live on the island for less than it cost to live in New York. A few vessels were built before 1861; but timber is now scarce and dear, and building is nearly gone. There are three yards on the northern part of the island, all kept alive by repair work, and at one of them, in Stapleton, a large marine railway was constructing in the census year for future use. On the southern end of the island, at Tottenville, there is a little community of 8 ship-yards, each of which does repairing and some building. There are 8 marine railways in these yards, all worked by horse-power, which take out from 400 to 500 small vessels yearly for painting, calking, and repair. Labor costs from $1 75 to $2 75 a day, being from 25 to 50 cents cheaper than in New York. This is a fishing locality, with coal depots in New Jersey, and the work is largely for smacks, tugs, and coal barges. The new work is in the way of steam tugs and propeller yachts chiefly.

Long Island, New York, was the scene of some of the earliest boat and sloop building in the country. The eastern end of the island was engaged in whaling by boats and sloops from shore as early as 1690, and the northern coast has been engaged from the time of the Revolution in sailing wood sloops to New York with lumber and fire-wood. Greenport and Sag Harbor once had large whaling interests. This island had the advantage of some good timber, the best and largest growth of locust on the Atlantic coast being found here, and there was besides some good oak. On the sea front the water is not deep enough for the building of large vessels, and the work has always been confined to fishing boats and to the small sail and row boats called for in the summer time by visitors at the summer hotels, which are scattered along the whole length of the island. In the census year there were built at Patchogue, Islip, Blue Point, Belle Port, and Bay Shore 17 cat-rigged boats and sloops, ranging from 5 to 24 tons register, and costing from $800 to $2,500 each. The builders have regular yards, and employ 3 or 4 men in building boats and from 6 to 8 on sloops, paying from $1 50 to $2 50 per day. A large sloop takes 8,000 feet of lumber. At Islip there is a marine railway; at Sayville, Blue Point, and Belle Port, each one; and at Patchogue three; all for small work, and each doing from $300 to $1,500 worth of business annually. At Sag Harbor there is now nothing except repair work.

At Greenport a barkentine of 667 tons was built of southern oak and pine in the census year for local ownership, at a cost of $49 per register ton—a cheap vessel. Labor here was from $1 50 to $2 per day. There is a marine railway for coasting vessels, which keeps about a dozen men busy during ten months of the year.

Port Jefferson is the principal locality on the Sound coast, and ship-building is of ancient date here. In early times large numbers of wood boats came to this little hill-locked harbor to load for the New York market. As the business grew up the young men wanted to go on the water themselves, first going as sailors, and then, after vessels were built for them, as captains. Oak, locust, and hickory grew densely over all the neighborhood, and in the busy years before 1857 there was a large industry, there being 10 or 12 yards and seventeen vessels on the stocks at once. One sail-maker employed 16 men and cut up 50,000 yards of canvas yearly. Since 1866 it has been the practice to build six or seven vessels a year, but within five years there has been a change. In the census year only 4 coasting schooners, aggregating 1,326 tons, were built; and the sail-maker above referred to employed only 3 men and cut up 14,000 yards of canvas. The local supply of timber being now exhausted, southern pitch-pine and oak, with some oak and chestnut from Connecticut, are used. A second or third growth of locust and oak covers the hills, but it is small, and is good only for stanchions and treenails. There are three yards in the harbor, employing from 75 to 100 men. Labor was from $1 50 to $2 a day, and the cost of building was from $50 to $60 per ton, according to the completeness and quality of the outfit. Good schooners are built here, the port being an excellent place for this work, and two of the yards have each two large railways. The nearness to New York brings work from that city; but the principal part of the business is on large yachts, sail and steam, the harbor being crowded with these handsome vessels. The active business in repairing keeps the workmen together and enables the builders to take an occasional building contract at low figures, but bitter complaints were heard about compulsory pilotage at New York.

At Setauket, before the war, five or six large schooners and square-rigged vessels were launched yearly. They had oak and chestnut frames, oak planking, chestnut beams, and white-pine decks, houses, and spars. Originally the timber was cut near the town; afterward it was bought in Connecticut, but now it comes from the South. The price for oak is now $30 per thousand feet; chestnut, $20; southern pine, $30. In 1870 the ship Adorna, of 1,460 tons, was built here for the cotton trade at a cost of $110,000. Her floors and lower futtocks were of oak and chestnut, the cant frames and top timbers of live oak and locust, the transoms, apron, and knightheads of live oak, the keel, stem, and stern, as also the planking, of white oak, and the keelson, ceiling, and beams of pitch-pine. The Adorna was a heavy vessel, but, being built full, was a good carrier. The owner was also a merchant, and made $50,000 profit on one voyage. This decided him to build a big ship. She was to be 234 feet long on the keel, 250 feet over, 48 feet beam, and 31 feet deep in the hold, of about 2,700 tons register, a three-decker, and the largest sailer afloat. She was built of live oak, locust, white oak, and pine, the same as the Adorna; but after $62,000 had been spent on her the owner failed. This vessel was sold to a coal company and cut down one deck, and was finished at Noank, Connecticut, as the steam-collier Wilkesbarre. This failure stopped the work at Setauket, and there was nothing doing in the census year.

Northport has been at times a busy place. A few years back a vessel of from 500 to 700 tons was built every season; sometimes two. A little repair work at 2 yards was all that was reported in the census year. There is a railway here for small vessels, and an unfinished schooner yacht had been standing a long time in the frame in 1880.

Huntingdon and one or two other small places on that coast do small jobs of building and repairing.

On the other side of Hell-Gate channel, at City island, New York, there are two large yards, with marine railways for building and repairing, which get much business from the coasting craft that throng the Sound. At one of them there were built in the census year two schooners of 156 and 212 tons, respectively, and a sloop of 14 tons, at a cost of $35,000, or $92 a ton, for the hulls and spars alone. Two barges of 500 and 700 tons respectively were built for $22,500.

At Rye, on the same side of Hell-Gate channel, is an establishment for the building and repair of yachts, the owner of which has a loft and a numerous collection of valuable models. In the census year this shop produced the following boats: Sail-boat, 22⅔ feet long, costing $350; sail-boat, 22⅔ feet, $373; sail-boat, 22 feet, $450; sail-boat, 25 feet, $510; hull of a steam catamaran, $600; yacht, 41 feet, $2,550. Oak, white pine, and cedar, with some yellow pine, were used in these boats.

On the Hudson river the yards are all on the west shore. There has been a great deal of building on the east side in times gone by, but the railroad which runs at the river's edge has cut off the good sites and the water is generally too shallow for large vessels. Yonkers, Peekskill, and Poughkeepsie do boat-building only. The first place going up the river is Nyack, where many sloops are built, and river vessels go there in large numbers for repairs. Three sloops, of 130 tons each, were built in the census year.

At Newburgh there are two marine railways for repairing tugs, barges, and sloops. The firm which owns them has a yard for building iron yachts and ferry-boats. Four tugs of 274 tons and a ferry-boat of 414 tons were built in the census year.

Rondout is the river port of the Delaware and Hudson canal. There are ten yards on both sides of the canal engaged principally in canal-boat and barge work, but one owner has a yard with large shops for the repair of his own fleet of 30 towing steamboats. Oak and pitch-pine from the South and chestnut from the river are the timber used at Rondout; some oak from the river is also used. In the flitch, oak costs $25 and $30 per thousand; good plank, $35 and $40; best, $60. Chestnut costs $25; southern pine about $30. Wages were from $1 50 to $2 50 per day.

Athens has long been the principal place for the building and repair of river vessels of the larger class on the Hudson. It is a little village on the western bank of the river, and has two large boat-yards, at which there is work for from 50 to 150 men. Several ice-barges, tugs, and steamboats are often drawn up on the bank at once for repair, and there are generally two or three new boats building at one time. In the census year the new work consisted of five screw tugs, a large ferry steamboat of 1,200 tons, and two ice-barges, at a total cost of $185,000. The ice-barges are keel-boats, broad and full, sharp at both ends, with deck-houses nearly their entire length, and are run from the ice-houses, which line the river all the way to Albany, to the city of New York in the summer time. Each of the two above referred to was 130 feet long, 32 feet broad, and 10 feet deep in the hull, cost $11,000, and consumed about 110,000 feet of oak, yellow pine, white pine, and chestnut. The prosperity of Athens is much retarded by the high cost of timber, frame oak costing $40 per thousand feet, planking $60, pitch-pine $30, and white pine $50. Wages are from $1 50 to $2 50 per day.

Malden, once an active building town, now does very little work.

The scarcity of timber along the Hudson is producing its inevitable result. When good oak plank costs $60 a thousand feet and frame timber anything like $40 the hulls of small vessels might as well be built of iron, as the small excess of first cost would be quickly compensated by the diminished cost of yearly repairs. The change from wood to iron is now rapidly going on on the Hudson, the new steamboats, tug-boats, and ferry-boats being frequently built of iron.

New York state has always taxed her tonnage the same as other property. In 1881, at the strong suggestion of prominent men, a law was passed by the legislature exempting all vessels of the state engaged in foreign trade from state and local taxation of all kinds, with the expectation that this would benefit the port of New York materially, and, while not helping to restore its old building industry, would, at any rate, encourage its shipping houses and aid in the establishment of ocean-steamship lines.

New York has the first and most important requisites for maritime development, her deep harbor, her railroads, and her river and canal connecting with the great lakes having made her the gateway through which flows the bulk of the foreign commerce of the United States, besides a vast coastwise trade. Two-thirds of the value of the whole foreign trade of the country passes through New York harbor, and of the 21,000 vessels which arrive at American seaports every year 8,000 enter at the port of New York alone. In all, about 7,000,000 tons of shipping engaged in the foreign trade come to this busy harbor annually, being just half of the total tonnage arriving on our coasts from foreign ports. About 800 vessels are constantly in port at New York, among them a great number of the largest steamers afloat. If but one-half of the commerce of New York were transacted in American vessels, the tonnage of our merchant marine would be double what it is now, and the United States would have a larger shipping interest than ever before in her history; and if the bulk of it were done in American vessels, as it used to be before 1855, the United States would have a larger fleet than Great Britain. But the facts of the case are that the bulk of the trade is now transacted in foreign vessels. Of the 7,000,000 tons of shipping in the foreign trade which come to the harbor annually only 1,500,000 tons are American. There is no expectation in New York of a revival of ship-building in the harbor itself, as wages and prices are too high, and the work would be done in country places.

## NEW JERSEY.

New Jersey was originally stocked with a heavy growth of white-oak and hard-wood timber, with a valuable variety of yellow pine and a great deal of cedar on the sand barrens and swamps along the coast and on the lower part of the peninsula. The early population did little in vessel building except at Salem and Burlington, where river sloops and fishing boats were built. At the time of the Revolution the state had no ships and no foreign commerce of any account. Since 1815 there has been some building at various localities, and of late years a large repairing business has grown up in Jersey City, on New York harbor, and at Perth Amboy, below Staten island, where there is a coal depot. In the lower part of the state many streams exist large enough to float coasting vessels, and on some of these ship-building is quietly carried on with the aid of such timber as remains available. On the Atlantic front sail-boats for fishing and pleasure sailing are built, and on the Delaware river repairing and small building go on at two or three places. At Camden, the principal building center of the state, there is a considerable industry.

The Jersey City yards are 18 in number, and have 2 railways and 10 floating dry-docks for hauling out vessels. They get their business from the various classes of vessels which throng New York harbor. The small dry-docks and railways make a specialty of barge and canal-boat work, but the large ones handle sailing vessels, tugs, and steamboats. About 250 men are employed during ten months of the year, the number of vessels repaired ranging from 1,500 to 2,000. If the year is a good one, repairs are freely made, and all the yards are crowded with work; but if profits are small, the vessels economize and the yards are dull. Jersey City is an important auxiliary to the resources of New York harbor; one of the largest yards is owned by a ship-owner who repairs his own fleet of excursion and passenger steamboats. Wages and prices are the same as in New York, but proprietors all speak of the fact that foreign vessels, especially steamers, avoid having work done here. Business was better when the bulk of the tonnage in port was owned by Americans.

At Elizabethport there is one railway for the repair of coal-boats and schooners.

At Pamrapo there is a little yacht-building from time to time, but the total is small.

Perth Amboy has 3 busy yards and 2 railways. The work here is for the coal trade, and is mostly repairing. The companies have had barges built here ever since 1860 for sending coal up to the city and points accessible from the harbor. Originally built for capacity only, the newer barges have been designed as well for small resistance. The Lehigh Valley Company ordered six new barges in 1880, and one was building at Perth Amboy when the place was visited. This barge was perfectly flat on the floor amidships and square on the bilge, the floor being carried well forward and aft. The bow and stern were sharp, the stem perpendicular, and the counter overhung the water about 5 feet. This boat was 125 feet long, 28 feet broad, and 11¼ deep amidships, with 2¾ feet sheer, and on 9 feet draught would carry 700 tons of coal. The floor timbers were of yellow pine, in one piece each, the top timbers 8-inch oak, and the bilge was strengthened by a pitch-pine log 12 inches square, fitted into the angle and well bolted to the timbers. A binding and a standing strake, each 6 by 12 inches, were fitted close to the bilge log, while a shelf, 12 by 12, supported the beam ends; amidships the beams rested on strong stanchions, heeling on a pitch-pine keelson 12 by 24 inches square. A long bar of iron ran down by the side of each stanchion and was bolted to the beam above and the keelson below; a light ceiling covered the whole interior of the boat. The deck was laid flush fore and aft, and was furnished with bitts, cleats, and a house for the boatman and his family.

New Brunswick, on the Raritan river, once built largely for the coasting and a little for the foreign trade. Oak was originally abundant; but the wood is now scarce, and frame timber costs $40 per thousand. Repairing is now the principal work.

In the region of Barnegat, Tuckerton, Greenbank, and West Creek there has been considerable building of coasting schooners for 40 or 50 years. Vessels of 400 tons have been built at Barnegat, and at Tuckerton one yard launched 17 vessels in all. About 300 men in Tuckerton once found a living in the different branches of this industry, but there has been no work done for several years, except upon small fishing boats, a dozen or twenty of the latter being built every year in door-yards by fishermen and half-professional builders. At Greenbank several large schooners, each carrying from 400 to 550 tons of coal, have been launched into the Mullica river, but there have been none launched since 1877. The timber used has been chiefly Jersey pine. It is resinous, though less so than Georgia pine, and is durable. The large main pieces of the frame, the stem, keel, and stern-post, and the outside planking were native white oak; all the rest of the vessel was Jersey pine. Thus built, Jersey schooners were good and lasting, and there are many in existence from 18 to 30 years old. They cost about $50 and $55 per register ton. Southern pine was used to some extent after the local timber grew scarce.

May's Landing, on the Great Egg Harbor river, lies buried in a pine wilderness, diversified with clumps of oak in the wet lands and on the river banks. Several hundred white-oak trees, from 12 to 30 inches in diameter, averaging 200 years old, grow in and about the village. Ship-building was once the life of this place. There were three yards, and from 2 to 5 vessels were launched every year, nearly all coasting schooners of from 200 to 750 tons actual burden. The work was done by contract for owners in New York, Philadelphia, Baltimore, and various parts of New Jersey. One vessel of 740 tons was named The Twenty-one Friends, from a peculiarity in her ownership. Two barkentines of 643 and 679 tons register respectively were built about six years ago, each for $45,000. One builder has built about 35 vessels here and at Somers Point, 12 miles away; another 20 vessels. Nothing had been built for four years when the town was visited in the census year; but a center-board schooner, with 130 feet keel, 35 feet beam, and 12 feet hold, was then under way, with a frame 21 by 10 inches, spaced 26 inches, and was to cost $25,000. The May's Landing yards have always built with Jersey pine in the frames, ceiling, keelson, deck beams, and decking; the planking and center pieces of the vessel only were of white oak. The pine is cheaper, costing only $25 a thousand feet, sided and delivered in the yard, but it is usual to buy from the saw-mill, hewing the frames from the flitch with axes. The May's Landing vessels have been durable, but clumsy. The ceiling and planking are not fitted on with edges faying so closely as in the eastern yards, and daylight can be seen through the side of the vessel sometimes before it is calked. The cant frames are arranged after a fashion which went out of use in eastern yards a long while ago. The space just aft of the stem is filled in with fore-and-aft cants heeling on a perpendicular frame, and sometimes the second frame is set more than one frame space aft of the first and the interval is filled in with cants heeling on the second frame. There are few labor-saving appliances in the May's Landing yards, everything being of the cheapest and simplest character. Wages, however, are low—from $1 25 to $2 a day. Business is depressed here, notwithstanding the abundance of good and cheap timber; good carpenters are lacking, and the spirit of enterprise is dormant.

There is very little else doing, going down the coast, except the construction of fishing boats and yachts at Atlantic City. Building was once active at Somers Point, Port Republic, and Tuckahoe, but the decay of coal carrying in schooners has depressed the business; besides, timber is scarce. Since the railroads have been opened through the pine wilderness to Atlantic City forest fires have repeatedly swept away large tracts of timber, causing a destruction equal to that of the ax, and the places named have been left without the original mainstay of the industry, the only work now done being of an occasional and purely local character.

Mauricetown and Leesburg, on the Maurice river, both close together, are the only places of any activity in the southern part of the state, the prosperity of the village first named being dependent on building and navigation. There are 50 or 60 sea captains living in the place, and almost everybody owns shares in vessels; it is the same with Leesburg, Dennisville, Millville, and Dorchester, all near by. The majority of the vessels owned on the river are for fishing and oystering, but there are many large coasters and barkentines. The three-masted schooners Harry B. Ritter, 643 tons; Thomas J. Lancaster, 653 tons; and Charles Platt, 632 tons, each carrying nearly 1,000 tons of cargo, have all crossed the Atlantic with grain cargoes from Philadelphia. They make triangular voyages—grain to Liverpool, coal to Cuba, and sugar to the United States. These vessels carry square canvas forward, and are really barkentines. The building on this river has been active for 50 years, the calculation being to launch a schooner or a barkentine from the yard at each of the several villages above named every year. Two schooners were under way in the census year. The wood used was formerly native pine and oak; but the home supply is now nearly exhausted, and the accessible large trees are gone. The frames, knees, and planking are wrought out from white oak; the rest of the vessel is yellow pine; and the outfit and top gear are usually bought in Philadelphia. The cost of building here is about $52 or $55 a ton. The builders claimed that the cost could be kept down to $45, but with a good outfit $55 was the standard cost. Small schooners of 60 tons and under cost as high as $150 per register ton. Wages are from $1 50 to $2 a day. Dorchester is the principal place for repairing river vessels, and two railways, worked by hand or by horse-power, exist there. The nearness of this river to the southern timber supply and the vicinity of the iron regions, with Philadelphia near at hand to provide outfits, are points of advantage for builders.

At Port Norris and Salem there are small railways for the repair of fishing vessels.

There is a good deal of small building here and there on the Delaware river, but it does not take the form of an active industry except at Camden. Its public importance consists entirely in its being a field in which ship-carpenters can be recruited in an emergency.

Camden has five large ship-yards, employing 300 men and a capital of $500,000, one being used for the construction of iron vessels. There is a large floating dry-dock, capable of taking out of water the largest steamers in the trade of Philadelphia, across the river, which is engaged mainly in repairing. The other yards chiefly thrive by the same branch of industry, but two have large marine railways, where calking, painting, coppering, carpentry, and blacksmith work are done. The large repair business gives them great advantages for the building of new vessels, as they have a force of skilled men employed and a complete equipment of labor-saving machinery. An occasional contract to build enables them to keep the men busy, and they can employ men for lower wages than they would have to pay if work were irregular. Large schooners of southern oak and yellow pine are built here nearly every year at from $52 to $55 per ton. The wages of the best men were $2 75 a day on new and $3 on old work. The building of the census year was 3 propellers, aggregating 457 tons; 1 schooner of 673 tons, and a sloop of 6 tons, valued in all at $80,000. The new iron vessels were 4 tugs, aggregating 382 tons, and worth $76,000. The yards of Camden all handle large vessels, and are of great value to the shipping interests of the river; but it is the testimony of all the yards that work is less active now than it was 25 years ago. The river was formerly thronged with coal schooners and American sailing vessels, but steam colliers have nearly superseded schooners, while the large sailing ships have been driven off by coasting and foreign steamers. The change is detrimental to Camden. The finest facilities in New Jersey for building wooden vessels exist in this town, as the yards have steam saws, bolt-cutters, derricks, and all the large and small tools which have been invented; but their proximity to a large city leaves little or no profit in building, wages and taxes being too high. Philadelphia is full of large lumber yards, but the timber for a ship cannot be bought sufficiently low to compensate for high wages and taxes.

## PENNSYLVANIA.

Pennsylvania had a great wealth of forest growth at the time of its settlement, and one of the masts of the first European vessel that ascended the Delaware river caught in the branch of a tree standing on the shore where Philadelphia was subsequently founded. Oak and pine grew in profusion from the edge of the river to a vast distance inland. The early population were traders, and after they had fairly embarked in commercial enterprise their progress was rapid. Eighty-five vessels cleared from Philadelphia in 1723, 171 in 1730, 212 in 1735, and from 1749 to 1752 over 400 a year. Some of these were ships from the parent country, some were from the West Indies, and some belonged in New England, but a large proportion were of local build and ownership. It will be recollected that in 1730 the British West India islands asked that the continental colonies be required to buy West India produce from them alone. The request was resisted by Philadelphia, and the colony threatened to retaliate by developing her manufacturing interests at the expense of England, and the movement was beaten for the time. The imports in 1730 were £48,592, the exports £57,500. In 1763 and 1764 Mr. Grenville convened the colonial agents in London and explained his plan for drawing a revenue from America. His taxes promised to stop all trading with the French and Spanish colonies. The trade was even then unlawful, but it had been connived at, as it provided the continental population with gold and silver for their remittances to England. This time the plan to concentrate the trade in the ports of the British islands could not be defeated, and by making the officers of naval vessels officers of the customs nearly the whole colonial trade with the French and Spanish colonies was destroyed. This bore hard on Philadelphia, and the province was soon drained of specie, for in 1764 her imports were £700,000 and her exports only £300,000. Philadelphia did not submit quietly, but, like the other colonies, built fast vessels and evaded the English regulations when she could, and the commerce of the port grew to be so large that in 1773 a total of 426 square-rigged vessels and 370 sloops and schooners entered and cleared. Pennsylvania vessels carried grain, flour, flaxseed, timber, iron, pork, and beef to the West Indies, Portugal, Spain, and the Mediterranean, and were often sold abroad with their cargoes; they were cheaper than those of European build, and, owing to their having been built for a half-smuggling business, were fast and good vessels. Philadelphia was known long before the Revolution for what Gordon calls the "noble manufacture of ships".

During and after the Revolution ship-building was extensively carried on, and it is known that the city produced the finest craft in the New World; certainly many famous war vessels and large trading ships were built. After the war of 1812 building was again active. Philadelphia had a large East India trade, and was noted for her smart captains and big vessels. Her ship-yards were numerous, and the talent employed in them was good; but the business of the port declined after the Erie canal had given New York an impetus, and during the packet and clipper-ship periods the production of tonnage fell behind that of New York, although many excellent vessels were built. Since 1865 it has steadily declined so far as wooden sailing vessels are concerned, wages and all the cost of carrying on a ship-yard having risen too high. A schooner is occasionally built, but it costs $55 and $60 a ton, although oak is only $27 in the flitch delivered, and captains can do better by going to Maine. The tonnage of the river has gradually been converted into steam vessels, and, so far as new work is concerned, the yards have been devoting their attention for 20 years chiefly to tugs, steamboats, and coasting propellers. There are two great establishments in the city, with enormous capital, building iron vessels.

At Philadelphia facilities for repair work are good, and there are six yards devoted chiefly to this business. One firm has a fixed dry-dock capable of admitting the largest ocean steamer in the port and of taking in two of the smaller class at once, and the repair of iron vessels is made a specialty; another has two large railways, operated by a steam windlass, for steamboats and sailing vessels, the yard being equipped in the most modern manner. Another firm has a large floating sectional dry-dock, built in place of the old railway which was started in 1828; 49 vessels were coppered there in the census year. The yards all complain of a decline of repair work, owing to the change in the tonnage of the port from sail to steam and from wood to iron. The one thing which has affected the business most has been the construction of the Reading railroad iron steam colliers. The company used to give cargoes to several hundred coasting schooners yearly, but began in 1869 to buy vessels. The following iron steam propellers were built, at a total cost of $2,656,510:

| Years. | Names. | Register tonnage. | Number of voyages up to May 11, 1881. | Tons of coal at a cargo. | Cost of vessels. |
|---|---|---|---|---|---|
| 1869 | Rattlesnake | 417 | 389 | 500 | $71, 925 |
| 1870 | Centipede | 436 | 402 | 500 | 71, 925 |
| 1870 | Achilles | 763 | 326 | 1, 000 | 115, 120 |
| 1870 | Hercules | 764 | 328 | 1, 000 | 114, 430 |
| 1870 | Leopard | 609 | 242 | 800 | 105, 125 |
| 1870 | Panther | 699 | 338 | 800 | 104, 925 |
| 1873 | Reading | 1, 283 | 218 | 1, 650 | 283, 570 |
| 1874 | Harrisburg | 1, 283 | 241 | 1, 650 | 283, 570 |
| 1874 | Lancaster | 1, 283 | 207 | 1, 650 | 283, 570 |
| 1874 | Perkiomen | 1, 035 | 235 | 1, 200 | 224, 660 |
| 1874 | Berks | 553 | 236 | 600 | 146, 980 |
| 1874 | Williamsport | 1, 283 | 207 | 1, 650 | 283, 570 |
| 1874 | Allentown | 1, 283 | 216 | 1, 650 | 283, 570 |
| 1874 | Pottsville | 1, 283 | 197 | 1, 650 | 283, 570 |

Each vessel makes from 30 to 35 trips a year. The fleet will now deliver to points along the Atlantic coast from 450,000 to 500,000 tons of coal yearly; they run mainly to Boston and nearer points this side, but often go as far as Portland, Maine. This traffic would employ from 150 to 250 schooners steadily. The public has been benefited by the reduction in the cost of freights, but the ship-yards of the Delaware have lost by it, as the schooners used to have a great deal of repair work done. Another cause of the decline of business is the care taken by foreign vessels to avoid every possible dollar of expense in an American port.

One branch of the business which is quite active yet in Philadelphia is the fitting out of vessels; nearly all the hulls built on streams flowing into Delaware bay are sent up to the city in tow of a tug and receive their masts and spars, sails, rigging, spar iron work, anchors, and chains there. Some are fitted out at the yards, but the outfits are bought in the city, several prosperous firms living by this outfitting business.

Chester is the only other building town in Pennsylvania. The work there is exclusively on iron vessels.

At Marcus Hook there is a small railway for painting and repairing fishing craft and small vessels.

As a state, Pennsylvania is devoting substantially its whole attention to the building of iron vessels, and a revival of the old wooden-ship industry is not now looked for.

## DELAWARE.

There are many good points for building on the Delaware river and along the streams that flow through the lower part of the state. The supply of oak is large, and the quality of the wood is the best, Delaware white oak having long been regarded as the finest, toughest, and most durable on the whole Atlantic coast. Growing on lands never too dry and generally full of swamps, and near enough to the ocean to get the benefit of the salt air, the timber reached perfection. For the last fifty years at least its cost has been less in Delaware by from $6 to $10 a thousand than when delivered in New England, the freight alone by coasting vessel having been $5 and $6 per thousand feet. Labor-saving machinery has not been introduced, except at Wilmington, and all the ship-yard work in the lower part of the state is done in the old-fashioned way, by hand-power, requiring the expenditure of several hundred days more of manual labor in making the vessel than where machinery is fully used. Building has been restricted also by sand-bars at the mouths of streams; on some of the rivers a great industry could be developed if the channels were deepened so that vessels drawing 10 or 12 feet of water could float out to sea.

Wilmington has four large yards, two of them engaged exclusively in iron work. The other two build wooden boats, schooners, barges, tugs, and steamboats. One yard has two marine railways, the other one a railway for the repair of coasters. There is also one dry-dock. Wilmington vessels have been prized for their speed and durability. The bark Sarah S. Ridgeway, of 869 tons, built in 1877, once ran from Rio to New York, laden with coffee, in 26 days 14 hours, her time beating by two days that of two steamers which sailed with her. Wilmington orders come chiefly from Philadelphia, and wages are $2 and $2 50 per day. The present industry of the city in the way of building will be described in the chapter on iron vessels.

At Bethel, in Sussex county, there is a small marine railway for repair work.

At Milford, on the Mispillion river, there are four yards, all in active operation. One firm has built about one vessel a year, or 25 in all. They began with a river schooner of about 50 tons, 50 feet keel, 22 feet beam, and 5 feet deep, which traded to Philadelphia, but of late years they have built schooners of 200, 500, 600, and even 1,000 tons actual burden, the three-masted schooner Annie Miller, lately built, carrying 1,000 tons of coal. Originally vessels were mainly built of oak, deck frames and all. In the census year a schooner was nearly finished measuring 130 feet on the keel, 33 feet beam, and 11½ feet hold, with center-board, flat on the floor, but with sharp bow and run; frames sided 15 inches and molded 12 inches over the keel, tapering to 10 by 7 at the plank-sheer; room and space, 22 inches; transoms, 12 inches; keelson, 27 by 14 inches; sister keelsons, 15 by 9 inches; keel, 14 by 18 inches; center-board, 20 feet long; ceiling, 3½ inches on the floor and 6 on the bilge; outside planking, 3½ inches; water-ways, 9½ by 5 inches; deck-beams, 12 by 10 inches in the center; carlines, 9 by 6 inches; decking, 3 inches. The schooner is of oak throughout, except the deck frame, ceiling, water-ways, and stanchions. The decking and houses are of white pine. At another yard a barkentine (two-decker) finished in the census year was 140 feet on the keel, 35 feet beam, 16½ feet deep in the hold, the between-deck space being 5½ feet. Another firm began here about 12 years ago and built one coasting schooner of about 450 tons burden every year, but lately have launched about three a year. This firm build on contract for owners in the state and along the Delaware river chiefly. Their three-masted schooner, the Governor Hall, of 1,000 tons burden, was 130 feet on the keel, 34 feet beam, and 16⅔ feet deep in the hold, the between-decks being 6 feet; frame, oak, 12 by 16 inches; room and space, 23 inches; keelson, oak, 28 by 15 inches; sister keelsons, 15 by 8 inches; center-board, 7-inch oak and 22 feet long; center-board keelson, 22 by 14 inches; clamps, 5-inch pitch-pine; bilge ceiling, 5-inch oak; lower deck and deck frame, pitch-pine; upper deck, 3-inch white pine; outside planking, 3½-inch oak; wales, 5 inches; knees of oak roots. The fourth was also building in the census year. The four yards build from three to six vessels a year. They get their oak from the saw-mills of the surrounding country, paying from $18 to $22 a thousand for flitch delivered in the yard. Oak planking costs about $33 a thousand, the price in Philadelphia being $45, as in the eastern yards; pitch-pine, $28. The frames are all hewn by hand from the flitch, and, while a derrick is sometimes used to set them up, the carrying of the beams and timbers is generally on the shoulders of the men. Labor ranges from $1 25 to $1 75 a day, but sometimes $2 is paid for the best men. The carpenters are usually white men, but a few colored men have been trained to ship-yard work and make very fair mechanics. The cost of building varies from $50 to $55 per register ton for first-class vessels, the smaller ones costing from $70 to $100 per ton, according to the way in which they are fitted out. One firm had been offered twenty-four contracts, which they could not take owing to lack of facilities and of carpenters. The narrowness of the river here was once an embarrassment in launching vessels of any size, but this has been overcome by planting the ways so as to launch down-stream and by sapping away the opposite bank. The yard owners were all anxious for the removal of the sand-bar at the mouth of the river.

At Milton, 12 miles away, vessels have been built for 50 years or more. There are oak forests all around, and half the face of the country seems to be under timber. Originally the curved pieces of the frames were cut from trunks having a natural crook, and when none except straight oak trees were left it was thought that ship-building would be seriously embarrassed. However, it was found that good frames could be cut from straight-grained timber, and the industry has thrived in a quiet way at this woodland village down to the present time. There are now three yards at Milton. In the census year 4 schooners were built, aggregating 1,362 tons, costing $79,700, an average of $59 a ton; but larger vessels were built for $50 per register ton.

The yards at Milford are of the most primitive description, a shop to keep the tools in, the hand-tools themselves, and a steam-box comprising the outfit in each case. A builder hires about 15 men when he has a vessel under way, or just enough to handle the heavy timbers, beams, and plank, and when a large stick is to be placed in position or a plank brought from the steam-box all hands are called off. Building is accordingly a slow process, as each yard can only finish about one large schooner yearly. Although slow in building, both the Milton and the Milford vessels rank well with insurance companies. The length of time they stand on the stocks exposed to wind and weather is an advantage, as the timber becomes thoroughly seasoned; and they all are salted above light-water mark, and are good for 20 or 30 years. Originally the Milton vessels were entirely of oak; they are still mainly of oak, but yellow pine is used in the deck frames and clamps, and perhaps in the keelsons. The knees are all from oak roots or branches. Oak in the flitch, hauled in from local saw-mills, is $18 and $20 a thousand feet; oak plank, $28 and $30; yellow pine, $29; white-pine decking, from $35 to $37. Oak is so plentiful, that here, as elsewhere in Delaware, fine trees stand even in the ship-yards and cast their shade over the men at their work. Labor costs from 75 cents to $1 50 a day. Many colored men are employed, and they take to the trade willingly and make fair mechanics. Milton and Milford vessels both are generally sent up to Philadelphia by tug to receive their sails, rigging, and outfit.

Frederica, Delaware, does some building, and Seaford used to do some; but at the latter place nothing is now done. Seaford is situated on the banks of the Nanticoke, a fine stream, penetrating dense forests, but a few bad years in coasting caused people to invest their money in other property. A bar at the mouth of the river has also been a source of injury to the business. A little repairing of small sailing vessels is all that is left to Seaford.

A Delaware schooner of 600 tons requires 190,000 feet of oak, 100,000 feet of yellow pine, 35,000 feet of white pine, and 30 tons of iron for fastenings, castings, spar work, etc., and in the purchase of the timber a saving of from $3,500 to $4,000 could be made over what the Maine men, for instance, have to pay. Wages are lower than in Maine, for a great deal of colored labor can be utilized. The state is close by the greatest iron-producing region of the country, and iron can be bought to advantage. Outfits can also be bought at a lower cost than in the east. With a proper equipment, such as derricks, steam-saws, etc., vessels could be built in Delaware, to class A 1, with a red star in Lloyds for 11 years, at $45 a ton.

## MARYLAND.

Chesapeake bay has been known from the earliest times for the speed and beauty of its vessels. The peculiar form and rig of the fishing craft of this region have already been described. The rakish air of the boats has also been shared by the larger vessels of the bay. The schooner rig was popularized at an early day, and schooners and brigs were the principal trading vessels until long after the Revolution, though there was occasionally a larger vessel employed. Chesapeake bay vessels engaged in the trade to the West Indies, the same as did all the others of the continent, and were also built largely for the slave trade, both employments calling for speed and a handy rig. In its origin the slave trade was regarded as a proper mode of obtaining workmen for the West Indies and the continent of America, and was carried on mainly by the British, French, and Portuguese. In 1761 the British had 28 vessels (3,475 tons) in the trade, and in 1776 they had 192, measuring 22,296 tons. By a return to parliament in 1789 it appears that 38,000 slaves were carried annually in British vessels to America and its islands, 20,000 in French, 10,000 in Portuguese, 4,000 in Dutch, and 2,000 in Danish vessels, about 74,000 in all. Slaves cost from £8 to £22 in Africa, and sold for from £28 to £35 in the West Indies. It was a profitable business, and appears to have been engaged in to some extent by American vessels built on the Chesapeake and in New England. Those of the Chesapeake were the swiftest, and were all brigs and schooners. They were generally built especially for the trade, and were sold in the West Indies and elsewhere to those who carried on the business. The between-deck space of 5⅝ or 6 feet was divided by bulkheads into rooms for the men, women, and boys, respectively, and in a large brig there was room for 600 people. The hold was about 10 feet deep, and carried from 30,000 to 40,000 gallons of water, stores for a cruise of about 100 days, and the ballast. The schooners and brigs of the Chesapeake, both merchantmen and slavers, were broad of beam before the center and above the water-line and sharp on the floor, often having about 20° of dead rise. The bow was sharp and flaring above the water, the front of the forecastle deck being often as round as the section of an apple. The hulls were lean aft, and thus sailed with considerable drag. They were long in proportion to breadth, had low bulwarks, looked low in the water, and carried raking masts, in order to bring the effort of the sails farther aft, where the lateral resistance of the vessel in the water was located. The topmasts were so slender that they sometimes bent to the wind like whips; a circumstance thought favorable to speed. These vessels were able to carry a heavy press of canvas, would go into the wind remarkably fast, were smart and handy, and had a world-wide fame. Cheap, good, and abundant timber made Chesapeake bay an active ship-building region even before the revolutionary war, and after the independence the shipwrights of Baltimore were among the first to petition Congress for legislation in behalf of the maritime interests of the country. The legislation that followed was a great benefit to Baltimore, and made her one of the principal ship-yard centers of the continent.

The history of the industry in Baltimore is about the same as that of the other large commercial ports, except that her tonnage was chiefly in fore-and-aft-rigged vessels and she would build 125 schooners in a year to 20 ships and brigs. The fisheries and local trading of the bay called for the production of large numbers of small schooners; and the same style of vessel was employed in coasting and in the large trade to the West Indies which sprang up in course of time. In the busy years after 1840 there were as many as 15 ship-yards in south Baltimore and elsewhere in the harbor actively engaged in building schooners, brigs, clipper ships, and steamboats. Some of the old builders, still living, remember the time when from 20 to 25 vessels were on the stocks at once and everybody was making money, and the industry was growing so fast that in the large yards there were anywhere from 15 to 20 apprentices at a time learning the trade. The clipper ships of Baltimore had many of the peculiarities of the schooners. They were as sharp on the floor, sailed with a drag, had flaring bows and raking masts, and were noted for their quick voyages, but carried high bulwarks to keep the ship dry. The extreme vessels ceased to be built after the California excitement was over, as their tendency to sag at the ends and get out of shape operated against them; but improvements were made in the model, and some of the best vessels in America were then launched from the Baltimore yards. The Cyane, a clipper bark built in Baltimore 35 years ago, is to-day a strong and good vessel. She is 132 feet long over all, 24 feet beam, and 12½ feet hold, having one deck, but with a second and open tier of beams to strengthen her. The bulwarks are 5¾ feet high. She requires ballast when empty, being so sharp as to be top heavy; but when loaded to her draught of 13 or 14 feet she is a good carrier, easy at sea, and a fast sailer. The war of 1861, with the changes which took place in that period in favor of steam vessels and the strikes and high wages, put a virtual end to ship-building in Baltimore, few merchant vessels, other than side-wheel steamboats and propeller tugs, having been built since that time.

The principal business of Baltimore now is the repairing and outfitting of vessels, and the city is to Chesapeake bay what Philadelphia is to the Delaware river and bay and Boston is to Cape Ann. Sails and outfits are supplied by a few large firms, which operate on an extensive scale and are able to buy cheap and to undersell all their competitors on the bay. There are 17 ship-yards in the city, with 19 railways and 3 floating dry-docks. One yard, near the fort, is devoted to the building and repair of iron vessels, and has a full outfit of machine, boiler, and other shops, besides a large fixed dry-dock built of masonry. The length from the groove of the outer gate to the head of the dock is 470 feet; from the inner gate, 450 feet; greatest width on top, 113 feet; width on bottom, 45 feet; depth, 26 feet, leaving, with the blocks, 23 feet for a vessel. The dock is elliptical in plan, the sides descending in steps. Over 8,000 piles were driven to support the sides, in which about 2,000,000 feet of lumber were used. The width at the entrance is 123 feet; at the gate 83 feet. The gate is a caisson built like the hull of a vessel, to displace water enough to sustain its weight. It has two decks, the lower one for the machinery. The pumps are operated by steam on shore, and can empty the dock in two hours. Congress ceded the land for this structure on condition that government vessels should be docked free of charge. The other docks and railways of the city are large enough to accommodate wooden ships of the largest class. A large number of the smaller vessels of the Chesapeake are owned by colored men, and in order to secure prompt and inexpensive repairs of their vessels they organized a stock company a few years ago with a capital of $40,000 and established a yard with two marine railways. Originally there were 300 stockholders in this enterprise, but the number has been reduced to about 150. The yard employs 70 men, nearly all of them negroes, and pays them the current rate of wages in the city. They haul out about 460 vessels a year. The shipwrights of the port have formed an association, with rules, which bring a great deal of work on foreign vessels to them. The Italian, Norwegian, and British grain ships avoid expense where they can, and used to go upon the railways, paying hauling fees only, and doing as much as possible of the calking, painting, etc., themselves; but the association requires that the repair work shall be done by the yard hauling out the vessel, so that the system in vogue in New York of running a dry-dock merely for the hauling fees does not prevail here. These rules have, however, driven a great deal of the work on the bay vessels from this port to the country railways scattered along the bay. The fees for hauling in Baltimore were as follows: Side-wheel steamers, 15 cents per register ton, or 7½ cents a ton a day for 5 days, and 5 cents a ton a day thereafter; propellers of 800 tons and over, the same; of from 600 to 800 tons, 12 cents a ton, or 6 cents a ton a day for 5 days, and 5 cents a ton a day thereafter; tugs under 100 tons, $10, or $6 a day for 5 days, and $5 a day thereafter; from 100 to 150 tons, $15, or $8 a day; sailing vessels of 800 tons and over, 15 cents a ton, or 7½ cents a ton a day for 5 days, and 5 cents a ton a day thereafter; from 600 to 800 tons, 12 cents, or 6 cents a ton a day for 5 days, and 5 cents a ton a day thereafter; from 100 to 600 tons, 10 cents a ton, or 5 cents a ton a day; from 50 to 100 tons, $10, or $6 a day; from 25 to 50 tons, $8, or $5 a day; under 25 tons, $6, or $4 a day; scows of over 100 tons, 10 cents a ton, or 5 cents a ton a day; under 100 tons, $10, or $6 a day.

Builders also charge a regular commission on the labor bills and materials used. There are no spar-yards here, each yard making its own spars, nor is there any machine for punching the nail holes in sheathing metal, the work being all done by hand. A punching machine was once tried, but the workmen objected to its use. Wages were $2 50 and $2 75 a day. The timber used has always been Maryland and Virginia oak and pitch-pine and Pennsylvania white pine until late years, when Georgia pine has been imported, on account of having more heart and less sap-wood. Spruce spars come from West Virginia. Oak has always been cheap; but it used to range from $15 to $20 per thousand feet, though by watching for chances the yards at times have got it as low as $5. Oak in the flitch now costs $25, and planking and heavy pieces, for keelsons, $45. Georgia pine is $35 per thousand feet. One firm in Baltimore ceils ships for grain and fits them for cattle transportation, using about 4,500,000 feet of white and yellow pine yearly.

Havre de Grace has a marine railway and ship-yard. Scow schooners for duck shooting and coal barges are the principal new work, but the repairing of coal-boats and schooners is the main support of the yard. There was on the stocks in the census year a barge 170 feet long, 21 feet beam, and 13 feet deep, with 4 feet sheer. The floor was flat, the bilge square, the sides slightly flaring, the bow and stern sharp, stem straight, and the stern broad on deck and overhanging. The whole boat was built of oak, 140,000 feet being required. The frames were 98 in number; the top timbers 6 by 8 inches; side planking, 3 inches; ceiling of sides, 5 inches; bottom plank, 4 inches; ceiling of floor, 2 inches, and about 400 bushels of salt were used above light-water mark. Carpenters were hard to get.

At Annapolis, on the bay below Baltimore, there is a small marine railway, and a small fishing boat is occasionally built.

At Cambridge, on the eastern shore of the bay, there are 3 yards, including 2 railways, and a little community of sail-makers, riggers, and blacksmiths. The moving spirit of this town is one of William H. Webb's apprentices, a builder of long and varied experience, who has plied his art both on the Atlantic and Pacific coasts and in China. Several coal barges for the Lehigh Valley Company were built here of the same model as those at Perth Amboy. The building at Cambridge has been confined to sloops and schooners for the bay and tugs and barges;

but the place is favorably situated for an extensive business, as it is in a county which is clothed with fine oak and pine timber down to the coast and on the islands of the coast. Although this region has furnished frames for the New England ship-yards for fifty years, and although large quantities of planking and oak of all sizes for the construction of wharves, houses, etc., are exported annually, yet many tracts of first-growth oak and pine remain untouched. When Cambridge was visited a tract was passed at Airey's station, a few miles from the town, through which were strewn the frame timbers for a large vessel, hewn to the proper shapes and lying on the ground, ready for shipment to some New England yard. Probably building can be carried on to the best advantage here when the builder is also the owner of his own timber. His oak frames would not cost him over $15 per thousand feet; when bought from the saw-mills in the flitch the cost was only $25 per thousand, or $10 less than in New England. Three small schooners and a tug were built in the census year. Wages were from $1 25 to $2 a day, a few men getting $2 50.

At Pocomoke City there are 2 yards, which produce a few bay and river vessels of small size every year. In the census year these yards built 4 schooners, registering 162 tons, and costing $16,500. Much repair work is done. Wages range from $1 to $2 per day, the average being less than $2. There were no labor-saving appliances in the yards, but one yard was run in conjunction with a saw-mill. This county is heavily wooded with oak and pine, and the saw-mill was paying not to exceed $10 per thousand for large oak trees in the round, delivered in the yard, the cost for sawing being about $2 50 per thousand. A great deal of the heavy timber around here has been cut off and exported from the bay. South of Pocomoke there have been camps for several years employed in cutting timber for the ship-builders of Maine, their operations being now carried on nearer Accomack, and some of the forests have been culled for everything above 12 inches in diameter; still, much heavy timber remains in other places, and there is an abundance for a local ship-building industry. In the flitch oak is sold at Pocomoke for $22 and less per thousand.

Crisfield is also a building town. The work here has already been referred to in the chapter on fishing vessels.

Solomon's island, on the Patuxent river, has two yards and two railways. The fishing industry supports this place. Bug-eyes and pungies are the vessels built.

At several places on the bay, notably at Oxford, Saint Michael's, Broad Creek, Sharptown, Whitehaven, and Salisbury, there is a good deal of repairing of vessels at small railways.

What makes a ship is principally wood, iron, and men's labor. Large schooners, barks, and ships each consume from 280,000 feet of lumber, 18 tons of iron, and 4,300 days of labor, to 960,000 feet of lumber, 120 tons of iron, and 9,000 to 14,000 days of labor, according as steam saws, derricks, and other labor-saving appliances are used in the yard or not. If Maryland were to become an active ship-building state, it is probable that the cost of labor would rise to the scale paid in Maine; but in the purchase of oak and pitch-pine her builders would enjoy an advantage of from $10 to $15 a thousand feet for oak and about $3 to $5 a thousand for pine. With labor-saving machinery they could build the cheapest wooden vessels on the Atlantic coast.

## VIRGINIA.

The ship-building of this state began in 1622. The home company, at great trouble and expense, sent out Captain Thomas Barwick with 25 carpenters in order to build the pinnaces, shallops, and large vessels needed for trade and transportation in the new province, and on their arrival they began to build small sail-boats for the river and bay trade. The magnificent extent and the excellence of the timber were noted in all reports on the colony's resources. Oak and pitch-pine covered the face of the country; but the population never took much interest in ship-building, as there were other occupations that paid them better, the best industry being agriculture, to which they devoted their whole attention, leaving to the inhabitants of the rugged and poor soils of New England the construction and management of ships. A number of small vessels and boats were made, but seldom in the whole history of the colony and state down to the present time has more than 2,000 tons of shipping been built in any one year. The town in which the industry has principally flourished is Norfolk, and from 1840 to 1855 barks and ships were occasionally built there for the West India and the Brazilian trade for local shareholders. In 1853–'54, at the Norfolk yards, 10 vessels were launched, registering a total of 3,600 tons; but since 1855 there has been no building of large vessels, except a few steamboats.

At Alexandria there are two ship-yards, with a marine railway. The principal concern, started in 1874, had built two large three-masted schooners and one tug and repaired a large number of Potomac river vessels when the yard was visited in the census year. Schooners cost $50 per ton. Vessels have been built here occasionally from the earliest days, and there was a public ship-yard during the Revolution for the construction of government vessels. Alexandria enjoys some advantages with reference to timber, and is a convenient point for the repairing of steamboats and sailing craft plying to and from Washington. A new yard has been started within two years, and is now building its second vessel. Squared oak costs from $20 to $22 a thousand at the yard, pitch-pine $23 and $25; but in the log oak can be delivered for about $15 a thousand for what can be squared out of it. The yard has a complete outfit of steam saws, and does its own squaring of the timber. A boat of a style peculiar to Chesapeake bay and the Potomac river was building here in 1881. It was a "long-boat"—an undecked center-board schooner with two fore-and-aft sails and a large jib—many of these vessels being employed in carrying cord-wood to Washington. A few years ago, owing to a scarcity of wood for fuel, the "long-boats" had a profitable season or two, and as a consequence many were built. These boats are shallow, flat on the floor, have round sides, straight bodies, and sharp bow, with quarter decks and cabins aft, draw only 18 inches of water light and 3 feet loaded, and will carry from 60 to 80 cords of wood each. A long-boat lying at the wharf at Alexandria measured 77 feet in length from stem to stern, $14\frac{1}{2}$ feet beam, and $2\frac{7}{12}$ feet in depth of hold below the gunwale. The frames were single, 5 by 3 inches, and extended from gunwale to gunwale. They were bent at the bilge, the ends being sawed in two longitudinally, to enable them to bend without breaking. The new boat was larger, and the frames were double. This boat was 82 feet over all, 77 feet keel, 23 feet beam, and $3\frac{5}{6}$ feet deep in the hold. The double frames were sided 7 inches and molded 6. In each one floor extended from bilge to bilge, having one curved top timber at either end, the other half of the frame being composed of one short floor, with a futtock to turn the bilge and a top timber. Room and space, 21 inches; keel, 15 by 6 inches, laid flat, narrowing to 7 by 6 inches at stem and stern; center-board keelson, 15 by 10 inches; center-board, 20 feet long; side keelsons, 7 by 7 inches; one bilge strake, 5 inches, with a clamp under the beams; no ceiling. The planking was of 2-inch oak, and the beams were spaced about 4 feet apart to support the sides. A washboard extended the whole length, with a short deck forward for working the jib and a small one aft for the helmsman, the latter surrounding the cabin. The vessel was all open amidships. These boats are loaded by laying the cord-wood fore and aft on the frames until the hold is full, and the gunwales are then piled with sticks laid transversely. The space within is then filled up with sticks, laid athwartships as high as convenient. They are fit only for river use, being too flimsy for rough water. Preparations are making in Alexandria for the cheap manufacture of rolled iron by a new process, with a view to iron-ship building; but so far the company has only been making blooms, not having put in the necessary machinery for rolling iron. Confidence is felt in the experiment, and an iron-ship yard is the ultimate object in view. Few places have better advantages than Alexandria for the manufacture of iron ships in materials, climate, labor, and cheap transportation.

Going down the Potomac and the Chesapeake one passes headlands, rivers, and bays in profusion which seem to have been qualified by nature for ship-building. The water is deep, and the shore is covered with oak and pine, and in spite of more than half a century of cutting there is a great deal of large timber left. Tracts can be bought where the stumpage, as it is called, does not exceed $1 a thousand feet; that is, the trees standing in the woods will sell for what can be squared out of them at the rate of $1 a thousand. There is no building in these beautiful bays of the Virginia coast, however, other than canoes and small fishing and trading schooners, the work being on canoes principally. There are few regular builders, except at Pocoson, Back Bay, and Hampton.

At Norfolk there are four yards, and, in addition, two or three in which something is occasionally built. In all, the yards have five marine railways for repairing, one of them sectional. The latter will hold two vessels at once, one of which can be launched without disturbing the other. Ship work here was originally on small vessels, but in the years of general maritime excitement the city ventured into full-rigged ships, four ships of a total of 2,900 tons register being built in 1853–'54, as well as a number of brigs and schooners. The yellow fever broke out in 1855, destroying this prosperity completely. There has been some small building since in different years, but the vessels have not exceeded 300 tons register, except the Rockaway, a steamboat of 1,950 tons, 275 feet long on the keel, 293 feet on deck, 38 feet wide in the hull, 66 feet over all, $11\frac{1}{2}$ feet deep, drawing 6 feet of water, which was built in 1876, and was calculated to make 20 miles an hour. The empty hull was sent off to New York in the spring of 1877 to receive her machinery, but she broke adrift in a storm, went ashore, and was dashed to pieces. The work of the city is now chiefly on tugs, barges, canal-boats, river steamers, and the large fleet of small produce schooners employed in this locality, and consists principally of repair work. The builders say that the presence of the navy-yard has the effect to keep up prices and wages, which is detrimental to the private yards. Wages were from $2 to $3 a day in the census year; laborers got $1 50; the average was about 50 cents a day higher than in Maryland and Delaware. Oak was $22 50 a thousand in the flitch, $30 for short plank, $40 for long plank; pitch-pine about $28, the price varying from $20 for short stuff to $40 for the finest, the fair average of a cargo being $28 a thousand. Black gum (*Nyssa multiflora*) has been much used here for keels, on account of the great lengths obtainable, its tenacity, and strength. The worms are thought to bite it quicker than oak, but by coppering this can be prevented. In 70- and 80-foot lengths gum costs $25 a thousand; in short lengths from $15 to $18. Vessels have been planked with gum at Norfolk, and the wood was found to be serviceable. A marine railway was built with gum in 1838, and when the ways were repaired two or three years ago the wood was sound and bright and the iron bolts in it were scarcely corroded.

The trading vessels peculiar to Norfolk were the little farming sloops and schooners, which flock into the harbor in large fleets in the summer time, bringing vegetables for the New York and Baltimore steamers. Often 150 of these little vessels enter the harbor about two hours before the departure of a steamer, racing at full speed, with everything set, and loaded high above the deck with a profusion of boxes and barrels packed with melons, cabbages, tomatoes, and vegetables of nearly every description. They dash straight in to get the best positions nearest the wharves, and often crowd in so thick that the steamer cannot make its berth. In consequence, a number of them are obliged to cast off and go swarming out into the bay, and cruise back and forth like a swarm of butterflies until they are allowed to return, when in they come again with a rush, jostling and crowding, the air being torn with the good-natured jabbering and arguing of the crews. There are a good many bug-eyes and canoes in this "trucking" fleet. These boats, large and small, are owned largely by negroes, and their crews are principally negroes. They are built on the vegetable farms all around Norfolk and across the James river on the peninsulas above. There are a few regular builders on the Nansemond, Chuckatuck, and Back rivers. A sloop 26 feet long, 11 feet broad, and 3 feet deep will cost about $300; a large sloop 45 feet long, $2,000. An average size, 9 tons, would be 35 feet in length, 13½ feet beam, and 3½ feet hold. Owners follow their own fancy in rig, some preferring the sloop rig, others the schooner. The majority of the boats are schooners, but they seldom have topmasts or topsails, and the space amidships is open. The boxes and barrels are stowed in this hatchway until the hold is full, and are then piled clear across the deck and as high as the sails will allow. Aft there is a little house. These boats have no bulwarks, but only a chock or low rail around on the plank-sheer. They are full and flat, partaking of the canoe model. Some of the sloops are of a flat-iron shape. The smart boats each make from $8 to $12 a day in the summer time. The charge for freighting vegetables is 3 cents for a box and 6 cents for a barrel, or from 4 to 10 cents, according to distance. Oysters are carried for from 3 to 5 cents a bushel, and sometimes the boats can make two trips in one day. The colored men make money with them, and when of a frugal disposition save money, and are often able to buy schooners of larger size.

## SOUTHERN ATLANTIC AND GULF COASTS.

At various times since the Revolution vessels of good size have been built at the principal ports on the southern coast, a large number of flat-boats and small fishing vessels for local use having been built every year; but on the whole the industry has received no special development in this part of the country.

At Elizabeth City, North Carolina, there are two yards, one of which has a railway, and both do repairing. There are good facilities here for building, and before the war they were employed, but since the war business has been dull. A sloop and a small steamboat for shoal-water use were built in 1880.

Bell's Ferry, North Carolina, occasionally builds a small stern-wheel steamboat; Tarboro' the same.

Washington, North Carolina, could build large and good vessels. There are two yards in the town, but business is irregular. At one time these yards had 30 men employed, at another only 4 or 5, but since the war there has been little done here. A schooner of 175 tons and 3 barges were on the stocks in 1880, and a sloop of 29 tons and 2 steamboats of 69 and 97 tons were built.

Beaufort and New Berne, North Carolina, are both dull. At New Berne vessels of the largest class can be built at one yard, which, however, produces only 3 or 4 fishing and sail boats yearly. Some repairing is done.

Charleston, South Carolina, has a few repair shops and four yards. The building in 1880 was a sloop of 10 tons, 2 steamboats of 21 tons each, and 4 schooners averaging 16 tons each. The cotton and lumber vessels and steamboats that visit the harbor make quite a little industry in repairing, and that is the chief work done by the shipwrights of the city.

Coosaw, South Carolina, has a small private railway. Barges are built and repaired there for a local mining company.

At Georgetown, South Carolina, a clumsy steamboat of 69 tons was built in 1880 by house carpenters.

The state of Georgia does not build extensively. In 1880 the only new work was 2 steamboats of 243 and 296 tons respectively for river service, built at Wellborn's Mills and Lumber City. At Savannah a few shipwrights find some repair work to do.

Florida builds fishing boats in large numbers on the coast, with an occasional steamboat at Jacksonville. The state has been referred to at length in another chapter.

Along the Gulf coast there is now little ship work east of the Mississippi.

New Orleans has a number of boat-shops, repair shops, a few small yards, and four large repairing establishments with dry-docks. The new vessels of 1880 were 3 schooners, 60 tons; 1 lugger, 7 tons; and 1 steamboat, 149 tons, the steamboat being the largest vessel built in the whole state. An average of 173 men were employed in repairing, doing $222,000 worth of work. New Orleans might be a building port if yellow pine were sanctioned by the insurance companies for frame timber. Seventeen luggers, schooners, and steamboats were built in the state outside of the city in 1880, a total of 290 tons. There were besides numerous sail-boats too small to register on the lakes and bayous, but the yards where the latter are made are modest affairs. Information gathered from various sources shows that a considerable number of excellent carpenters are scattered all over Louisiana who could be collected into large yards and utilized for important work if there were great need for so doing. In order to encourage ship-building, Louisiana has a law on her statute-books, almost forgotten, that any vessel built in the state shall be free from tolls and wharfage dues.

Texas has a little ship-building at Lynchburg, in the Galveston district, and at Indianola and Matagorda. Two schooners of 248 tons each were built at Lynchburg in the census year; and in the whole Galveston district, 5 sloops, 68 tons; 6 schooners, 618 tons; 1 tug, 8 tons; and 2 steamboats, 51 tons. Vessels have to be built for shoal water in this region. They are full on the floor, with not over 4° of dead rise, and are nicely modeled fore and aft. Nearly all the schooners built now in Texas are from 65 to 95 feet on the keel, 20 to 28 feet beam, and from 5½ to 8½ in molded depth. The first question asked by an owner is, "How many tons will she carry on 5 and 7 feet draught of water?" The cargoes are lumber, wood, bricks, sugar, molasses, cotton, and oysters. Most of the vessels built are of from 10 to 20 tons.

## ARIZONA.

In Arizona there is as yet no ship-building. The Southern Pacific Railroad Company has a yard, with ways, at Arizona City, on the Colorado river, for the repair of river boats, with ample facilities for construction, and it is thought that steamers and barges will be hereafter required to connect the navigable portions of the river with the railways that cross it when all the plans are perfected.

## CALIFORNIA.

The ship-building industry would have sprung up quickly in California after the discovery of gold if there had been any timber available out of which vessels could be made; but the state was destitute of material near the coast, and lumber had to be brought from the eastern states, and so little available wood was there in California that wooden houses had to be gotten out in the East, frame and all, and brought around cape Horn for the people to live in. Up in the mountains there was some timber, but it was too far away. Down to 1865 the vessels used on this coast were nearly all built in the East; but lumber was finally brought from Humboldt bay and the Columbia river, and then ship-building began to be followed in California as a native industry. Carpenters were attracted to the coast at an early day. They came from Maine, Massachusetts, and New York, and built a few vessels here and elsewhere on the coast as experiments; but many of the men went off into other trades, and the majority in California settled down to the profitable business of repairing vessels at San Francisco. The high cost of labor was always a great drawback, and at a time when gold could be washed out of the sand of any mountain stream, and when fortunes were being made every day by lucky prospectors, there was no inducement which would keep mechanics at work at their trade except twice and thrice the pay they could get on the Atlantic coast. Wages have always been $4, $5, and $6 a day on the Pacific coast, as compared with $2 and $2 50 in the East, and this has always been a drawback to the industry. The shipwrights who came from the East comprised many men of talent and experience, who were both good mechanics and smart managers; but labor has been so high that for the higher class of vessels, such as steamboats, it has been almost impossible to build in competition with eastern men. A number of the California vessels have been set up in the East, knocked down, shipped to San Francisco, and then completed, while others have been built and sailed around cape Horn to the coast; in fact, as before stated, Pacific coast vessels were mainly of eastern build down to 1865, and the majority of them have been since. Within the last fifteen years, however, a large number of small vessels have been built on the Pacific coast.

The timber of the Pacific coast is the yellow fir, which grows in dense forests all the way from northern California to the boundary of British Columbia and beyond it for some distance, and covers the face of the whole country, except the Willamette valley, as far inland as the Cascade mountains. White cedar, sugar pine, and other useful varieties of wood are scattered through the forests, while south of the fir belt there stands a dense growth of redwood, with here and there on the banks of streams a light growth of white laurel, a low, crooked tree, suitable for stem and stern posts, for which it is popularly used. The early vessels of the coast were necessarily built of fir, there being no other suitable material. On the lowlands in various parts of California there is some live oak, but it is of poor quality. Twenty years of modest experiment and some tests at the Mare Island navy-yard showed that fir was a good timber, as it proved tough, strong, and durable, and was lighter than oak. The balsam with which it was impregnated preserved iron bolts from corrosion. It had one peculiarity, which especially endeared it to the ship-builder's heart. The trees grew from 150 to 300 feet in height, good commercial trees being an average of 200 feet high. Keel and keelson pieces and plank could be obtained of any length, and a vessel could be built with a far less number of butts and joints than in any other part of the United States. The immense supply made the timber cheap, which was another valuable point, and as soon as durability and strength were proved lumber schooners, steamboats, river barges, and grain ships were built with great success. Vessels were entirely built of fir except the stem, stern, and rudder posts, which were of laurel, and the cabins, which were of white cedar and redwood. The industry has now become a flourishing one, with every prospect of rapid development.

At San Francisco there are three yards devoted to new work. The Dickie Brothers have built 7 steamers for the trade of the Sandwich Islands, 3 government vessels, a large propeller of 2,000 tons for the trade to Mexico, and lumber schooners and barkentines to complete a total of 20. The propeller was launched in 1882, and had a flat floor with about 4° dead rise, straight sides, and a quick bilge, with a long sharp bow and good run, being, in fact, of the most approved propeller model. She was built of fir throughout, except the stem and stern posts, which were of oak and laurel, and the cabins, which were of white cedar finished with fine woods, was 288 feet long over all, 35 feet beam, and 28 feet in depth from the spar-deck, and was a three-deck vessel. Sticks of 76, 106, and 108 feet composed the keel, and the keelson was in length from 113 to 117 feet. The planking was from 40 to 100 feet in length. The fir for this vessel cost from $20 to $32 a thousand in San Francisco, according to length, but the average cost was not over $25. When visited, the yard was preparing to build a barkentine 165 feet long, 38 feet beam, and 14 feet hold, which was to carry 750,000 feet of lumber, and it was intended to complete her for $75 per register ton. This yard had a band-saw for getting out the frames, derricks for hoisting, bolt-cutters, and a complete equipment generally. For the large Mexican steamer they were able to saw out five frames a day with the labor of two men, but nine frames a day was the average for a barkentine. The members of this firm are of Scotch descent, and back to their great grandfather have all been in the business. One result of this long experience was the perfection of a set of books, in which the accounts of the yard were kept in a way seldom seen in the United States except in the iron-ship yards of the East and a few steamboat yards on the Ohio. Every detail of the labor and materials of their ships is classified, the labor in some cases being divided into thirty-three branches, and the utility of this system is found in close bidding for work, especially repair work, for the books show what it costs to do everything required on a ship, even to taking off and putting on a single streak of planking. Mr. Turner began in 1868, and had built 56 vessels, aggregating 5,115 tons, up to 1882. Of this number 44 were yachts and brick and lumber schooners; the others were brigs, barkentines, propellers, and sloops. Among his schooners were several fleet and famous yachts, but his largest vessels were a barkentine of 395 tons and a brig of 348 tons. He discarded the old plan of the broadest beam at two-fifths the length from the bow, made his models long and sharp forward and full aft, giving the stem more of a rake than is usual in the East, and by giving the masts a good rake and bringing the anchors, chains, and weights generally farther aft he produced a class of stiff, fast vessels which have won popularity on the coast and have been widely imitated. In several of his vessels he has put in the masts in one piece from heel to truck; the lower mast and topmast are in one stick, a top being added above the lower sails for convenience. Sticks of 106 and 108 feet have been used by him several times, but longer ones might be employed, for they are easily obtained. He has also introduced the Bermudan sail for the spanker of brigs and the mainsail of two-masted schooners. The boom is long, but at the head the sail tapers to a point, as in the Chesapeake bay boats. The topsail in such cases is a long stretch of canvas, passing down by the head of the mainsail and spread by a sheet running down to the outer end of the boom. This rig has been found useful in squalls, and as the Pacific ocean is one of sudden and violent winds it is there that the rig has been found of value. Turner's yard has a full equipment of modern machinery. At another yard in San Francisco yachts and small vessels are built.

There are a large number of firms of shipwrights, sailmakers, riggers, and boat-builders in San Francisco who do work for the whalers, grain and lumber vessels, and steamers which frequent the port. There are two floating dry-docks and one large fixed dry-dock, the latter intended for the Pacific Mail and other heavy steamers. The fixed dock was built at Hunter's point, up the bay a short distance, by a company organized in 1867, and is 421 feet long on the keel-blocks, 120 feet wide on top, and 60 feet in the clear on the bottom, 32 feet deep, with 22 feet of water on the miter-sill. It is quarried out of the serpentine rock, the sides being made of Puget sound fir, in beams 10 inches square, so arranged as to form a series of steps, and secured with 1½-inch bolts of California manufacture, sulphured into the rock. The keel-blocks are of laurel from Russian river. The gate is a caisson of Oregon fir, calked, coppered, and fastened with treenails and composition bolts and spikes, and is 92 feet long, 20 feet beam, 68 feet keel, and 24 feet hold. A double steam-engine, with pumps, is placed within the caisson. The two engines to pump out the dock, with cylinders 22 by 48 inches, are run on high pressure, and are supplied from 4 tubular boilers, each 16 feet long and 54 inches in diameter. Each pump lifts 30,000 gallons a minute. This dock cost $675,000, and is an important element in the shipping resources of the port. The floating-docks are of different sizes. One is 80 feet wide by 210 feet long, and takes out sailing vessels and steamboats; the other is for tugs and small craft. Repair work of more than $600,000 in value is done at these docks and at the wharves and sail-lofts of the city every year.

At Oakland, across the bay, there are two large yards owned by the Southern Pacific railroad and the ferry companies. Two wooden side-wheel steamboats were put together there in the census year, the materials having been gotten out in the East and shipped to California. The work at these yards, each of which has marine railways, is mainly in repairing the steamboats of the companies.

At various places on the bay of San Francisco and up the Sacramento river there is some building of vessels. Flat-boats and stern-wheel steamboats are required on the river, and short scow-schooners are required for the brick, wood, and hay trades of the city. There are few regular yards, the work being done by carpenters, who are hired to do the job, or by amateurs. Scow-schooners are about 50 feet long, 18 feet broad, and 5 feet deep, and on deck are about 9 feet broad at the ends, with the bow and stern raking considerably from the flat of the floor.

Humboldt bay ranks second in importance on the Pacific coast for ship-building, and is the center of the redwood lumber region. The bay is thronged with lumber schooners engaged in that trade to San Francisco, and excellent facilities exist for the building of vessels. In the years 1874, 1875, and 1876 the bay produced 31 schooners, registering 4,059 tons, but latterly the vessels built at Humboldt have been schooners of 250 and 300 tons register, which are smart and handsome, and are noted for their speed and good qualities. The yards are in close proximity to the saw-mills, and get their timber for $10 and $12 per thousand.

The general custom in building vessels on this coast, so far as payments are concerned, is that seldom anything is paid when the keel is laid. Sometimes the builder receives a small amount when the contract is signed, but the payments are usually divided into four parts; one quarter when the frames are all up, another when the vessel is ceiled and the deck-frame is in, another when it is planked and the decks are laid, and the last quarter when it is complete for sea, with the exception of provisions. Others only contract for hull, spars, and iron work, the owner furnishing the outfit. When a builder starts a vessel and has little money, the owner supplying him with materials and money, his claim is good after the vessel is launched.

## OREGON.

Few sailing vessels are built in Oregon. There is an abundance of timber, but as the population of the state lives in the valleys of the rivers the production of the ship-yards is almost entirely in the line of vessels for river transportation. A small schooner was built in 1845 at Astoria, near the mouth of the Columbia river, by traders for their own imperative needs, and it is believed that this was the pioneer vessel of the Pacific coast. A few other small schooners have been built from time to time on the rivers, but the production has not been numerous. As it belongs properly to the chapter on steam vessels to describe the industry in this state, reference is made to that chapter.

At Coos bay, Oregon, on the sea-coast, one, two, or three schooners, ranging from 200 to 500 tons register, have been built annually for 20 years for the lumber trade. The yards are near the saw-mills. These schooners are flat, one-decked vessels, with long bows, handsome square sterns, and broad beam, and are excellent sea boats. The schooner Isabel, of 185 tons, was 103 feet in register length, 29 feet beam, and 9½ feet depth of hold; the George C. Perkins, of 389 tons, 142 feet long, 33½ feet beam, and 11⅔ feet hold; the barkentine Klikitat, of 493 tons, one-decker, 163 feet long, 39 feet beam, and 12½ feet hold; the schooner Trustee, of 281 tons, 133½ feet long, 35½ feet beam, and 9½ feet hold; and these are the average sizes of vessels in the lumber trade of that bay. It was difficult to learn the cost of these schooners accurately, but they probably cost $70 per register ton. Wages have been $3 50 and $4 a day, and fir costs not to exceed $12 per thousand feet. A few large vessels have been built on the bay. The Western Shore was constructed there for a San Francisco firm, and it is said that this ship made the fastest three consecutive runs to Liverpool on record. Her best time was 97 days from the Columbia river to Liverpool.

## WASHINGTON TERRITORY.

There are 11 ship-yards in Washington territory, all of them on Puget sound and its branches. Small sloops and schooners were built at various places more than 25 years ago. The names of some of the first of any size are:

| | | Tons. |
|---|---|---|
| 1859. | Schooner General Harney, built at Whatcom | 60 |
| 1863. | Steamboat J. B. Libby, built at Utsaladdy | 119 |
| 1865. | Steamboat Colfax, built at Seabeck | 83 |
| 1867. | Schooner Alaska, built at Port Townsend | 139 |
| | Schooner Cora, built at Port Orchard | 155 |
| | Steamer Chehalis, built at Turn Water | 88 |
| | Bark North West, built at Port Madison | 515 |
| 1868. | Bark Tidal Wave, built at Port Madison | 603 |
| | Schooner Clara Light, built at Steilacoom | 179 |
| | Barkentine Grace Roberts, built at Port Orchard | 269 |
| 1869. | Schooner Alice Haake, built at Port Blakeley | 253 |
| | Propeller S. L. Mastick, built at Port Discovery | 194 |
| | Bark Forest Queen, built at Port Ludlow | 511 |
| | Steamer Alida, built at Seattle | 114 |
| 1870. | Steamer Favorite, built at Utsaladdy | 257 |
| | Steamer Etta White, built at Freeport | 97 |
| 1871. | Steamer Zephyr, built at Seattle | 161 |
| | Ship Wild Wood, built at Port Madison | 1,099 |
| 1872. | Steamer Blakeley, built at Port Blakeley | 176 |
| | Schooner Serena Thayer, built at Port Blakeley | 206 |
| 1873. | Steamer Empire, built at Port Madison | 732 |
| | Barkentine Modoc, built at Utsaladdy | 452 |
| | Schooner Z. B. Haywood, built at Port Ludlow by Hall Brothers, their first on Puget sound. | |

Since 1873 there has been a regular building business at Port Ludlow, Port Madison, Port Blakeley, Seabeck, and Seattle. The largest vessel was the ship Olympus, of 1,110 tons, built at Seabeck in 1880.

The vessels of Puget sound have been mainly schooners and barkentines for the exportation of lumber to the lower coast, the Sandwich Islands, and Australia, and steamboats (stern-wheelers) for the local trade and passenger traffic of the Sound and the rivers flowing into it. A few large sailing vessels, not exceeding half a dozen in number, have been built for the grain trade to Liverpool. All the tonnage of the Sound has been built from yellow-fir timber, with pine and cedar for the cabins and laurel and white oak for the stem and stern posts.

The leading and most profitable industry of Puget sound is lumbering. Fir forests completely cover the face of the land to the water's edge, and the view from the steamboats is an unbroken wilderness of dark-green trees as far as the eye can reach, with towering snow-clad mountains rising here and there from its surface. There are 15 or 20 saw-mills at different points from Port Discovery to Tacoma and Olympia at the head of the Sound, and lumber camps have been established near them, often within a stone's-throw of the water's edge. The ship-yards have all been established in the saw-mill towns, and as near as practicable to the mills. At Port Blakeley a lightly built railroad track has been made from the mill to the yard, to carry up what lumber is required. The nearness to the mills enables a builder to order the timber as fast as he needs and to save the cost of transportation.

Port Townsend is a small place on the edge of a bay near the entrance to the Sound. There has been some building and a good deal of trade here. All the coasting propellers from San Francisco call at this point, and extensive wharves have been built for their accommodation. All back of the town are fir forests, and the shore is lined with vast quantities of fir drift-wood. The only vessel building in 1881 was a small propeller, which a carpenter was making largely out of stuff he had picked up on the beach. There was no saw-mill here.

On Discovery bay, back of the town a few miles, is located a large saw-mill, at which a few vessels have been built. This beautiful bay is 10 miles long, the water deep and clear as crystal, and the shores are covered with dense woods. The bay is well fitted for ship-building. Two schooners of 475 tons, a propeller of 194 tons, and a barkentine of 450 tons have been built close by the saw-mill. It was stated here that fir is as good as hackmatack for its tenacious grip on an iron bolt and freedom from corrosive acids, but in spiking on the harpings and rib-bands to hold the frames in position builders have to use iron washers under the head of the spikes, otherwise it would be impossible to get the harpings off. The mill sells ship timber, taking the vessel right through, long and short together, for $12 a thousand; the frame stuff costs only $10 a thousand. The woods hereabout are full of gigantic white cedar trees, an excellent material for cabins and houses. Laurel trees were noticed growing on the banks of the bay often two feet in diameter, and all gnarled and crooked.

Port Ludlow has been a building town for 20 years. The village has the largest saw-mill on the Sound, and the only one that can cut a log which is 8 feet in diameter. It was idle in 1881, owing to the non-arrival of certain expected machinery, but a barkentine was being built then with lumber towed up from Port Gamble. The principal firm of builders in the territory established themselves here in 1873 and built a schooner or barkentine nearly every year down to 1880, when they moved to Port Blakeley, opposite Seattle. A few years ago labor could be had for $2 50 and $3 a day; now the men are paid $3 a day, and are supplied with cabins to live in and with food at a cook-house run by a Chinaman. Their pay thus amounts to $4 a day. A barkentine 160 feet long, 38 feet beam, and 14 feet hold, built when wages were low, cost $34,500; the same vessel would now cost $38,500. The saw-mill here supplies sawed timber for ship-building for $12, taking the ship right through. The ordinary pieces for frames and planking are sold for $10 a thousand; finishing lumber for $20 a thousand; but the price is sometimes $12 and $22 a thousand, respectively.

The barkentine building at Port Ludlow was 172 feet long on water and 182 feet on deck, molded; 39½ feet beam molded, and 21⅙ feet in molded depth amidships—a broad and full vessel, calculated to have great stability, and to carry 800,000 feet of fir, 350,000 feet of it on deck. Her scantling will show the best results of experience with the yellow fir. Keel, 166 feet long, in two lengths, one of them of 112 feet, the keel in two depths; total size, 16 by 30 inches; shoe, 8 inches. Frames, double, 22 by 15½ inches, molded 12 inches at the bilge and 7½ inches at the gunwale. Double floors amidships; room and space, 28 inches. Keelson, 16 by 56 inches; sister keelsons, 16 by 16 inches, with pieces 112 feet long in the keelsons. Ceiling, on the floor, 4 inches thick, 16 inches wide; 10 feet on the bilge, 10 inches thick; clamps, 8 inches. Planking of bottom, 4 inches, 16 inches wide; garboards, 7, 6, and 5 inches; wales, 5 inches thick, tapering to 4 inches at the hooding ends, and 7½ inches wide. Beams, 14 by 16 inches, spaced 4 feet, with one lodging knee and a heavy hanging knee at each beam end. Water-way, 12 by 20 inches; plank-sheer and rail, each 6 by 18 inches; decking, 4 by 4 inches. Stanchions to beams, 10 by 16 inches, strapped to the beams and keelson with 3 by ½-inch iron. Composition bolts were used under water, galvanized iron above. The vessel was square-fastened with 1 bolt and 3 locust treenails in every frame, as many of the latter as possible going clear through, and wedged. The whole vessel was of yellow fir, including the stem. The dead-eyes of the rigging were put on with an iron key, which could be quickly knocked out to clear away the shrouds, for convenience in loading and discharging heavy lumber. Amidship there were planted four short masts, or shifting posts, heeling on the keelson and projecting 12 feet above the deck, to keep the deck load of lumber from moving about in a sea-way, and iron rods were to be carried over the top of the lumber from the posts to temporary stanchions lashed to the bulwarks of the vessel. It took 400,000 feet of lumber to build this barkentine, but her cost was not known when the yard was visited. The lumber for this vessel cost not to exceed $10 per thousand feet. Wages were equivalent to $4 a day.

Port Gamble is a large saw-mill town at the entrance to Hood's canal. A fleet of from 5 to 10 schooners, barkentines, and barks are constantly loading there with lumber, and the proprietors of the mill own most of them. Being Maine men by birth, their vessels have mostly been ordered from the Maine yards, but they are now beginning to build on Puget sound.

Port Madison built no vessels in the census year. The Wild Wood, a bark built there in 1871, was opened in 1882, and was found as sound and bright as when new.

Seabeck, a saw-mill town on Hood's canal, is in the heart of a dense fir forest, and faces a magnificent range of snow-clad mountains, which lie across the country many miles away. The yard is a stone's-throw from the mill. The builder had built on Puget sound up to 1881 the bark Forest Queen, of 511 tons, at Port Ludlow, which carries 650,000 feet of lumber; the two-masted lumber schooner Leads; the bark Cassandra Adams, of 1,127 tons, now in the grain trade, which cost $72,000; the tug Holyoke; the ship Olympus, of 1,110 tons, at a cost of $80,000; and the barkentines Mary Winkle and Retriever. The Retriever was 161 feet long to the after-side of the stern post, 37 feet beam, and 13½ feet depth of hold, and was of about 600 tons register. She had lumber ports in her bow and stern. Her greatest breadth was amidships. The bow was sharp, with hollow water-lines, and was cut away at the fore foot, as in all lumber vessels.

The Cassandra Adams is a two-decker, and carries 1,950 or 2,000 net tons of wheat as her cargo. She has made the trip from San Francisco to Liverpool in 114 days (good fair time), and has brought 1,500 gross tons of coal from England home in 110 days. Her register dimensions are: Length, 196½ feet; breadth, 40⅓ feet; depth of hold, 22 feet; total length from chock to taffrail, 210½ feet; keel, 184 feet. The frames, double, are 24 by 18 inches over the keel, molded 10 inches at the lower deck and 7½ at the upper deck; room and space, 30 inches; lower-deck beams, 15 by 18 inches; upper-deck beams, 12 by 18 inches, spaced 6⅓ feet; ceiling for 13 feet on the bilge, 14 inches, tapering to 8 inches above; outer planking, 5 inches; decking, 4 inches. The vessel was over-sparred originally, the fore and main yards being 90 feet long and the lower topsail yards 80 feet; but she was altered after a few voyages, the long lower yards being removed and the 80-foot yards lowered to take their places. Other alterations were made to reduce the weight of the top gear. Her dead rise was about 13°.

The Olympus was the largest single-decked ship in the world. She was built for the lumber trade from Puget sound, and her ordinary cargo was 1,250,000 feet of fir; but on one trip she carried 1,450,000 feet, of which 700,000 feet was on deck. In her first 11 months this ship earned $40,000 in freights, which paid half her cost. She was burned at sea north of cape Flattery, a fire having started in some bales of hay in the hold, into which a spark had been accidentally dropped. The Olympus was built full, with about 28 inches dead rise, and over 1,400,000 feet of lumber and 65 tons of fastening were consumed in her construction. The stem raked considerably, as in all Pacific coast vessels. Her dimensions and scantling were: Keel, 210 feet long; 223½ feet long on deck; beam, 43½ feet; hold, 17½ feet. Keel, 20 by 48 inches. Frames, double, 24 by 19 inches over the keel, molded 9 inches at the deck; room and space, 30 inches; keelson, 20 by 81 inches; sister keelsons, 20 by 40 inches; a strake next to them, 9 by 16 inches. The long keelson bolts were over 11 feet long, and were of 1½-inch iron, a 250-pound hammer being used to drive them, pile-driver fashion. Ceiling on the floor, 5 inches; on bilge and up to the deck, 16 inches, the thick strakes edge-bolted in every space with 1⅛-inch iron; garboards, 12 inches; bottom plank, 5 inches; from bilge to deck, 6 inches, plank square-fastened with through treenails; beams, 18 by 22 inches, spaced about 7¼ feet; 8-inch lodging knees, fir, and two 10- and 11-inch hanging knees at each beam end, the knees spreading diagonally below the beam; hanging knees molded 26 inches in the throat, with arms of 5 and 9 feet; water-way, 3 strakes of 12 by 14 inches; plank-sheer and main rail, 8 by 22 inches; decking, 4 by 4 inches; stanchions of bulwark, 8 by 12 inches; beam stanchions, 12 by 22 inches, strapped to beam and kneed to keelson, and 4 Sampson or shifting posts, projecting 13 feet above the deck. The yards on the fore and main masts were 80, 72, 63, 50, 41, and 34 feet, while those on the mizzen-mast were 62, 57, 50½, 40½, 34, and 30 feet, and the main rigging was susceptible of being cast loose when loading and discharging cargo. The ship spread about 5,200 yards of canvas, being sparred in accordance with long experience in the coasting trade of the Pacific. She carried a donkey-engine in a deck-house forward.

The yard at Seabeck has a jig-saw and works out all the frames by steam-power. The town presents great advantages for ship-building, as the water of Hood's canal, which is a broad lagoon, is deep and free from rocks, and never freezes in the winter time. Timber covers the whole country in almost inexhaustible supply. This territory is rapidly filling up with American, Swedish, and German labor, and there is no lack of good mechanics, and with a thoroughly systematic way of doing business large vessels ought to be built at Seabeck for $45 a ton.

At Port Blakeley there is one yard. The Halls built a few large ships in their earlier years at Cohasset, Massachusetts; but when the clipper era began they went to Boston and engaged in the general ship work of that port. In 1873 one of them came to Port Ludlow, whither the others followed him the next year, and in 1880 they came to Port Blakeley. Up to 1881 they had built a pilot-boat of 59 tons, a yacht of 52 tons, 15 lumber schooners, 3,348 tons; 8 Sandwich Island schooners, 853 tons; 4 barkentines, 1,578 tons; and 2 steamers, 475 tons; a total of 31 vessels and 6,365 tons. The average cost of these vessels has been about $70 per register ton, but in consequence of good management and the use of machinery this cost is being steadily reduced, and it is now not in excess of the cost of vessels of similar sizes on the Atlantic coast. The owners have fitted up the Port Blakeley yard at considerable expense, and have sent a delegate to Bath, Maine, to report on the labor-saving appliances there employed and to purchase steam saws, planers, and a full equipment for their yard. Their schooners are fast, handsome, and popular, and have long, sharp bows, with slightly hollow lines, the top sides having a faint curve home, and at the stern round in sharply over the arch-board in a strikingly graceful fashion. There is not a straight line on the surface of the hulls anywhere. Located near a large saw-mill, the Halls have run a light railroad track down to the mill and bring up their lumber on platform cars. For keelson pieces over 90 feet in length they pay $16 a thousand; for less than 90 feet, $11 a thousand; for bed logs for center-board schooners and rough, clear lumber for stanchions, $16; planking clear of heart and knots, $12; deck plank, planed, $22 50; for all the rest of the material in the ship, $11; but the average of the vessel does not exceed $12, and the average length of stuff is 20 feet more than that of eastern yards. In the mold-loft of the yard there are fir battens "for laying down" 90 feet in length.

A barkentine 180 feet in length, 162½ feet on the keel, 38 feet beam, and 15 feet hold was in frame in the winter of 1881. The keel was in two pieces, one of them 126 feet long and 26 by 15 inches wide, with a 6-inch shoe in addition; scarfs 15 feet. The frames were 22 by 16 inches, spaced 31 inches; filling pieces between the frames, 6 feet long, to receive the chain-plate bolts; keelson, 16 by 40 inches; sister keelsons, 14 by 14; beams, 13 by 15 inches, spaced 3 feet; decking, 4 inches; stern-post, 26 by 28 inches; stanchions, 8 by 15 inches, strapped to beams and keelson; stem, fir, with root at the heel; gripe piece, laurel. The planking was 5 inches thick. The rudder-post projects below the planking to avoid leaks—a practice now general on the coast.

At Seattle there are two small marine railways, besides one other small yard, and there are two or three persons in the town other than the owners of the above property who occasionally build small schooners and steamboats. The first steam mill on the Sound was set up at Seattle in 1853, and although it has been in operation for 30 years the only observable impression that has been made on the dense fir forests is the clearing of a space for the town to stand on. The town is a large collection of houses, spreading all over the side of a hill which rises at the head of a deep bay, and stumps of trees are scattered all through. The bay is the only considerable harbor on the Sound with an abundance of good anchorage ground for vessels. There are valuable deposits of coal a few miles inland which are being mined, and a large number of coal ships visit the wharves of the town every year. Four iron steam colliers have been recently built in Pennsylvania to carry this coal from Seattle to San Francisco. The owner of the marine railway has been in Seattle for 20 years, and has built many small vessels, schooners, and stern-wheel steamboats. Most of the stern-wheel boats of the Sound have been made on this bay. In 1881 the cost of fir, delivered in the ship-yards, was $10 a thousand feet for frame timber, $12 for timber over 45 feet in length, and $15 for pieces from 60 to 100 feet in length. The decking and finishing lumber cost $20 a thousand; for a 500-ton vessel the material could be bought for from $12 to $15 a thousand right through. Builders had noticed a difference in the lasting qualities of fir cut in winter and that cut in summer, as some of the early boats whose frames were hewed out in the woods in winter in the eastern fashion proved lasting and serviceable, while others built from timber taken from the saw-mill without regard to the season of cutting decayed rapidly. Fir vessels have been known to last from 27 to 35 years. There was a great deal of talk all along the Sound about this, and most of the builders intend to select their timber hereafter from winter-cut trees. The vessels built at Seattle in the census year were: 2 stern-wheel steamboats, 321 tons, 1 propeller and 1 side-wheel boat, 473 tons. The side-wheeler was for the navigation of the open Sound, for which stern-wheel boats are not suited in the winter time, as the wind catches in their high sterns and makes them hard to steer. They are therefore used for the rivers of the territory. Seattle has the only repairing business of the territory, and wages are $3 75 and $4 a day.

At Tacoma, New Dungeness, Utsaladdy, and a few other places on the Sound small vessels and boats were built in the census year for local use. When William H. Seward visited these towns he said: "Sooner or later the world's ship-yard will be located here."

The cost per ton of new vessels on Puget sound closely approximates that of the East, and, except for the cost of labor, the cost on Puget sound would be less than in any other part of the United States. The immense and growing grain trade of the Pacific coast seems to guarantee a cargo to a ship immediately after launching, and when the Northern Pacific railroad has completed its lines through to Tacoma and Seattle from the wheat-fields of Oregon and Washington the new ship can load before leaving the Sound. It was a Bath-built ship, the Dakota, which in 1881 carried away from Tacoma the first cargo of grain. The ships for this trade were built in a state 3,000 miles away, which is utterly destitute of local ship-building timber and pays an average of $35 a thousand feet for her timber, when on Puget sound timber can be bought for $12 a thousand feet—a saving of from $20,000 to $25,000 on a big ship. Puget sound has great advantage also in the length of the timber it can furnish.

## ALASKA.

Portions of Alaska have plenty of timber. Its production is chiefly in the way of Indian canoes, of which there are estimated to be 3,000 in the territory, each made from a single spruce or cedar log and owned by natives. Some of the canoes will hold 60 persons. The records of the custom-house at Sitka show only the following vessels:

| Date of papers. | Vessel. | Tonnage. |
|---|---|---|
| April 13, 1880 | Schooner Lesnoy | 9 |
| September 7, 1880 | Schooner Mary | 11½ |
| September 14, 1880 | Schooner Mary Caton | 8 |
| September 25, 1880 | Schooner F. F. Feeney | 9 |
| March 18, 1881 | Scow-schooner L. L. Martin | 32½ |
| May 23, 1881 | Schooner Onward | 6½ |
| June 11, 1881 | Schooner Flying Scud | 26 |

These, with the exception of the scow-schooner L. L. Martin, were all built at Kadiak and Oonalashka. In January, 1882, there were five small schooners of about 20 tons each constructing at Kadiak island. The yellow cedar of Alaska is admirably adapted to ship-building purposes, and in a report to the Treasury Department by Collector William Gouverneur Morris, dated November 25, 1878, this subject was alluded to.

## NORTHERN LAKES.

The facts about the building of sailing vessels on the northern lakes are introduced in this chapter because the vessels built are of large size and resemble in character the sailing tonnage of the ocean coasts.

The northern lakes seem to have invited navigation as early as 1679, and it is supposed that the little 60-ton schooner Griffin, built on the Niagara river in that year for La Salle, the Catholic missionary, was the first vessel on the lakes. This schooner, carrying La Salle, and manned by a crew of six persons, set sail in August for Mackinaw, where she arrived safely, and was there loaded with furs for a return voyage, but was never heard from after her departure. In accordance with the fashion of the times, this schooner carried a square sail on the forward mast. Sloops and small schooners were occasionally seen on lakes Erie, Huron, and Michigan during the years of exploration and settlement of the country, but it was not until after the revolutionary war that any great number were constructed. It is believed that the first vessel on lake Ontario larger than an Indian batteau was the one built at Sodus Bay, New York, in 1789. During the 20 years preceding the war of 1812 a flourishing commerce sprang up between the principal towns and ports on the lakes, and quite a number of sloops and small schooners were required for the transportation of mails, freight, and passengers. The ship-building industry, however, had not reached any special development when that war broke out; and it will be remembered (as elsewhere stated) that in order to construct the vessels required for public defense it was necessary to bring master builders and carpenters from the city of New York. The first brig on the lakes is believed to have been the Union, of 96 tons, built in 1814.

It is hardly necessary to relate in detail the story of the growth of the merchant marine of the lakes, as in its general features it is the same as that of the shipping of the ocean coasts. As the country filled with people vessels increased in number and size; they were often built too large for the times, and there were several periods of reaction and depression. Builders originally followed sea-coast ideas, but as the special requirements of the lake trade became apparent they made experiments of their own with models and rigs, and finally departed entirely from the traditions of the sea-coast and developed a class of tonnage especially suited to the lakes and having its own peculiar character.

The first ship on the lakes was the Julia Palmer, of about 300 tons, built at Buffalo in 1836. Several other ships and a number of barks were employed after that date in trading to the upper lakes, but the experience of a few years demonstrated the entire unsuitability of the square rig for these waters.

The first clipper schooner was the Challenge, which was built at Manitowoc, Wisconsin, in 1851, by William W. Bates. She was 80 feet long on the load-line, 22 feet wide on the main beam, and 6½ feet deep in the hold, and differed from the ordinary type of lake vessels in having greater proportionate breadth, lighter draught, a longer and sharper bow, and greater lifting power at the bow. The dead-flat section was located amidships. She carried a center-board, and a red stripe was painted on her side to show the light-draught water-line. During the construction of this little vessel a great controversy raged in the shipping circles of the lakes in regard to the innovation on established models. The Challenge reimbursed her owners in two years, and the Clipper City was then built in 1853 by the same constructor for the same owners. When the Clipper City was ready for sea there was put into her cabin, in a frame, a scale of displacement, showing her weight at any depth of immersion, the object being to supply the means for a close estimate of the tally of a lumber cargo. This scale of displacement was drawn by a man who was afterward governor of Wisconsin. These two schooners introduced the clipper idea.

It is reported that the first vessel on the lakes to have her load-line marked on her sides was the R. B. Hayes, built at Gibraltar, Michigan, by Linn & Craig. The rules for free-board and load-line on the lakes are to be found in the book of rules for construction of lake vessels, prepared for E. P. Dorr, of Buffalo, in 1876, free-board being slightly less than in deep-sea craft.

The clipper idea is suited for schooners on the lakes that draw less than 10 feet of water, as their greater proportionate breadth would give them a lower percentage of shell to gross displacement and help their capacity and burden. Nevertheless, it must be said that the ideas of 40 years ago govern the vast majority of owners and builders on the lakes, and the preference is for the full model. The big vessels are limited to a draught of 14 or 15 feet, there being only that depth of water over the reef known as the Lime-Kiln Crossing, in the short river leading from lake Huron into lake Erie. The larger sailing craft are all constructed with that fact in view, and, in consequence, are either perfectly flat on the floor or have not to exceed 18 inches of dead rise. The midship section is a rectangle with the lower corners rounded, the curves of the bilge amidship being swept in with a radius not to exceed 18 inches. With reference to passing through the Welland canal, and also to the navigation of the narrow channels of the rivers that constitute so many of the harbors of lake cities, the beam of sailing vessels is kept narrow, while the bows are full and the stem is perpendicular, or nearly so. The lake model, so called, is therefore characterized by great length and fullness, the body of the vessel being nearly straight. The broadest part is rather forward of amidship, and the sterns are square and very broad on deck. The visitor from the Atlantic coast, accustomed to the untrammeled models of deep-sea schooners, is greatly struck by the odd appearance of the lake hulls. Nevertheless, the lakers are admirable vessels, and are exactly adapted to the commerce in which they are employed, being fast, great carriers, cheap, and profitable. No more can be said of any vessels. The difference in dimensions between the lake and ocean models will appear from the following data, showing the approximate register measurements of fair average schooners of various sizes:

| | |
|---|---|
| 300 tons | Lake schooner: Length, 146 feet; beam, 26 feet; hold, 12 feet.<br>Ocean schooner: Length, 125 feet; beam, 32 feet; hold, 10½ feet. |
| 650 tons | Lake schooner: Length, 186 feet; beam, 34 feet; hold, 14 feet.<br>Ocean schooner: Length, 145 feet; beam, 34½ feet; hold, 16¾ feet. |
| 850 tons | Lake schooner: Length, 210 feet; beam, 36 feet; hold, 16 feet.<br>Ocean schooner: Length, 175 feet; beam, 40 feet; hold, 17½ feet. |
| Four-masted schooner | Lakes: Length, 278 feet; beam, 39 feet; hold, 21½ feet.<br>Atlantic coast: Length, 205 feet; beam, 40 feet; hold, 22 feet. |

The popular style of vessel on the lakes is the three-masted schooner with a center-board (Fig. 43), carrying at least one large lower yard on the foremast, although frequently having two or three. Its rig presents a very different appearance from that of the schooner of the Atlantic coast, owing to the square sails and the difference in the length of the masts. On Atlantic vessels the masts are usually nearly of the same length, but this is not the case on the lakes. A comparison will be interesting:

### MASTS OF ATLANTIC COAST SCHOONERS.

500-ton schooner: Foremast, 89 feet; mainmast, 90 feet; mizzen-mast, 91 feet; all three topmasts, 52 feet.
600-ton schooner: Foremast, 91 feet; mainmast, 92 feet; mizzen-mast, 93 feet; all three topmasts, 56 feet.
750-ton schooner: Foremast, 93 feet; mainmast, 94 feet; mizzen-mast, 95 feet; all three topmasts, 58 feet.

### MASTS OF NORTHERN LAKE SCHOONERS.

500-ton schooner: Foremast, 88 feet; fore-topmast, 65 feet; mainmast, 92 feet; main-topmast, 65 feet; mizzen-mast, 80 feet; mizzen topmast, 58 feet.

650-ton schooner: Foremast, 98 feet; fore-topmast, 74 feet; mainmast, 102 feet; main-topmast, 74 feet; mizzen-mast, 86 feet; mizzen-topmast, 57 feet.

850-ton schooner: Foremast, 100 feet; fore-topmast, 80 feet; mainmast, 106 feet; main-topmast, 80 feet; mizzen-mast, 94 feet; mizzen-topmast, 75 feet.

The rake of the masts varies from ⅝, ¾, and 1 inch to the foot, going aft, to ¾, 1, and 1¼ inch to the foot.

The lake schooners spread so large an area of canvas that the spectacle they present while passing and repassing certain points in the summer time is a beautiful one. At Detroit, for instance, past which city they must nearly all go, and where the panorama of lake commerce is seen to the best advantage, the scene on a fair summer's day is always an interesting and sometimes an exciting one. A curious feature is the practice of collecting from three to six schooners, arranged tandem, in tow of a large freighting propeller or a large tug. The vessels are about 500 fathoms apart, and are each attached by a heavy tow-line of that length to the one ahead of it. Each vessel spreads all the sail it can profitably carry, the tug or propeller puts on every pound of steam, and the tow passes rapidly along to its destination. When out on any of the lakes, if a storm should arise, the tow-lines are all cast off and each vessel takes care of itself.

The shape of the hulls of the lake schooners permits the use of a great deal of straight timber in the frames. The floor timbers, and for a long distance amidship the top timbers also, are nearly straight. It is the practice, therefore, to cut the frames out of heavy plank (or flitch, as it is called), 5, 6, or 7-inch flitch being used, according to the size of the vessel, the spacing of frames being, as a rule, from 20 to 22 inches. The comparative thinness of the timbers rendering injudicious the use of treenails for fastening on the plank, iron bolts and spikes are used instead. The planking is usually square-fastened with two spikes and two iron bolts in each frame, but the practice varies, in some vessels three spikes and one bolt being used, in others four iron bolts. In the larger hulls the ceiling and sometimes the planking is edge-bolted. The main keelson is laid with two tiers of logs only. There is a sister keelson on each side of the main keelson, and the floor out to the bilge is strengthened with a number of floor keelsons, varying in depth from 10 to 16 inches, placed from 2 to 2½ feet from center to center. The flooring of the hold is laid with two thicknesses of light pine or hemlock plank, and in order to save storage room the heavy wooden knees characteristic of ocean vessels are dispensed with, the purpose for which they are introduced being accomplished by employing a strong shelf of white oak, usually 5 inches thick and often 30 inches wide, edge-bolted to the frames and strongly bolted to the beams. This shelf is composed of either two or three streaks of plank, one streak being thicker than the others, the beam end being so grooved as to fit down over the thicker streak and bear firmly on the whole width. White oak is the material used throughout the vessel, except in the beams, which are often of white pine, and in the decking, houses, and spars, which are also of white pine, some of the lighter spars being of spruce. Further reference is made to the details of construction in the chapter on steam vessels; but it is believed that all the main points in which the carpentry of lake vessels differs from that of the sea-coasts are represented in the above data.

The standing rigging of almost all the lake vessels is now of wire, and nearly all carry topmast shrouds. Poop decks are a regular feature, and there is a cabin aft on the poop deck, while a small house abaft the foremast shelters the crew. The vessels have topgallant forecastle decks and patent windlasses. All the fittings of lake vessels are of the most improved character.

Within a few years it has not been uncommon to build four-masted schooners for the lake trade. A handsome one was on the stocks at Huron, Ohio, in the census year. She was 278 feet long on the keel, 39 feet on the main beam, and 21½ feet deep in the hold, and the overhang of the stern was about 9 feet. The frames were cut from 6-inch flitch; they were triple on the floor and double on the sides of the vessel, and were molded 16 inches over the keel, 15 inches at the bilge, 14 inches just above the turn, and 8 inches at the main rail. Room and space, 22 inches. The main keelson was 16 by 17 inches; the sister keelsons, 16 by 16 inches; the assistant sister keelsons, 14 by 14 inches. There were 7 floor keelsons on each side of the group in the center, the first one on each side sided 10 and molded 14 inches, and all the others sided 8 and molded 14 inches. Spacing, 30 inches from center to center. Flooring of

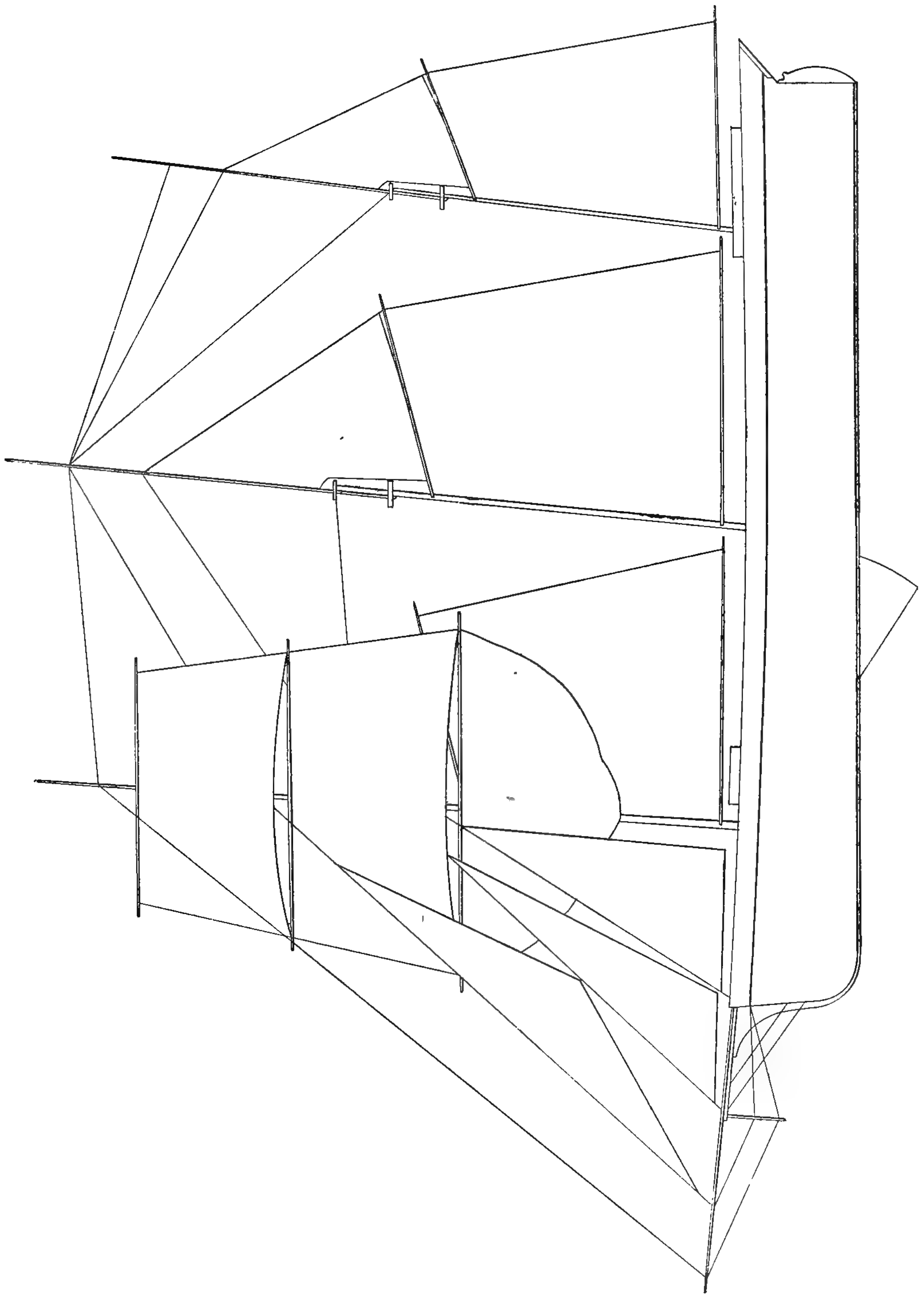

Fig. 43.—SAIL PLAN OF A LARGE THREE-MASTED SCHOONER OF THE NORTHERN LAKES.

Length of the vessel on the water-line, 194 feet; beam, 36 feet; depth of hold, 16 feet; canvas, about 3,500 yards. Some three-masters carry, including sail covers, tarpaulins, etc., 4,500 yards. Standing rigging, wire; 5 shrouds on foremast, 4 shrouds on mainmast, and 3 shrouds on mizzen. Topmast shrouds and back stays. Arrangement of fore-and-aft stays varies slightly in different vessels, but the above is the usual practice.

the hold, 2-inch hemlock, two thicknesses; ceiling 8, 9, and 7 inches thick on the bilge, diminishing to 6 inches at the plank-sheer; outside planking, all 5 inches. The ceiling and planking are edge-bolted every 4 feet. There were about 300 tons of iron fastening in this vessel, and its capacity was expected to be from 3,300 to 3,500 tons of cargo dead weight.

One five-master has been built of such dimensions as to make her the largest schooner in the world. This vessel, the David Dows (Fig. 44), was constructed at Toledo, Ohio, and was finished in 1881. She is 275 feet long over all, 260 feet on the keel, 37½ feet on the beam, and 18 feet deep in the hold, and registers 1,419 tons, with a carrying capacity of about 2,500 tons. The frames of this vessel (double) were 14 by 18 inches over the keel, spaced 21 inches; the ceiling 7 and 9 inches on the bilge, 6 inches on the sides, tapering to 5 inches at the plank-sheer, and the planking 4 inches. The hull was strapped on the outside with iron. A middle row of deck beams was introduced, but were not decked. The masts, going aft, were respectively 93, 97, 97, 93, and 88 feet long; the topmasts, 65 feet, except the jigger-topmast, which was 55 feet; bowsprit, 37 feet; jib-boom, 65 feet; yards on the foremast, 75, 65, 55, and 45 feet long; booms, 50, 50, 46, 43, and 36 feet long; gaffs, 40, 40, 40, 38, and 30 feet. The David Dows carried five jibs and gaff topsails, and was a noble-looking vessel.

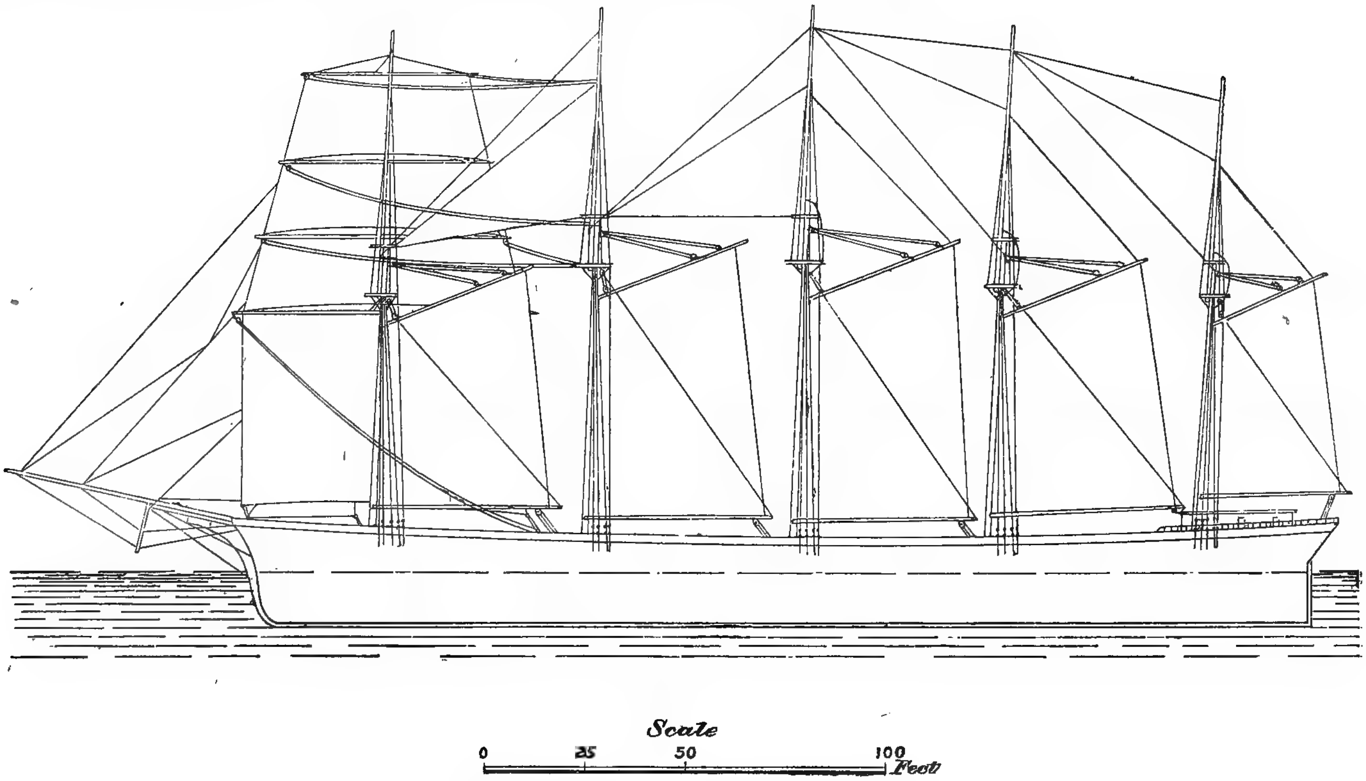

Fig. 44.—Five-masted schooner David Dows.

Built at Toledo, Ohio, for the grain trade of the northern lakes.

The lake fleet finds its best employment in transporting the lumber, iron ore, and grain of the West to the lower ports, where the cargoes are transferred to the railroads for dispatch to inland cities or to Atlantic seaports. The vessels carry back large quantities of coal and some miscellaneous merchandise.

There are few places on the lakes where ship-yards are devoted exclusively to the construction of sailing craft. The tendency now is strongly in the direction of steam, and Toledo and Huron, Ohio, were perhaps the only places found in the census year at which propellers were not building. A description of the industry on the lakes can more appropriately be given in the chapter on steam vessels.

## GENERAL REMARKS.

In large cities like Boston, New York, Philadelphia, and Baltimore, where the old sailing-packet and clipper-ship business has passed into the control of the foreign steamship lines, the common expression is, "The day of the sailing ship is past; hereafter nothing will do except steam." This is especially the opinion of old houses at New York, which have sold off their big sailing ships one by one. These houses depended almost entirely on the passenger, mail, and fast-freight traffic of the ports at which they were established, the very traffic for which the foreign lines of steamers especially competed. Having seen this traffic taken from them by the steamers, the proprietors of the old packet and clipper lines look upon steam vessels as the only carriers of the future.

On the other hand, there is a different feeling in the country towns, whose ships are built for the general trade, and seldom, if ever, sail in regular lines, but go hither and thither to every part of the world. On the Pacific coast particularly the current opinion is anything but a gloomy one. In many country localities the cost of building is reasonably low. The old shipping houses keep on constructing new sailing ships year after year, and though feeling the competition of steam to some extent, they have, as a rule, operated in trades in which it has not yet been successfully introduced, and have put their vessels into long voyages to California, China, Australia, and the East Indies, or in certain branches of the coasting trade, such as lumber and ice carrying, for which sailing vessels are better adapted than steamers. The causes which have affected the prosperity of ship-owners who do not live in large cities are not so much traceable to the development of steam navigation as to high taxes, unfavorable regulations, excessive port charges, and the unequal tonnage dues which tax a sailing ship as much as a steamer which does five times the business. The country ship-owners, therefore, believe that with favorable national legislation they can employ sailing tonnage profitably and successfully and for the good of the public.

Considering that steam has made such progress in the trade between large ocean ports, it is remarkable that, so far as the country at large is concerned, the bulk of the business is still done by sailing ships. On the 25th of January, 1882 (as shown by the *Maritime Register* of New York, which prints every week a list of all the vessels engaged in the foreign trade of the United States), there were 5,351 vessels actually so engaged that week, of which only 546 were steam vessels, as follows:

| Nationality. | Sailing vessels. | Steamers. | Nationality. | Sailing vessels. | Steamers. |
|---|---|---|---|---|---|
| Total | 4, 805 | 546 | Portuguese | 21 | ........ |
| American | 837 | 24 | Italian | 386 | 5 |
| British | 1, 974 | 387 | Austrian | 130 | ........ |
| Norwegian | 736 | ........ | Russian | 59 | ........ |
| Swedish | 93 | ........ | Greek | 2 | ........ |
| German | 355 | 39 | Haytian | ........ | 1 |
| Dutch | 25 | 12 | Chilian | 5 | ........ |
| Belgian | 1 | 18 | Mexican | 2 | 3 |
| Danish | 18 | 4 | Costa Rican | 3 | 1 |
| French | 55 | 20 | Hawaiian | 6 | ........ |
| Spanish | 91 | 32 | Miscellaneous | 6 | ........ |

This is a fair average showing of the respective number of sailers and steamers now in our foreign trade at any one date. By reason of its larger size and its more frequent trips, a steamer is reckoned as equal to five sailing vessels; but even on that basis the sailing tonnage exceeds the steam in our foreign trade.

Looking now at the cargo carried rather than at the vessels, it will be found that the sailing ship still transacts by far the largest part of the foreign commerce of the United States. The statistics on this point are fragmentary, and no complete statement can at present be made, as no government report on this subject has heretofore been prepared; still, the general fact is well known. Inquiries have been made for this report at nearly all the principal custom-houses of the country, and the testimony is uniform on that point. The only exact data which can be given are those of 1880 at the port of New York, this being the one American port at which steam has gained the most upon the sailing vessel. The grain trade of that port in 1880 was as follows:

| Nationality. | SAIL VESSELS. | | STEAM VESSELS. | |
|---|---|---|---|---|
| | No. of cargoes. | Bushels. | No. of cargoes. | Bushels. |
| Total | 1, 760 | 62, 621, 000 | 1, 148 | 44, 117, 000 |
| American | 29 | 1, 176, 000 | ........ | ........ |
| British | 522 | 24, 644, 000 | 907 | 36, 816, 000 |
| German | 46 | 2, 072, 000 | 110 | 2, 460, 000 |
| Belgian | ........ | ........ | 52 | 2, 308, 000 |
| Dutch | 8 | 339, 000 | 23 | 806, 000 |
| Danish | 4 | 63, 000 | 16 | 426, 000 |
| Norwegian | 475 | 13, 374, 000 | ........ | ........ |
| Swedish | 32 | 864, 000 | ........ | ........ |
| French | 24 | 548, 000 | 19 | 457, 000 |
| Spanish | 21 | 358, 000 | 7 | 180, 000 |
| Portuguese | 8 | 163, 000 | ........ | ........ |
| Italian | 369 | 12, 370, 000 | 14 | 664, 000 |
| Austrian | 209 | 6, 276, 000 | ........ | ........ |
| Russian | 12 | 370, 000 | ........ | ........ |
| Haytian | 1 | 4, 000 | ........ | ........ |

Besides exporting most of the grain from New York, the sailing vessels carry nearly all the petroleum, lumber, and coal and a vast quantity of provisions and general merchandise. Taking the whole business of the port, the sailing fleet does fully half the whole business, and probably more. The same state of facts exists at all other American ports, and on the Pacific coast the export trade is almost wholly in sailing vessels.

For general trading, especially for long voyages, there is every reason to believe that sailing ships will continue to be built, as they can carry a cargo at a lower rate of freight than steamers. A ship of 2,000 tons register, built in Maine, will cost close upon $100,000, carry from 3,000 to 3,200 gross tons of freight, and sail at an average rate of speed of 6 miles per hour, which can be increased to 8 miles by sharpening the bow of the vessel. If a propelling engine were now to be put into the same ship, so as to convert her into a cargo steamer, there would be added to her weight 225 tons of boilers and machinery and 600 tons of coal, and a large proportion of her cargo space would be rendered useless. This would increase her cost from $30,000 to $40,000, and she could carry only 2,200 or 2,500 tons of cargo. If the ship were built with an iron hull, as a steamer ought to be, there would be a further increase to the first cost of $20,000 if she were built in England, and perhaps $30,000 if she were built in America. In either case, whether wooden or iron, her running expenses would greatly exceed those of the sailing vessel, as she must have a large crew. She burns coal continually, interest must be paid on the large investment in her, and in spite of her more frequent trips and ability to live at a smaller margin of profit the steamer could not carry freight at the same low rate as the sailing ship. Both for the owner and for the public at large, therefore, the sailing ship is the more profitable vessel which can be employed.

In the coasting trade, especially in carrying lumber, ice, and some other classes of goods, the schooner is pre-eminently the best carrier. Steamers are expensive, and their draught is too great for the hundred shallow harbors and small places on the southern coasts.

There is as yet little demand for sailing ships in this country of any other material than wood. Three or four vessels have been built of iron, and several more which had been wrecked on our coast have been repaired and put under the American flag; but up to 1880 there has been no progress in the direction of iron sailing tonnage. The reason of this is the high cost of iron. England went into iron sailing tonnage because her forests had become exhausted and timber was so dear that it mattered little, so far as cost was concerned, whether a vessel was built of iron or of wood; and as an iron vessel was more durable, a strong preference grew up for it. In America there has, thus far in our history, been plenty of timber, the cost of which has been moderate, and in spite of the gradual destruction of the Atlantic-coast forests a wooden ship can still be built in this country for less money than it costs to produce an iron ship of the same capacity in the most favored locality. First-class oak and pine vessels are built in America at the present time for from $45 to $50 per register ton; in Glasgow the cost for iron sailing vessels is $60 per register ton. The difference in cost on a vessel of 2,000 tons is from $20,000 to $30,000 in favor of the oak and pine vessel, and when the fir of Puget sound is thoroughly utilized this difference will be more marked.

The following return, showing the cost of iron sailing vessels, angle iron, iron plating, and oak wood in Glasgow, has been furnished for this report by Hon. Bret Harte, United States consul at that port:

| Year. | Iron ships, cost per register ton. | | Angle iron, per gross ton. | | Plate iron, per gross ton. | | Oak wood, per thousand board feet. | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | £ | s. | £ | s. | £ | s. | £ | s. | £ | s. |
| 1852 | | | | | | | 7 | 1 to | 8 | 4 |
| 1853 | | | | | | | 8 | 4 | | |
| 1858 | | | | | | | 8 | 8 to | 9 | 4 |
| 1859 | 14 | 5 | 7 | 7½ | 8 | 13½ | | | | |
| 1860 | 14 | 13 | 7 | 12½ | 8 | 15 | | | | |
| 1862 | 14 | 13 | 7 | 12½ | 8 | 15 | | | | |
| 1863 | 14 | 16½ | 7 | 12½ | 8 | 15 | 9 | 8 to | 11 | 9 |
| 1864 | 16 | 0 | 7 | 0 | 9 | 1¼ | | | | |
| 1867 | 16 | 5 | 7 | 16¼ | 8 | 15 | | | | |
| 1868 | 14 | 14 | 6 | 13¾ | 7 | 13¾ | 8 | 8 to | 9 | |
| 1870 | 14 | 5 | 6 | 15 | 7 | 13¾ | | | | |
| 1873 | | | | | | | 13 | 6 to | 14 | 7 |
| 1875 | 17 | 12½ | 9 | 10 | 10 | 0 | | | | |
| 1876 | 15 | 14 | 7 | 10 | 8 | 1¼ | | | | |
| 1877 | 14 | 16⅓ | 7 | 1¼ | 7 | 13¾ | 9 | 8 to | 10 | 5 |
| 1878 | 13 | 12 | 6 | 12 | 7 | 2½ | | | | |
| 1881 | | | | | | | 12 | 6 to | 12 | 10 |
| 1882 | 12 | 17½ | 5 | 5 | 6 | 5 | | | | |

A letter from John Lloyd, esq., Deptford yard, Sutherland, England, dated February 17, 1882, obtained for this report by Hon. E. A. Merritt, American consul-general in London, states that in 1857 the price of British oak per thousand board feet was from £6 5*s*. to £9 11*s*., according to the size of the ship. Plate iron was £9 15*s*. per gross ton in 1857, £8 5*s*. in 1861, £11 in 1865, £10 15*s*. in 1872, as high as £14 in 1873 for a short time, £9 10*s*. in 1875, and £5 in 1880.

Hon. S. B. Packard, American consul at Liverpool, has gathered for this report the prices of English oak. From various firms of old standing in different parts of England was learned the fact that the average price of English oak 15 or 20 years ago ranged from £12 10*s.* to £20 10*s.* per thousand board feet for navy timber and from £8 7*s.* to £12 10*s.* per thousand feet for merchant ship timber. About the end of the last century the price was £12 per thousand. The prices of Canadian oak, imported, have been, per thousand:

| Years. | Price. | | | | | Remarks. |
|---|---|---|---|---|---|---|
| | £ | *s.* | | £ | *s.* | |
| 1823 | 13 | 2 | to | 15 | 12 | With 16⅔ shillings duty in British vessels. |
| 1824 | 11 | 16 | to | 13 | 17 | Do. |
| 1825 | 13 | 2 | to | 15 | 12 | Do. |
| 1830 | 6 | 12 | to | 9 | 14 | Do. |
| 1835 | 8 | 16 | to | 12 | 10 | Do. |
| 1840 | 10 | 12 | to | 12 | 10 | Do. |
| 1845 | 7 | 12 | to | 12 | 10 | With 20 pence duty in British vessels. |
| 1850 | 6 | 12 | to | 8 | 13 | Do. |
| 1855 | 9 | 7 | to | 13 | 2 | Do. |
| 1860 | 7 | 13 | to | 10 | 12 | Do. |
| 1865 | 9 | 14 | to | 10 | 12 | Do. |
| 1870 | 9 | 14 | to | 10 | 15 | Do. |
| 1875 | 11 | 2 | to | 12 | 3 | Free of duty. |
| 1880 | 7 | 12 | to | 11 | | Do. |
| 1881 | 10 | 12 | to | 13 | 3 | Do. |
| 1882 | 9 | 7 | to | 13 | 3 | Do. |

An examination of these returns shows that oak has been too expensive in England for 30 years past for the building of cheap vessels. With oak at $45 and upward per thousand feet and iron at $40 per ton and less iron ships and wooden ships of the same tonnage cost about the same price, and with iron about $30 or $35 per ton and oak at $55 and $60 per thousand, as at present, the iron ship is much the cheaper vessel of the two. In America the conditions are reversed. Here the cost of materials always has been in favor of the wooden ship. For instance, to build a sailing vessel of 2,000 tons register about 950,000 feet of oak, pitch-pine, and white-pine lumber and 150 tons of iron and copper are required. These materials can be bought for $42,000. A vessel of the same capacity, built of iron, requires about 1,100 tons of that metal, rolled into plates and angles, and the material could not be bought for less than $70,000 or $80,000. The ship would cost from $85 to $100 per ton, against $45 to $60 per ton for the wooden ship, and with a difference in cost like that it would seem as if wooden tonnage would continue to be preferred in America for all trades in which the winds are the propelling power. The wooden ship, in fact, is the cheap ship of the age, and its low cost, with its buoyancy, stability, and general excellence as a carrier, makes it still the popular vessel in America.

It must be said, however, that a sentiment is growing among the larger owners of American sailing vessels in favor of iron, as it has been discovered that in the California grain trade, and in all the ports of the world where wooden and iron vessels come into competition, the insurance companies favor iron vessels, and the latter get cargoes quicker and earn higher rates of freight. A curious point in favor of iron is, that should a wooden vessel go ashore or be damaged by storm in transit the cargo must bear a part of the loss under the "general average" insurance rules. An iron vessel, if in serious trouble, is more apt than a wooden one to be a total loss, in which case the cargo bears no part of the loss; and if properly insured the whole value is recovered from the insurance companies. American owners now say that they will buy iron ships as soon as the cost of them is reduced to a point at which they can afford to buy.

## CHAPTER IV.—STEAM VESSELS.

To England and America jointly is due the honor of applying steam practically to locomotion on the sea. There was a time when America led the world in the amount of steam tonnage employed, the vessels of the Mississippi River valley alone exceeding the whole steam tonnage of the British empire; but since that time England has surpassed her, especially in deep-sea navigation, and several other European countries have also become active in that branch of enterprise. America, however, remains the foremost country in the amount of native steam tonnage locally employed. She still builds vessels for transoceanic service, but the number of her vessels actually employed in foreign trade is at present small.

The steam tonnage of the United States comprises 5,139 tugs, yachts, paddle-wheel steamboats, and ocean and lake propellers, aggregating 1,221,206.93 tons register. Fully 2,900 of these vessels are each of less than 100 tons register, being yachts, passenger launches, fishing steamers, small ferry-boats, and tug-boats, the majority tug-boats, of which the enormous commerce of the sea-coasts and lakes has led to a remarkable multiplication. There are only 13 vessels in the whole fleet of more than 3,000 tons register, namely:

| | Tons. |
|---|---|
| Ocean propellers to Liverpool: | |
| Ohio | 3,101 |
| Indiana | 3,101 |
| Illinois | 3,101 |
| Pennsylvania | 3,101 |
| Pacific mail steamers to China: | |
| City of Tokio | 5,079 |
| City of Pekin | 5,079 |
| Ocean propellers: | |
| City of Sidney | 3,016 |
| City of Para | 3,532 |
| City of Rio de Janeiro | 3,448 |
| City of New York | 3,019 |
| Alaska | 4,011 |
| China | 3,836 |
| Solano (paddle-wheel transfer boat) | 3,547 |

About 45 vessels range from 2,000 to 3,000 tons register. They are coasting propellers and paddle-wheel steamboats on Long Island sound and the Hudson river, and comprise also about half a dozen of the larger Mississippi river steamboats. About 250 vessels range from 1,000 to 2,000 tons register, and include the majority of the coasting and lake propellers and the larger steamboats of the West. The remaining 1,900, ranging from 100 to 1,000 tons, are ferry-boats, river steamboats, excursion steamers, tug-boats, and freighting propellers. Of the whole fleet, about 175 are employed on the deep sea and not over 30 in foreign trade.

After the invention of the steam-engine in England the minds of men all over the world turned instinctively to the subject of steam locomotion on land and sea. This idea occurred to a large number of persons at the same time, and ingenious mechanics set their wits to work to devise the means of applying the new power; and it seems to have been the dream of them all eventually to propel heavy ships in calms at sea or against baffling winds, and even to regularly cross the ocean with steam vessels. The first thought of those who attempted to evolve something practical in steam navigation was to tow ships in and out of harbors and rivers, to tow boats on canals, and to propel boats against the current of rivers. Those were the needs of the times. A patent for a steamboat was obtained by Jonathan Hulls in England in 1736 for harbor towing, a small, stern paddle-wheel concern; and experimental boats were tried in England in 1788, 1789, and 1802, two of them for towing on the Forth and Clyde canal. In America a mechanical genius by the name of John Fitch experimented on the Delaware and the Schuylkill in 1786 and 1787 with small steamboats propelled by banks of vertical oars, with which he attained a speed of from 4 to 7 miles an hour, and James Rumsey, another American, tried the plan of forcing a current of water out from the stern of the boat by steam-power. In 1793 Fitch made the first experiment on record with a screw-propeller. He built a long-boat, 18 feet in length, with 6 feet beam, and fitted it up with a crude sort of engine and a screw-wheel at the stern. The boiler was an iron pot with a wooden lid, the two cylinders wood, made like barrels, and hooped with iron, and the pistons were attached to each end of a horizontal walking-beam. The boat was tried on the old Collect pond in New York city, a body of water 60 feet deep, which has since been filled up and given place to solid ground, and on which now stand the Tombs and several blocks of business buildings. A speed of 6 miles an hour was attained with this boat. Various other experiments were made in America on the Hudson and the Delaware rivers, the results of which may be summed up by saying that they proved the impracticability of propelling boats by any appliances other than paddle-wheels and screw-propellers.

The news of the invention of steam towing-boats on the Forth and Clyde canal was a great stimulus to American inventive talent, as it not only urged Rumsey and Fitch to great exertions, but brought out three men of great intelligence, who, after many years of experiment and the loss of a good deal of money, first made steam navigation a success. Robert Fulton, with his partner, Mr. Livingston, and John Cox Stevens, of Hoboken, New Jersey, were these men. Fulton and Livingston first experimented on the river Seine, at Paris, and built two small boats there in 1803, obtaining moderate results only, but fully establishing in their minds the practicability of steamboating. Mr. Stevens spent $20,000 and 13 years' labor in trying to perfect a screw-propeller driven with a rotary engine. In 1804 he constructed a boat 25 feet long and 5 feet wide, with a Watt engine and a screw-propeller, with which he tried to cross the Hudson from Hoboken to New York, and obtained a speed of 4 miles an hour, but the steam-pipe burst just as he was approaching the New York side. He persevered with his boat, however, and finally took it around by sea to the Delaware river, this being the first ocean voyage of a steam vessel on record. This boat was the Phœnix. It is not necessary to recount all the devices tried by Fitch, Rumsey, Evans, Morey, Stevens, Fulton, and other enterprising Americans in that period of evolution of the steamboat; but, it may be repeated, the sum of all their efforts was to prove that boats could not be driven with any mechanical appliances save those of the paddle-wheel and the screw-propeller; the paddle-wheel was preferred, as being simpler.

Fulton's first experiment on the Seine taught him a lesson which has governed the construction of river steamboats in America down to the present time. Vessels were built with light timbers and planking in those early days, and when laden with a general cargo the weights were distributed equally to all parts of the hull. Without foreseeing the consequences, Fulton put into his first boat a heavy engine, which concentrated the weight all at one point, and before the machinery was in working order it broke through the bottom of the boat and went down into the mud of the river. It was afterward raised and used in other experiments, but in later vessels the weights were better distributed. When steamboat building was at length fairly introduced a strong truss of pine braces and iron rods, called the hog-frame, was set up on each side of the long and narrow hulls of the boats, to stiffen and protect them against the weight of heavy machinery.

In 1806 Fulton bought a 20 horse-power engine from Boulton & Watt in England and set out for America to introduce steam navigation to his native land. His original idea was to engage in business on the Mississippi river, and the pioneer boat built by him on the Hudson was intended to be taken around to that great stream of the West. But the West was not yet settled, whereas the Hudson was thronged with a busy traffic, and Livingston and Fulton having secured exclusive rights on the Hudson for steam vessels from the state legislature, it was finally decided to concentrate all efforts on the navigation of the latter river. The Clermont was built by Charles Brown, on the East river, in 1807, and in the latter part of that year she made her first trip to Albany. This was the beginning of practical steam navigation.

"The North River Steamboat of Clermont," for that was her name, was 133 feet long, 16½ feet wide, and 7 feet deep. She was flat on the bottom, with almost perpendicular sides, a bow full, somewhat like that of a river sloop, and had a straight stem; but she was afterward enlarged by being sawed in two lengthwise and filled out, which made her 22 feet wide and 141 feet long. No mechanical drawing of the hull was ever made, but her shape and scantling have been preserved in written memoranda. The bottom was of yellow pine, 1½ inches thick, tongued and grooved, and set with white lead, and having been put together was laid on a platform and floors were laid across edgewise 4 by 8 inches square and 24 inches apart. Under the machinery the floors were of oak, 8 inches square, but at the ends they were of spruce, for lightness. The boat had a bilge log with spruce top timbers. At first there were no guards; consequently there was no support for the outer ends of the axle of the paddle-wheels, and as she was decked only at the bow and stern the boilers were open to view. The wheels were forward of the center of the boat, and were 15 feet in diameter; they had 8 arms, with buckets 4 feet long and 24 inches dip. The shaft was of cast iron, 4½ inches in diameter. The boat also carried a heavy fly-wheel 10 feet in diameter, hung outside of the boat and extending below it. This attachment was an inconvenience in shoal water, and was afterward discontinued. The boiler was 20 feet long, 7 feet deep, and 8 feet wide, and drove an engine whose cylinder had 24 inches diameter and 4 feet stroke. Afterward strong guards were built on the boat to support the wheels, and a house was put upon them to keep the spray from dashing on board the boat, which it did copiously at first, to the discomfort of all. This boat drew 28 inches of water.

The first trip of the Clermont made a great sensation at New York city and all along the river, and great crowds came to witness her departure and her voyage up the river. The boat made the first 110 miles in 24 hours, and ran the whole distance of 150 miles in 32 hours; but omitting the time spent in landings the voyage was made in 28½ hours, an average of 5 miles per hour. The Clermont was a success from the start, and immediately excited a feeling of intense hostility all along the river. The Hudson at this time was thronged with a multitude of sloops, packets, and freighting boats, by which the whole of the traffic between New York city and the interior of the state was transacted. The packets would clear from Albany one day, discharge and load at New York the next, set sail on the third, and arrive in Albany again on the fourth. Some of these boats were excellent vessels. For instance, in 1806 a stock company had been formed for the purpose of expediting travel on the river, and the sum of $6,000 having been subscribed, the sloop Experiment, of 110 tons, was built and superbly fitted with state-rooms and berths throughout her whole length below deck. In 1807 the company raised $6,000 for a second sloop.

These boats made the trip to Albany in 27 hours, at a cost to the passenger of $5. Similar vessels were engaged in the trade of the river, though no others were so large. Fulton's daring experiment of steam navigation was therefore, in substance, a bold attack on a vested interest, and there was intense feeling against him on the part of all the river men. Their hostility was practical, too, and put him to a good deal of trouble and expense, as sloops constantly got in the way, and frequently ran against the Clermont boldly, with the design of smashing the paddle-wheels. Fulton was not the man to be daunted by warfare like that, but persevered, and made his operations a triumphant success. During the winter of 1807 the boat was laid up, enlarged as before stated, and launched again, and in 1808 she was constantly engaged in making trips to and from Albany, and always went full of passengers.

In 1808 Charles Brown built the Raritan, of 120 tons, designed by Fulton's own hand, and the Car of Neptune, of 295 tons. The latter was 157 feet long on the bottom, 171½ feet on deck, 22 feet broad on the floor, and 26 feet on deck. The Paragon, of 331 tons, was built in 1811. In 1812 the Firefly, of New York, was built to run to Newburgh, and a ferry-boat of 118 tons was built to ply to the Jersey shore. It was Fulton who designed the double-end ferry-boat with dropping bow and stern, which has ever since remained in use.

The war of 1812, which broke out at this stage of the development of steam navigation, did not interfere with the progress of experiment. In fact, it was the cause of a step in advance on the part of America, as it suggested to the fertile mind of Fulton the idea of the first steam war vessel in the world. He proposed to the government a floating battery, with guns pointing in every direction, which would steam at the rate of 4 miles per hour and cost the sum of $320,000, about the amount a first-class frigate could be built for. The offer was accepted, and the vessel was built in 1814. She was 156 feet long, 56 feet broad, and 20 feet deep. The paddle-wheel was 16 feet in diameter, and was hung in the middle of the hull, as in some of the modern western river ferry-boats. The buckets were 14 feet long, with 4 feet dip; the boiler was 22 feet long, 12 feet broad, and 8 feet deep, and the cylinder 48 inches by 5 feet. Tonnage of the vessel, 2,475; draught of water, 10 feet. The walls of this steamer were 5 feet thick, and she was in every respect a formidable ship. Her speed was 5½ miles per hour. This powerful battery gave great satisfaction to the naval authorities, and had a surprising effect on the imagination of people abroad, who published the most extraordinary reports of her powers. It was declared in England that she could discharge 100 gallons of boiling water per minute, brandish 300 cutlasses by machinery over her gunwales, and dart out 300 iron spears from her side every quarter of a minute. She was destroyed by an explosion of her magazine in 1829.

The model of the original North River boats resembled that of a sloop or an immense skiff. They were at first decked only a short distance at the stem and stern, but afterward the whole length of the boat was decked. The engine was open to view. Away aft was a house very much like that of a modern Erie canal-boat, which was raised to cover the boiler and to serve as a shelter to the apartments for the officers, and it was in this part of the boat that the passengers were accommodated. As in the Clermont, the boiler was of the form usual in the Watt's engine, and was set in masonry. The wheels at first were without houses, and when the breeze was brisk the spray from them dashed aboard and made the boat wet. The cross-heads connected with the piston instead of the walking-beam now in general use. The fuel used was wood, some of it cut from the public commons; and a correspondent writes to an Albany paper of those early days complaining bitterly of the enormous consumption of wood by the two steamers Fulton was then running. He placed the value at $5 a cord, and stated that the boats consumed thousands of dollars' worth per annum. The cost of fuel was then the principal item in the cost of running boats. At first it was $150 per trip; but Lackawanna coal, used first on the Car of Neptune in 1816, reduced the expense to $30, and this was regarded as the commencement of a new era in steam navigation.

Fulton and Livingston had a monopoly of the river for a few years; but in a short time the traffic was thrown open to the competition of all, and boats were built by different persons as fast as the trade of the river would warrant it.

As speed was an important element in travel, the steamboats built by opposition lines began to race with each other as early as September, 1809, the first race on record taking place in the month referred to between Fulton's boat and one built by an Albany company. The Albany vessel had advertised to leave at the same hour with Fulton, and the coming race was the exciting topic of that year. The friends of Fulton were led by Professor Kemp, of Columbia College; those of the Albany boat by Jacob Stout. The boats raced down the river and victory was long in suspense, and it was not until after the thirtieth hour of the race that Fulton's boat fairly led.

For many years Charles Brown built nearly all the Hudson River boats, but when this new form of carrier became an assured success other builders devoted their attention to the same class of vessel. New York was the principal center of steamboat building, but vessels were also constructed at Newburgh, as well as at Philadelphia and Baltimore, for the navigation of the rivers of those regions. Very few of these boats were less than 100 feet long, and the great majority were from 120 to 180 feet.

The desire for speed and light draught on the Hudson led to many changes in the forms of boats, the most striking of which were in the proportions of breadth to length. The early boats had about 18 feet beam, and were from 6½ to 9 times as long as they were broad. In the Car of Neptune the proportion was 7.8. By giving the vessels greater beam, namely, from 20 to 24 feet, and occasionally 26 feet in place of 18, they secured lighter draught, which was of the first importance in navigating shallow rivers. At New York the proportion of length to breadth was from 5 to 7; at Philadelphia and Baltimore from 4 to 6¾. The depth of hold was from 7 to 9 feet, and the draught of water from 4¼ to 7 feet, but some of the fastest boats drew 6 feet. When light draught had been duly obtained by widening the beam speed was secured by again lengthening the hull and adopting a rounder midship section. A beam of from 22 to 24 feet was retained for the Hudson river service, but the length was increased until it was from 8 to 10½ and occasionally 12 times the breadth. The Albany, built in 1832 at New York, was 272 feet long, 26⅙ feet beam, and 8⅓ feet deep in the hold, registering 588 tons; the Swallow, built in 1836 at New York, was 225 feet long, 23 feet beam, and 8⅓ feet deep in the hold, and registered 426 tons; the Home, a New York boat, built in 1837, was 211 feet long by 22½ feet beam and 11½ feet depth of hold, and was of 537 tons register; and these were large and fast boats for their times. It is to Robert L. Stevens that the Hudson river is chiefly indebted for its clipper steamers. He paid much attention to the subject of speed, and secured the object by improving the steam-engine and by making the bow and run of the boats sharper and longer than ever before attempted. Some of the early steamers were lengthened by being hauled ashore, cut in two, and having 25 or 30 feet added to their middle. False bows 20 feet long were put on other boats, and after 1830 new boats were frequently built with solid ends so keen and sharp that they parted the water without raising a ripple or throwing scarcely any spray. In later years a speed has been attained of from 20 to 28 miles per hour.

The boats built to traverse Long Island sound were broader and deeper than those of the river, as they had to encounter boisterous winds and heavy swells. The following are the register dimensions of a few of them:

| Year. | Name. | Where built. | Length. | Breadth. | Depth of hold. | Tonnage. |
|---|---|---|---|---|---|---|
| | | | *Feet.* | *Feet.* | *Feet.* | |
| 1835 | Benj. Franklin | New York | 160 | 31½ | 10 | 468 |
| 1835 | President | do | 183¾ | 32⅓ | 11 | 615 |
| 1836 | Massachusetts | do | 202 | 29 | 12 | 676 |
| 1836 | Narragansett | do | 212½ | 27 | 10⅓ | 576 |
| 1836 | Rhode Island | do | 212 | 27⅝ | 10⅓ | 588 |

The engines placed in the early boats were of small power proportionate to tonnage. In the Clermont the power was one-eighth of the tonnage, and this was about the proportion in all the early boats; but twenty years afterward it was one-fifth the tonnage, and still later the engines were more powerful yet.

It is surprising how quickly steamboats sprang into existence in different parts of the world after the building of the Clermont, one being built on the Saint Lawrence in 1809, and a second one in 1813. Abroad, the success of Fulton created great excitement, the English people being especially inspired by it. They built their first steamboat at Glasgow in 1811, and several others at various ports within a few years afterward, and then pushed forward in general navigation with energy. They directly encouraged the builders by large orders for the navy, and in 1839 England had 96 war steamers in use, America having only built one. Other countries followed. The first steamboat on the Mississippi was built in 1811.

Having no rivers of great length, the English were compelled to adapt their boats to deep-sea navigation. The Americans, on the other hand, devoted their talents chiefly to the problems of smooth-water navigation and to conquer the wilderness through which the rivers extended, as well as to build the boats required for inland trade. Besides, there was no impulse in that period to send out steam into the deep-sea trade, for the country had an abundance of the fleetest and finest sail shipping in the world.

Fulton employed the ordinary paddle-wheel from the start—a large, light, double wheel, carrying boards, fixed on the outer ends of the spokes, about 4 feet long and dipping 26 inches into the water. Builders were never quite satisfied with that wheel, because the buckets struck and left the water in such a way as to lose a great deal of power. An astonishing number of inventions were patented from 1807 for forty years afterward intended to introduce a better wheel. One object striven for was to make the buckets movable, so that they would enter, pass through, and leave the water in a vertical position. Theoretically, this would be a perfect paddle-wheel, but the device could never be made strong, light, and satisfactory. A great deal of money was lost from time to time by inventors in experimenting with the idea; several tried to feather the paddles. All sorts of shapes in buckets were also tried. They were patterned after fishes' tails, ducks' feet, and birds' wings, and were made of various triangular forms, with the pointed end outermost in some wheels and the base of the triangle out in others. Few of these multifarious devices were ever put to use, and none ever stood the test of more than a year or two. The ordinary paddle-wheel has not been superseded in river steamboats to the present day, and its defects were overcome as far as possible in the later boats, especially after 1835, by the introduction of narrower paddles and larger wheels, the diameter of some wheels being from 40 to 46 feet. Huge houses were built to shelter these enormous wheels, and were thereafter a feature of all American river boats. The popular diameter to-day in Hudson River and Long Island Sound boats is 40 feet. Large wheels enable the buckets to enter and leave the water in nearly a vertical position, so that there is less concussion when they strike and less water is lifted when they emerge. For the same reasons small buckets are better than wide ones; in many of the early boats the buckets were too wide and had to be changed.

While the paddle-wheel was developing in America the screw-propeller was coming into commercial use. Little attention had been paid to the subject of the screw here after the first experiments by Fitch and Stevens. In England they needed something better than paddle-wheels for a vessel, rolling and pitching on the open sea, and in 1825 a premium was offered for the best device for propelling a ship without paddles. In response a naval officer invented a screw with two blades projecting from an axis at an angle of 45°, and one or two boats were fitted with it. Engineers strongly advised the perfection of the screw, and in 1836 two practical inventions were brought out, one by F. P. Smith, of London, and one by Captain John Ericsson, of Sweden, then resident in London, that of Smith being on the principle of the Archimedean screw, a spiral wrapped around an axis. The propeller of Mr. Smith was 2 feet in diameter, with a pitch of 29 inches; the diameter of the shaft was 6 inches, and the length of stroke 15 inches. The screw consisted of two turns of a single blade on a long axis, and it was tried on a little 34-foot boat, having 6½ feet beam and 4-foot draught, which was taken out to sea, and made an average of 8 miles an hour. In the first experiment with this boat on a canal it is said that a part of the blade accidentally broke off, when she "immediately shot ahead at a sensibly greater speed". A stock company was formed to test this propeller, and in 1839 a vessel was built, called the Archimedes, which was 125 feet long, 106¾ feet long between perpendiculars, 21$\frac{10}{12}$ feet extreme breadth, and 13 feet in the hold. She drew 9½ feet of water, and was of 237 tons register. The stern was given an extra amount of overhang, so that the rudder might be fitted aft of the screw and the stern protect them both. Her propeller was at first a single-bladed screw 5 feet 9 inches in diameter, with 8 feet pitch, making one complete turn on the axis; but this was afterward taken off and replaced by one with two blades, each making a half turn around the axis. The trials with this boat in 1840 aided to bring screw propulsion into more general notice. The Archimedes sailed around England and Scotland, calling at many ports *en route*. Many subsequent experiments were made, both with this vessel and with Mr. Smith's double screw of two half-threads; but this special form of propeller never attained any commercial value, and a successful introduction of the new mode of propulsion was effected by Captain Ericsson.

The first practical screw vessel was the Francis B. Ogden, a wooden boat specially built to test the Ericsson propeller, which was first tried on the Thames in April, 1837, and was 45 feet long and 8 feet broad on the beam, drawing 2¼ feet of water. Mr. Ogden, the American consul at Liverpool, being among the first to perceive the advantages of the propeller as operated by Captain Ericsson, entered into an arrangement with the inventor to secure an interest in his patents in the United States, and in appreciation of his encouragement Captain Ericsson's first vessel was named after him. The boat was fitted with two propellers, each 5 feet 3 inches in diameter, consisting of a short hub or cylinder of iron, to the periphery of which were fitted several blades having a spiral twist. The performances of this vessel were remarkable, as a speed of 10 miles an hour was attained from the start and surprising power was developed. This little boat towed a schooner of 170 tons at a speed of 7 miles an hour, and an American packet ship, the Toronto, was towed up the Thames at the rate of more than 5 miles per hour. In spite of these successes, the engineers of London did not regard the screw with favor; and although one day, for the purposes of experiment, the little boat took in tow the admiralty barge with a distinguished company of lords and scientific men on board and drew it through the water at the rate of 10 miles per hour smoothly and noiselessly, the admiralty refused to encourage Captain Ericsson, on the ground that it would be impossible to steer vessels driven by his propeller. Ericsson wanted to build a war vessel for the English navy, but fortunately for America he failed to secure an order.

Captain Robert F. Stockton, of the American navy, was in London in 1837, and through Mr. Ogden became acquainted with Captain Ericsson. Having made an experimental trip in the Ogden on the Thames, he at once saw the importance of screw-propulsion, and immediately gave the Swedish engineer an order for two iron boats for the United States with steam machinery and propellers of Ericsson's own design. These vessels were ordered entirely on Captain Stockton's private account, so as to bring the subject of screw-propulsion before the attention of Americans. One of the boats built by his order was the Robert F. Stockton. She was built of iron by the Lairds of Birkenhead, and was launched in 1838. Her dimensions were: Length, 70 feet; beam, 10 feet; depth of hold, about 9 feet; draught, 6¾ feet. The two propellers, 6⅓ feet in diameter, were placed directly aft of the stern-post and forward of the rudder, the two screws being in line. The Robert F. Stockton was tried first as a steamer, in which capacity she made 11 and 12 miles an hour; and afterward as a tow-boat, with four square coal barges in tow, she made 5½ miles per hour. The trials proving satisfactory, the vessel was rigged as a two-masted topsail schooner and sent to the United States under sail in charge of Captain Crane, an American, with a crew of four men and a boy, and was the first commercially successful screw-steamer and the first iron vessel to cross the Atlantic. In 1840 the Stockton was sold to the Delaware and Raritan Canal Company and her name changed to the New Jersey, and for many years she was employed on the canals and the Delaware and Schuylkill rivers as a tug-boat. The screw was thus practically introduced in America by Captain Stockton, and sprang into favor at once. A great many vessels were built with that form of wheel, and in less than ten years after 1839 there had been 150 vessels built in America and fitted with screw-propellers.

Captain Ericsson remained in London to push his invention into commercial use. The Novelty, a freight boat for the London and Manchester canal, and the Enterprise, a canal passenger boat, had been built and fitted with his propellers, and had established the practical utility of the screw before the Archimedes was constructed for Mr. Smith. The Enterprise was subsequently employed with success as a tug-boat on the rivers Mersey and Trent.

Captain Stockton was so sanguine that he could induce the United States to adopt the screw for the navy, and Captain Ericsson was so confident that this would be done, that the latter resigned his professional engagements in London and in 1839 came to the United States. In spite of the experiments of Mr. Smith popular interest in screw-propulsion was very faint in England after 1839, and it was not until after the Americans had put the new idea into extensive use both on the ocean and on the northern lakes that England awakened to its advantages. The Archimedes was successful in 1840; but in 1841 only three English merchant vessels had been fitted with screw-propellers, and it was not until 1843 that the frigate Rattler was converted to a screw steamer. On the other hand, by December, 1843, forty-two vessels in America had been fitted with screws, including the Vandalia (1841) and nine other lake propellers, four for the Hudson river, four for Long Island sound, a number for the coasting service, and a number in Canada.

Captain Stockton had been finally successful in inducing the United States government to build one of three war-ships ordered in 1839 as an Ericsson propeller, and through his efforts the Princeton was fitted with a screw and with machinery placed below the water-line. She was the first war vessel of her class on the face of the earth. She was 164 feet long, 30½ feet in beam on deck, and 21½ feet deep in the hold, had two decks, and weighed, when launched, 418 tons gross. Her deepest draught with 200 tons of coal on board was 19⅓ feet, her mean draught 17 feet, and her register capacity was 673 tons. The Princeton was built with a flat floor amidships, with a sharp bow and great leanness aft. The stern-post was given the unusual thickness of 26 inches at the propeller shaft, tapering above and below, and the stern overhung 15½ feet. Hanging from it was a wrought-iron rudder-post, so placed as to leave 6 feet in the clear between it and the stern-post, heeling on an oak extension of the keel. The rudder was framed of iron, filled in with oak plank, being in all 5⅝ inches thick. The propeller was Ericsson's peculiar idea. It had a brass drum 8 feet in diameter, with 6 brass blades riveted to it, having a true helicoidal twist. The extreme diameter of screw was 14 feet, the pitch 35 feet, and the length in the direction of the axis 2 feet, and the whole wheel weighed 12,000 pounds. The Princeton cost $212,000, and was a successful steamer, making 13 miles an hour on her trial trip. She was full rigged as a ship, and saw a great deal of sea service, visiting the Mediterranean, taking part in the Mexican war, and sailing to other parts of the world.

It is not certainly known where the screw-propeller was first adopted in America for tug-boats, but it appears from the records that the iron tug R. B. Forbes, of Ericsson's design, was built at East Boston as early as 1845 and was supplied with twin screws, working in opposite directions. This tug was a large boat of about 300 tons burden, was especially adapted for outside work in rough water, and lived long enough to be bought by the government during the last war and to take part in the capture of Port Royal. The screw was adopted for towing at Philadelphia in 1849. Some one in that city who had two towing boats of the old paddle-wheel type saw the advantage of propeller tugs for harbor and canal use when he saw the Robert F. Stockton towing 4 coal barges at the rate of a mile in 11 minutes. The first propeller tug-boat built on the Delaware was constructed by William Cramp, of Philadelphia, and was fitted with engines made by Jacob Neafie. She had a wooden hull 80 feet long, 17 feet broad, and 8 feet deep. This boat did excellent service on the Delaware, and her success brought a great deal of business to her enterprising builders. It was thought at first that the entire screw should be below the hull of the vessel, in order to exert its full power; but Mr. Cramp departed from that idea and fitted the Sampson with a 6-foot wheel, only half of which was below the hull, and with a 3-foot keel to protect the screw. After a number of boats had been built of that style some one wanted a light-draught tug, and the broad keel was then removed and the wheel placed entirely above the bottom of the vessel. This boat proving to be as efficient as its predecessors and much more handy, a revolution was effected in the form of tugs. The screw has now superseded the side-wheel for towing purposes, and at the present time there are more than 1,800 of these admirable boats in use in different parts of the United States, chiefly in the sea-coast harbors and on the northern lakes. It is remarkable that in England paddle-wheel towing-boats have lingered in use down to the present time. The tug of our American harbors is a little propeller varying from 30 to 120 tons register. A few of large size range from 130 to 170 tons register, but the average tug is of about 80 tons, and is about 90 feet long, 18 feet wide on the beam, and 9½ feet deep in the hold. One of 170 tons would be 120 feet long, 22 feet beam, and 12 feet deep in the hold. The hulls of the tugs are sharp and deep, but not long, and float at about 8 feet draught, drawing a foot or two more aft than forward. Those that go out into rough water are given a good deal of sheer forward. The stems are perpendicular; the sterns are round and overhang from 6 to 10 feet. Although these little vessels sit low in the water, the deck being not more than 2 or 3 feet higher than the load-line, the bulwarks are always low. A house covers the machinery, which is placed amidships, and the pilot-house is either at the front of this cabin or on top of it at the forward end. Strong towing bitts are placed forward and aft of the house. A tug is simply framed and easily built, and it is a favorite boat for a rising master carpenter to undertake as his first effort at ship-building.

It has already been stated that it was the dream of Fitch, Fulton, Stevens, and other pioneers to cross the ocean with vessels propelled wholly by steam; they looked at the matter from the point of view of engineers and enthusiasts. While steam vessels were developing a speed of only 5 or 6 miles an hour the owners of deep-sea tonnage saw no advantage in steam except as a means of driving the vessel onward in calms or of enabling it to hold its course in protracted storms. In 1819 there was on the stocks in the yard of Crockett & Fickett, at New York, a staunch little ship of 380 tons, originally intended to run from that city to Savannah as a packet. Before her completion she was bought by a company, who finished her as a full-rigged ship and then put into her between decks a horizontal engine of 90 horse-power, with boilers in the hold, and fitted her with side paddle-wheels, unhoused, to make the crossing of the ocean. In May, 1819, Captain Moses Rogers took this ship to Savannah, and on the 26th of the month he set sail from that port for Liverpool, crossing the ocean in 25 days, during 18 of which she was under steam. The time made was not remarkable, but she was the first steam vessel to cross the Atlantic. In the summer she again set sail, and went around Scotland to the Baltic and to Cronstadt, where she anchored September 9. An effort was made to sell her in Sweden and then in Russia, but it was not successful. The king of Sweden offered $100,000, payable in hemp and iron, delivered at New York, but the offer was refused. The Savannah left October 6 for home, arriving at Savannah November 30. She made two voyages to Europe, and once went to Turkey, and excited much interest everywhere. The Savannah was naturally a slow sailer, and this probably was the cause of her failure as a steam vessel. After her second voyage her machinery was taken out, and the vessel ran as a coasting packet to Savannah for several years. Over $50,000 was lost in her career as a steam vessel, and she was finally wrecked on Long Island. This primitive experiment advertised to the world the enterprise and progressive spirit of American ship-builders; it startled the people of England into a determined development of their system of steam navigation. In 1823 English companies were formed with a view to establishing lines of steam vessels to the Mediterranean, with connections to India. In 1825 there was great excitement in England on the subject, and it is on record that 45 companies were formed in that year in Liverpool alone to trade with steam packets to every part of the world. Most of these projects were bubbles, which burst almost as soon as they were set afloat, but some of them were the germs of the later grand enterprise and success of the English people in steam navigation. The first steamboat was sent to India in the latter part of 1825, and others soon followed. Regular lines were established to France, Spain, and the Mediterranean, then to India and the West Indies, and finally, in 1839, to America. By 1857 there were regularly employed in the British steam mail service, under pay from the government, 121 large vessels, registering 140,000 tons, carrying 8,140 men as officers and crews, and receiving $5,335,000 a year as compensation for carrying the mails, while in her whole merchant service there were 1,670 steam vessels, registering 666,000 tons. Besides the liberal subsidies which were paid, the British government aided in the development of steam by ordering the construction of a multitude of war vessels—a policy which enabled the builders of machinery and vessels to prepare an expensive plant and train up a large force of competent engineers and mechanics. This was an advantage, as it created the facilities for building the heaviest class of steam shipping and solved many problems in regard to propelling power with which Americans afterward had to contend.

While England was pushing out to all parts of the world America was developing her river and lake boats. After the opening of the Erie canal the Hudson became the scene of the busiest internal traffic then ever seen. The West, which at the beginning of the century had been a trackless wilderness, was filling up with people. Trade was springing up rapidly on the lakes and on the western rivers, and a general increase in the size and the number of steamboats and lake propellers took place. On the lakes, where there was depth of water, the boats increased in all their dimensions; but on the rivers, where they could not venture on more than 6 to 8 feet draught, they were limited to extending the length and breadth. It is hardly necessary to follow the successive steps by which the river steamers attained the extraordinary dimensions which have been given them in the last 20 years. Suffice it to say, that the spirit of rivalry led to the production of vessel after vessel constructed to surpass everything which had preceded it in the power of its engines, the fleetness of its trips, the size and magnificence of the palace built upon its decks for the accommodation of passengers, and in its capacity for carrying deck-loads of freight. When the New World was finished for the Hudson river it was the longest and fastest vessel in the world, being 380 feet from stem to stern. The hull was 50 feet wide, the entire width over the wheels was 85 feet, and the wheel was 45 feet in diameter. The hog-frame of this boat rose 25 feet above the deck, and a row of masts from 40 to 50 feet in length, heeling on the keelson, capped with iron and rigged with iron rods or shrouds extending to the sides and ends of the boat, aided to impart rigidity to the light and shallow hull. Several strong longitudinal keelsons were put in to add to her strength and keep her broad, flat floor in shape. Her cabins were of immense size, and few hotels at that day could accommodate so many travelers. There were 347 state-rooms and 600 berths. The cabins contained elegant parlors, sumptuously decorated with carved work and gilding, rich carpets, and costly furniture. There was also a large dining-room for the entertainment of guests. Her speed was 20 miles an hour. Large as was this remarkable vessel, her length has since been eclipsed by the St. John, built for the same river in the year 1864, which was 407 feet from stem to stern. Her register dimensions were: Length, 393 feet; beam, 51 feet; depth of hold, $10\frac{8}{12}$ feet; gross tonnage, 2,645. She was built at Greenpoint. Nothing had been built since the historic galley of Ptolemy Philopater that approached her, that boat having been her superior in length by 13 feet, and the expensive steamers of the transoceanic service only now exceed her length. In speed these Hudson river boats have never been beaten. The Daniel Drew, the Mary Powell, and others have made from 25 to 28 miles an hour, and sustained that speed over long stretches of the river.

The steamboats of New York city have been admired by the builders of the whole world for the excellence of their construction. The cabins have been the most costly part of these vessels, owing to their size and the luxury of the joiner work, the carving, gilding, decoration, and furnishing. Nevertheless, the hulls have displayed the greatest ingenuity. Light, strong, and durable, they have never been excelled in the qualities that make them remarkable. They are modeled flat on the floor amidships to secure small draught, and are given long, sharp bows and long, narrow runs to secure speed. The form of the model entails weakness; but builders have found a way to give the boats the slender scantling that preserves their light draught, and yet to make them strong enough to withstand the action of powerful marine engines. Excellence of framing, thoroughness of fastening, and the use of none but the very best materials secure this result. A description of the scantling of two representative New York boats is here given:

### A HUDSON RIVER BOAT.

The City of Troy, built by John Englis at Greenpoint (Brooklyn) for the passenger traffic of the river. Keel, 280 feet long; beam, 38 feet; depth from top of floor timbers to top of beam amidships, 10 feet. Side-wheel boat, with walking-beam condensing engine.

*Keel.*—White oak, 8 by 16 inches, with 8-foot scarfs, fastened with ¾-inch screw bolts.

*Stem.*—Perpendicular; white oak, 10 by 15 inches. Apron, same size.

*Stern-post.*—White oak, 12 by 15 inches at the keel, 12 by 12 at the head, fastened to the keel by composition dovetail plates. The stern square, above water.

*Deadwood.*—Yellow pine, at bow and stern.

*Frames.*—White oak amidships; white oak and chestnut at the ends of the boat; top timbers, oak, chestnut, and hackmatack; double frames, the timbers each 5 by 16 inches over the keel, molded 5½ inches at the deck, with true diminish between. Spacing, 26 inches under the engines, 28 inches forward and aft. Frame timbers thoroughly fastened with 4-foot laps.

*Keelsons.*—Main, yellow pine, 12 by 20 inches; side, three each side of the main keelson, yellow pine, 10 by 20 inches, coming together at the bow and stern. Two ⅞-inch bolts, clinched, in each frame. Engine keelsons, yellow pine, with screw bolts through each timber.

*Ceiling.*—Bilge, yellow pine, six strakes, 5 by 8 inches, bolted edgewise every 4 feet and square-fastened to frames. Clamps, yellow pine, two strakes, 4 by 12 inches, 8 foot scarfs, 2 bolts and 2 screw-bolts in each frame. Yellow pine braces, 4 by 8 inches between clamps and bilge strakes, crossing at 45°, strongly fastened and keyed. Flooring, light stuff.

*Beams.*—White pine, 6 by 16 inches, one to each frame. Wheel beams 14 by 14 inches, molded 10 inches at the gunwales, 8 inches at the edge of the guards. Every other beam under the boilers 10 by 12 inches, molded 8 inches at the gunwales, 6 inches at the guards. Beams supported by light stanchions on the keelsons. The beam ends secured by knees; 8-inch knees on the main beams.

*Decking.*—White pine, 2½ by 5 inches.

*Planking.*—White oak, except the strings; two strakes 4 by 12 inches, yellow pine; all the rest oak, 3 inches thick; first six strakes under strings 6 inches wide, then to lower turn of bilge 8 inches wide. Fastening to 6-foot water-line, two 6-inch composition spikes and two 1⅛-inch locust treenails, the latter driven through and wedged; above the 6-foot line, galvanized iron spikes and treenails. The butts bolted.

*Plank-sheer.*—White oak, 3½ by 5 inches. Rail 3 feet from deck, yellow pine 3 by 6½ inches.

*Hog-frame.*—White pine; the chord about 12 by 14 inches, and the heels of the braces resting on oak chocks (or shoes), placed on the edge of the hull and securely fastened to the frames. Suspension rods from the chord to the frames and cross rods.

*Gallows frame.*—Yellow pine, according to the designs of the engineers.

*Masts.*—Six in number, 55 feet long, heeling on the main keelson, diameter 15 inches, and of white pine, capped with iron and fitted with iron rods, with turnbuckles, as follows: The two after masts, two 1¼-inch rods to the after quarter of the boat and two 2-inch rods on each side to support the guards; the one next forward, two rods to the engine keelsons and two on each side to the guards, all three connected with a 1½-inch rod. Forward mast, 1½-inch rod to the bow, secured by a strap to the deadwood, two 1¼-inch rods each side to the guards; second mast, two 1¼-inch rods each side to the guards; third mast, two 1¼-inch rods each side to the guards, and two of the same size to the engine keelsons.

*Materials.*—All first class, free from check, spot, or blemish, and the hull thoroughly calked, pitched, scraped, and painted.

*Miscellaneous.*—Wheel-houses, guards, cabins, etc., as usual.

### SIDE-WHEELER FOR LONG ISLAND SOUND.

The Old Colony, for the Newport line, built by John Englis in 1864. Length from forward side of stem to after side of stern-post, 310 feet; beam, molded, 42 feet; hold, from floor timbers to under side of deck, 14 feet.

*Keel.*—White oak, in 45-foot lengths, with 7½-foot hook scarfs, the scarfs fastened with ⅞-inch composition bolts, clinched.

*Stem.*—White oak, natural crook, 10 by 14 inches, extending 12 feet above deck. Apron, 10 by 12 inches.

*Stern-post.*—White oak, 14 by 14 inches, with a large inner stern-post, kneed and thoroughly bolted. The stern square, above water.

*Deadwood.*—Oak and hackmatack, bolted with ⅞-inch bolts.

*Frames.*—Double, spaced 24 inches, white oak; timbers 8 by 17 inches under the engines, etc., 7 by 17 forward and aft. Molding diminishes in a true taper to 6 inches at the gunwales. Futtocks, white oak and chestnut, sided 7 inches. Top timbers, locust, chestnut, and hackmatack, sided 6 inches. Entire space between the floors the whole length of the vessel filled in with white pine to 17 inches above the base line.

*Keelsons.*—Main, white oak, 14 by 24 inches, lower tier fastened with one 1-inch composition bolt clinched on a ring under the keel and one bolt driven to within two inches of the bottom of the keel in each frame; upper tiers of main keelson, square-fastened. Sister keelsons, white pine, bolted transversely every 5 feet with 1-inch iron, and vertically to each frame with ⅞-inch composition. Side keelsons, 3 each side of the main keelson, same height as latter. Keelsons all tied with cross-beams of oak, 10 by 12 inches, every 20 feet jogged over each keelson and strongly kneed to the sides of the boat. On each side of engine bed there are similar cross-beams kneed to the sides of the boat. Outboard tier of keelsons placed over the floor heads. The keelsons converge at the bow and stern.

*Breast-hooks.*—Two forward and two aft.

*Ceiling.*—Bilge strakes, 5 in number, 7 by 12 inches, white oak, square-fastened with 1⅛-inch bolts and locust treenails. Ceiling, up to clamps, 5-inch white pine. Clamps, 3 strakes, 6 by 10 inches each, scarfed, keyed, bolted to frames, and bolted edgewise every four feet.

*Beams.*—White pine, 7 by 8 inches. Wheel beams, 16 by 20 inches; under the boilers, 12 by 14 inches. A beam on every frame. Knees under every beam alternately in and out, and where not kneed on the outside the beam is braced with an oak or locust brace. Wheel and boiler beams kneed inside and out.

*Iron straps.*—The hull is strapped diagonally on the inside of the frames with two sets of iron bands, 4 inches wide, ⅝-inch thick, crossing each other, and connecting at the top with a longitudinal band, 6 inches wide, ¾-inch thick, running clear around the boat close under the wheel beams. The straps are hot riveted to each other and the longitudinal chord; two blunt bolts into each frame. One set of straps is let into the frames, and the ceiling notches over the other.

*Decking.*—White pine, 3½ by 5 inches.

*Planking.*—Garboards, 5 and 4 inches; bottom plank out to bilge, 3½ inches; all the rest 4 inches, except that the wales, 3 strakes, are 6 inches thick and 12 inches wide. Wales jogged 1 inch over frames. All white oak, square-fastened with composition spikes and locust treenails to the 11-foot water-line, with iron spikes and treenails above. Butt bolted with ¾-inch metal.

*Bulkheads.*—Four, water-tight.

*Suspension frame.*—White pine and oak, with cross rods, vertical rods, and straps, to hold and secure the hull in the best possible manner.

*Masts.*—Five in number, with iron rods and turnbuckles to the keelsons and guards.

*Model.*—The floor almost flat amidships; the bow sharp, but shorter than in river boats.

*Miscellaneous.*—Wheel-houses, guards, cabins, etc., as in eastern passenger steamboats. Engines, walking-beam, low pressure, condensing.

The engines of the eastern boats have always been worked at low pressure. In principle they are the same as the first one brought from England by Fulton in 1806, except that the steam is used expansively. Having little room in the hull to stow away the machinery, and perceiving no advantage in changing the form of the engine in order to make it more compact and get it all below deck (a matter of importance in ocean vessels), the eastern river builders have retained the old idea of a low-pressure condensing engine with a long walking-beam placed aloft, the steam working expansively and the stroke of the piston being long and rapid. The pressure in the boilers has been on an average about 15 pounds per square inch, seldom going higher than 30, and it has often been the complaint of the builders of hulls that more speed might have been obtained if the boats could only have carried more steam. Low pressure was found to be more economical in fuel, and has been preferred. The stroke in large eastern boats has been about 10 feet, the piston traveling from 300 to 500 feet per minute and the machinery smooth and free from vibration. In the Mississippi River boats a long and slower stroke has been preferred, and high pressure without condensation has been the rule.

The paddle-shaft in eastern boats has been variously placed from one-third to one-half the boat's length from the bow, but in the Mississippi River side-wheel boats it is about the middle of its length.

On the Mississippi river the paddle-wheel has been shifted from its place on the side of the hull to the stern in all vessels built for towing purposes and in many built for freight and passengers. This was necessary to enable large boats to pass safely through the narrow canal at Louisville; but it was also the result of experience with both classes of boats, which demonstrated clearly the greater handiness of stern-wheelers for towing loaded barges and for navigating crooked channels and swift currents.

Steamboats for trips along the coast outside of the rivers and sounds were built as early as 1832, and in the course of 15 years steam vessels were plying between all the principal ports on the Atlantic and Gulf coasts. At first these vessels were all side-wheelers. They had deep hulls, and were sharp on the bottom like sailing ships, while the bows and sterns were not much sharper. The engines were the same in principle as those of the river boats, except that the walking-beam was shifted from its place aloft to a position near the bottom of the vessel, by the side of the steam-cylinder, which gave it the name of "side lever". Other changes were made with a view of bringing the weight of the machinery nearer to the bottom of the hull than in the river boats; but it must be said that, on the whole, less attention was paid in America to making the engines compact and stowing them away in the hold than in the vessels of England. However, they were good engines, securing a speed of from 10 to 12 miles per hour with a comparatively small consumption of coal. The builders of these vessels at New York were fortunate enough to attract the notice of the representatives of foreign powers in this country, and the speed and strength of their coasting steamers brought a large number of orders from Europe for steam frigates and men-of-war. The Kamschatka, built in 1838 for Russia by William H. Brown, under a contract with R. & G. L. Schuyler, was one of these ships, and was a sharp and fast frigate. Her register dimensions were: Length, 227½ feet; beam on main deck, 45½ feet; beam over all, 66 feet; depth from main deck, 24½ feet; tonnage, 2,282. After 1845 there was a change in the forms of hulls, and in order to secure the light draught needed for boats plying to southern harbors a flat bottom was adopted, with the sides amidship rising straight from the bilge to the main rail. The United States, built in 1847 by William H. Webb for C. H. Marshall & Co. for a New Orleans packet, was one of the first vessels of this class, and was intended to beat any other Atlantic vessel in speed. Departing from the standard type, Mr. Webb gave her a floor with ½ inch of dead rise to the foot, about 2½°, the water-lines of the bow and stern being slightly concave. Her register dimensions were: Length, 256 feet; beam, 40 feet; depth, 30½ feet; tonnage, 1,857; length from taffrail to head, 277 feet. For 50 feet at each end her frame, deadwood, and keelsons were of live oak, locust, and cedar, the frames being spaced 32 inches at the extreme ends, while amidships the lower timbers were of southern white oak, spaced 25 inches, the top timbers being live oak, locust, and cedar. She had five rows of yellow-pine keelsons amidships, 3 feet deep and 4 rows 16 inches deep, the bilge strakes were 12 inches square, and throughout she was of similarly heavy build, being a strong, heavy boat. The United States was sold to the German confederation for war purposes, but in later years went into the merchant service, where she was noted for the large cargo she carried on a light draught of water. Her launching draught was 7 feet 1 inch forward and 8 feet 4 inches aft, with a 12-inch keel. The large steamers which were demanded immediately afterward by the California excitement, with their successors, were all of this general type, and had full, flat floors, straight sides, and sharp bows and runs. This model has governed the form of American deep-sea steamers to the present day, the only departure having been to lengthen the bow into a longer, sharper wedge; a change made practicable when they began to build hulls of iron.

On the 3d of March, 1847, Congress authorized the Secretary of the Navy to make contracts for mail-steamship service once in two months, or oftener, from New York to Chagres, on the isthmus of Panama, and from Panama to Astoria, in Oregon, touching at Monterey, San Diego, and San Francisco, the object being to aid in populating the Pacific coast and to shorten the 120-day voyage around cape Horn to 30 days. George Law secured the contract for the Atlantic branch of the service, and called his company the United States Mail, and Howland & Aspinwall, of New York, secured the other contract, and called their company the Pacific Mail. For the Pacific service three steamers were built in 1847 and 1848 at a cost of $600,000: the California and the Panama, of 1,058 and 1,087 tons respectively, 200 feet long from the plank on the stem to the after side of the stern-post, 33½ feet beam, and 22 feet hold, by William H. Webb, and the Oregon, of 1,099 tons, by Smith & Dimon. For the Law line three steamers were also built, namely: the Georgia, 2,727 tons, 255 feet long, 49 feet beam, and 25½ feet depth of hold; the Illinois, 2,123 tons, 267¾ feet long on deck, 40¼ feet beam, and 31 feet hold; and the Ohio, 2,432 tons, 248 feet long, 45½ feet beam, and 24½ feet depth of hold. These were all wooden paddle-wheel steamers with from 33- to 36-foot wheels, capable of carrying several hundred passengers and about 1,500 tons of freight each. The California was the first afloat, but in the latter part of 1848 the three Pacific Mail vessels were sent off one after the other to begin the service on the Pacific coast. A railway was meanwhile building across the Isthmus. It was while the three ships were *en route* from New York that the news of the discovery of gold arrived in the East; and when the California touched at the Isthmus on the way to the north her captain was astonished to find an excited crowd of thousands of people awaiting her arrival, anxious to reach San Francisco at the earliest possible moment. Each one of the three ships went northward crowded to its fullest capacity.

It has already been explained what an impetus the California excitement gave to the building of sailing vessels, developing the great clippers; it also stimulated the construction of large steamers in an equally wonderful manner. It came at a time when the mail, passenger, and express traffic on our coasts was small; when only a few steam vessels were building for a few modest coasting lines plying between the Atlantic and Gulf ports, and before they had attained any considerable size. As soon as gold was discovered in California a trade sprang into existence in one year of greater magnitude than would have been reached in twenty years of ordinary growth on the Pacific coast, and the steam fleet engaged in that trade needed to be enlarged immediately. Steamer after steamer was added, and in the course of the following ten years 29 fine vessels of 38,000 tons register had been built for the Law and the Howland & Aspinwall lines alone, at a cost of about $8,300,000. It is estimated that in the first ten years these steamers had carried 175,000 persons to California and brought back $200,000,000 in gold. The trade finally grew beyond the capacity of the 1,100- and 1,800-ton vessels, and the companies daringly built of wood up to 2,600 tons, and then in 1861 up to 3,315 tons. The Golden City, of 3,373 tons, was built in 1864, being a steamer 343 feet long to the after side of the stern-post, 45 feet beam, and 29¾ feet hold. The California and Aspinwall steamers were all built at New York; and as the majority of all the Atlantic coasting steamers were also built there, besides vast numbers of sailing vessels, it made New York the great center of vessel-building in the United States. In the ten or twelve busy years before the war 10,000 men went to work in the ship-yards of that city every day, and Webb and one or two others had each more than 1,000 men. The row of ship-yards on the East River side of New York city had at the same time 20 or 30 great vessels on the stocks in different stages of construction. Unlike the sailing-vessel industry, which was distributed along the coast, the production of steamers was concentrated at a few points in the large cities, where there were engine-shops and banks with heavy capital, of which New York, Philadelphia, Boston, and Baltimore were the principal. The work of the New York builders gave them great reputation, and they were able to obtain large and profitable orders for war steamers from Russia, France, Italy, Portugal, Turkey, and other foreign governments, bringing millions of money to that city, among them the propeller frigate General Admiral, of 4,500 tons, 325 feet long, 55 feet beam, 34 feet hold; the iron-clad frigates Re d'Italia and Re Don Luigi de Portugallo, each of 3,700 tons, and the iron-clad ram Dunderberg, of 5,090 tons, 380 feet long, 72⅚ feet beam, and $22\frac{7}{12}$ feet hold, with a 7¾-foot casemate. Taking the whole period from 1830 to 1861, there were built in the four principal cities of the Atlantic coast about 80 sea-going steamers for the coasting and California trades and on foreign orders, aggregating 120,000 tons in register and costing about $29,000,000. Five-sixths of this tonnage was produced at New York city.

The screw-propeller made its first appearance in the coasting trade at New York in 1841, the Clarion, of about 250 tons, being built in that year for service between New York and Havana. This little vessel was the pioneer of the present splendid fleet of screw-steamers in the coasting trade, and was driven by a 6⅓-foot Ericsson wheel. Philadelphia quickly followed the example of New York, and, in fact, was much more energetic in adopting screw-propulsion. In 1842 six screw-steamers were built at Philadelphia, two of 80 tons each for trading to Baltimore, and four of 200 tons each to run to Albany and Hartford, with 6½- and 6-foot wheels, respectively, all of the Ericsson patent. Other vessels of the same class followed from time to time. After 1850 the larger class of coasting steamers began to adopt the screw, and paddle-wheels were gradually superseded; and since 1865 few paddle-wheel vessels have been built for the coasting trade, except for that part of it which flows through Long Island sound, and in the coasting lines whose service is entirely outside of the bays and sounds the paddle-wheel has now, in 1882, almost entirely disappeared. As vessels increased in size the screw increased in diameter to 8 feet, then to 10 feet, and it is now 14 and 16 feet. The Ericsson patent was in the ascendancy in the earlier years; but engineers were never quite satisfied with it. Woodcroft, in England, and, following him, various American inventors, including Loper, at Philadelphia, had experimented with screws based on the principle of an expanding pitch. In the original propeller the blades were set at right angles to the axis, and had the twist of the real Archimedean screw, while in the Woodcroft and later propellers the blades took somewhat the form of the three- and four-leaved clover, and had a second twist in them, the pitch expanding from the axis to the periphery. The blade has become elongated in the course of the experiments of the last twenty years, and its form has changed from time to time, but the general principle of an expanding pitch has been retained. This type of propeller, usually with three or four blades, but sometimes with two, is now in universal use in America, except on the Erie canal. The shaft for the screw is carried out directly through the deadwood aft and the stern-post, and the pistons of the engines, as a rule, act directly on cranks connected with the shaft. The old system of cog gearing on the shaft has been superseded, except in a few types of small vessels; but in tugs and large steamers, as a rule, the piston acts directly on the shaft. The screw continues to grow into popularity every year, and is gradually being introduced into all branches of steamboat service. On the Hudson it is now employed in many ferry-boats and river freighting steamers, and the ferry-boats at Detroit also are now screw vessels.

In 1838 attention was called to transoceanic navigation a second time by the enterprise of some merchants of England. Great Britain was meeting with much success in her commercial schemes, and a great advance had been made in the construction of hulls and machinery suited to steam navigation over the open sea. The speed of steamers had been increased to 10 miles per hour, and it was then believed that, by employing the best resources of the naval art, steamers could be produced which would successfully contest for the supremacy in trade to the American continent. The most profitable traffic of that day was the carrying of mails, express freight, and passengers between England and the United States, which was almost entirely in American hands. The average time of the packets was from 19 to 21 days from New York to Liverpool and 20 to 26 days back. The Sirius, of 700 tons, was built at Bristol, and the Great Western, of 1,340 tons, at London, both fast and handsome paddle-wheel steamers, and were dispatched to New York from Cork and Bristol in 1838, their voyages being successfully completed in 17½ and 15 days, respectively. The time made going home to Falmouth and Bristol was 17 and 14 days, respectively. This experiment gave great satisfaction in London, securing favorable influence from the government, and the Cunard line of steamers was, in 1840, the product of the agitation on that subject. Several companies were formed, but the plans of Samuel Cunard were the first that received the approval of the government. Cunard built four paddle-wheel steamers of about 1,140 tons each, and he was authorized to carry the mails to Halifax and Boston for a yearly compensation of £80,000. In a few years the line was extended to New York, with a yearly compensation of £145,000, afterward increased to £173,000 a year. The plans of Cunard were carried out in such a manner that they met the expectations of the owners of the line and of the English government perfectly, and seldom has a grand commercial scheme been crowned with such triumphant success. The Cunarders and the various other steamers sent out to trade to New York and Boston got the mails and passengers at once and gathered up all the best of the other business to Liverpool in the course of a very few years; and while sailing packets persevered in competition with them so far as the heavy freight and emigrant traffic was concerned, yet the American lines were compelled to send off their ships, one after another, into other departments of trade, and in ten years from 1838 it had only become a question of time when they should all be withdrawn. Although we had 20,000 vessels at sea, we were compelled to depend entirely on British steamers running to every part of the globe for the transmission of the letters and dispatches of our merchants and ship-owners.

The first large American ocean steamer seems to have been the ship Massachusetts, of 751 tons, owned in Boston, which was sent out in 1844, with steam machinery and screw-propeller to be used as auxiliary power.

In 1847 two American steamers built at New York for Edward Mills by Westervelt & Mackay began the competition from New York to Europe with the British line. Mr. Mills had the encouragement of Congress in this matter. In 1845 the postmaster-general was authorized to contract with him for 20 trips a year to Europe for the sum of $400,000, the theory on which this grant was made being that America could only hold her position on the sea by creating a fleet of steamers. This class of vessels was expensive to build and run, and at the rates of freight and fares then current each trip would net the ships a loss of from $15,000 to $25,000. England was paying her steamers a sum which would make up their losses and give them a profit on their investments, and unless America would do the same thing she would lose the carrying trade. Congress was almost unanimous on this subject, and the contract with Mr. Mills was made, a portion of the money due him on his first year's service being advanced to aid in building the ships. Their destination on the other side was Bremen, and they were to sail once a month in winter and twice a month in summer. The ships were constructed like large sailing packets, but longer, and were simply long square-sterned three-deckers, with one white streak along the sides, painted black at intervals, for ports. The paddle-wheels were placed on the sides in the middle of length, the funnel being slightly forward of them. They were bark-rigged, had a full complement of spars and sails, and were stoutly built, in accordance with the rules then prevalent for sailing ships, but with additional weight and fastenings, in order to withstand the action of the engines. Their specifications were as follows:

| | Washington. | Hermann. |
|---|---|---|
| Length on main deck | 230 feet | 241 feet. |
| Length on spar deck | 236 feet | 235 feet. |
| Breadth of beam | 39 feet | 40 feet. |
| Depth of hold | 31 feet | 31 feet. |
| Average draught of water | 19½ feet | 19½ feet. |
| Custom-house tonnage | 1,640 tons | 1,734 tons. |
| Engines | Two side-lever | Two side-lever. |
| Diameter of cylinders | 6 feet | 6 feet. |
| Length of stroke | 10 feet | 10 feet. |
| Diameter of paddle-wheels | 34⅔ feet | 36 feet. |
| Length of paddles | 7½ feet | 8 feet. |
| Depth of paddles originally | 3⅓ feet | 3 feet. |
| Depth of paddles in 1851 | | 2⅛ feet. |
| Depth of paddles in 1852 | 2⅔ feet | 2 feet. |
| Number of paddles in each wheel | 28 | 28. |
| Average dip of paddles | 6⅓ feet | |
| Number of revolutions per minute | 11 | 11 and 12. |
| Pressure of steam | 14 pounds | 12 pounds. |
| Cut-off | ⅓ stroke | ⅓ stroke at first.<br>3½ feet after change. |
| Boilers | 2 iron flue, side by side | 2 iron flue, side by side. |
| Boilers changed in 1851 | | 4 tubular. |
| Height of chimney above grate | 75 feet | 75 feet. |
| Consumption of soft coal per hour | 3,360 pounds | 3,920 before the change.<br>3,546 after change. |
| Average speed per hour | 11 knots | |
| Trips from New York to Bremen made in | From 12½ to 16 days | From 13½ to 17 days. |
| Trips from Bremen to New York made in | From $11\frac{22}{24}$ to 17 days | From $13\frac{15}{24}$ to 19½ days. |

The original paddle-wheels of the Washington were 37⅔ feet, but they were changed after the first voyage on account of their excessive dip. The paddles being too wide at first in both ships, and the boilers not having capacity enough, new furnaces were added, and various other expensive alterations were made. The ships were excellent sea boats, and as good carriers as ocean steamers were in that day of bulky machinery and large coal consumption; but they never showed great speed, being beaten regularly on their voyages two or three days by the Cunard steamers.

In 1850 the Franklin and the Humboldt were built by Westervelt & Mackay at New York. They were intended for the Bremen line, but were placed by Messrs. Fox & Livingston in the trade to Havre. The details of construction were:

| | Franklin. | Humboldt. |
|---|---|---|
| Length on deck | 263 feet | 292 feet. |
| Breadth of beam | 41⅝ feet | 40 feet. |
| Depth of hold | 26 feet | 27 feet. |
| Average draught | 18 feet | 19½ feet. |
| Tonnage | 2,184 | 2,181 feet. |
| Engines | 2 side lever | 2 side lever. |
| Cylinders, diameter | 7 feet 9 inches | 7 feet 11 inches. |
| Cylinders, stroke | 8 feet | 9 feet. |
| Paddle-wheels, diameter | 32⅛ feet | 35 feet. |
| Length of paddles | 11½ feet | 12 feet. |
| Depth of paddles | 1 foot 8 inches | 2 feet. |
| Average dip of paddles | 6½ feet | 8¼ feet. |
| Number of paddles in each wheel | 28 | 36. |
| Boilers | 4 iron flue, back to back | 4 iron flue, back to back. |
| Boilers—length, height, and breadth | | 27 feet, 11 feet, 14 feet. |
| Height of chimney above grate | 63 feet | 65 feet. |
| Consumption of soft coal per hour | 6,150 pounds | 6,500 pounds. |
| Average pressure of steam | 15 pounds | 15 pounds. |
| Number of revolutions | 13 | 14. |
| Cut-off at | 3 feet | 4 feet. |

The average run of these ships from New York to Cowes was $12\frac{17}{24}$ days, and on the return $12\frac{22}{24}$ days.

Simultaneously with these two projects was conceived the idea of a line to Liverpool. Never beaten in the size, speed, and beauty of their clippers and sailing packets, the ship-owners and capitalists of New York had faith that they could go to the front with steamers also if the government would put them on an equal footing with the English shipping men, as it had ever since independence in regard to other maritime matters. The Liverpool line originated with Edward K. Collins, a man of exceptional enthusiasm and energy of character, who was successful in winning the support of some of the strongest men in New York city for his plan. Mr. Collins went into the matter with the express purpose of producing a line of steamers which would excel the Cunarders in every desirable point and would re-establish the commercial superiority of the United States. In aiding the project Congress was governed by the same idea, and also by a secondary consideration of some weight. A number of expensive steam frigates had been built for the navy, among them, in 1840 and 1841, the Mississippi and the Missouri, which had cost respectively $550,000 and $598,000. In 1843 the Missouri had taken fire at Gibraltar and was totally consumed. Congress shrunk from this expense and loss, and it was conceived that if private citizens could be encouraged to build steam vessels suitable for war purposes great sums of money would be saved to the public treasury. Under the laws of 1845 a contract was accordingly made with Mr. Collins, whereby he was to build and run four steam vessels from New York to Liverpool, making twenty trips per annum, and carrying the mails for $385,000 annual compensation. The ships were to be of 2,000 tons register, of the most powerful character, and suitable for men-of-war in case of need. The Cunarders were then of 1,140 to 1,500 tons register. Mr. Collins was resolved upon unquestioned excellence, and he forthwith prepared to build four ships of 2,800 tons register each of the best materials and workmanship and fitted with machinery of unusual power. The Arctic, of 2,856 tons, the clipper of the fleet, and the Atlantic, of 2,845 tons, were built for him in 1849 by William H. Brown, at New York, under the superintendence of George Steers, a famous builder. The Baltic, of 2,723 tons, and the Pacific, of 2,707 tons, were built by Brown & Bell, of New York. The machinery for these vessels was supplied by the Novelty and Allaire works of New York city.

In selecting a model for his fleet Mr. Collins chose some of the peculiarities of the modern swift propellers. He adopted a straight though slightly raking stem, a long, sharp, wedge-like bow, and a long, easy run. The floor was full, but with easy lines everywhere. The hulls were carried up out of water high enough to inclose the houses and cabins, and gigantic four-deck structures were produced, with a full complement of masts and spars, that loomed up long and large above every other ship in the port of New York and won the unqualified admiration of all who saw them.

The following are the details of construction of the Arctic and the Baltic: Length of keel, 277 feet; length on main deck, 282 feet; depth under spar deck, 32 feet; under main deck, 24 feet; beam, molded, 45 feet; round stern; 4 decks; 3 masts. Frame, white oak and chestnut, with tops of locust, live oak, and cedar; stanchions and timber-heads, white oak; apron, lower and main deck breast-hooks, and inner stern-posts, live oak; keel, white oak, 17 by 20 inches; frames, double, sided 24 inches, molded 21 inches over the keel; lower futtocks sided 12 inches each; all the other timbers 10 inches each. Spacing 30 inches amidships, increasing to 36 inches at bow and stern; floors filled in solid to the turn of the bilge. Ceiling, clamps, and water-way of lower decks, yellow pine; bilge streaks, five in number, 12 inches square, bolted edgewise every 4 feet; clamps of the lower deck, 8 inches; upper deck, 7 inches; all other ceiling under the main deck, 7 inches. Outside planking yellow pine, except the garboards, which were white oak, 15 inches wide and 9 inches thick, copper-bolted edgewise with 1-inch metal every 3 feet, and with two bolts through each timber; all the rest of the planking 5 to 7 inches thick and 6 to 8 inches wide to 3 feet above the main deck. Main keelson, white oak, 32 by 34 inches; side keelsons, yellow pine, except under the engines, where white oak, 22 by 42 inches, was employed; under the boilers, 22 by 27 inches. Lower and main deck beams, sided 12 to 14 inches, molded 13 inches in center, and 10 inches at the ends; spar-deck beams, 6½ by 8 inches in the middle; beams, yellow pine, except that some white pine was used in the orlop and spar decks. Decking, white pine; orlop deck, 3 inches; lower, 3½; main, 4; spar deck, 3 inches. Knees, white oak and hackmatack; bulwarks, 3-inch white pine. The hulls were square-fastened with two ⅞-inch copper bolts and two locust treenails to 20 feet draught of water; above that galvanized iron and treenails were used. The frame was strapped with iron, crossing amidships like a lattice work, the spacing being 4 feet. The engines were two in number, large and powerful, of the side-lever type, having cylinders 95 inches in diameter, with 10 feet stroke. There were 4 tubular boilers, 22 feet long, 14¼ feet high, two 14 feet wide and two 15 feet wide. The smoke-pipe projected 45 feet above the spar deck. There were double furnaces. With 13 pounds pressure the engines had 800 horse-power. The launching draught of the Arctic aft was 10 feet. The hull weighed 1,525 gross tons; spar and top gear, 34 tons. With an ordinary cargo she drew 20 feet of water aft and about 6 inches less forward, and would carry 250 passengers and 2,000 tons of freight.

The best engineering talent of the day was consulted with regard to every point about the hulls and machinery of these four noble vessels, and in every detail they were of excellent design and workmanship and in appearance imposing. Service began with these ships in 1851.

The Cunard steamers were making the voyage from New York to Liverpool in from 10 days 6 hours to 14 days 3 hours, averaging in the year 11½ days. From Liverpool to New York their time varied from 10 days 2 hours to 16 days 20 hours, averaging 12 days 9 hours. The Collins vessels beat this time from the start by an average

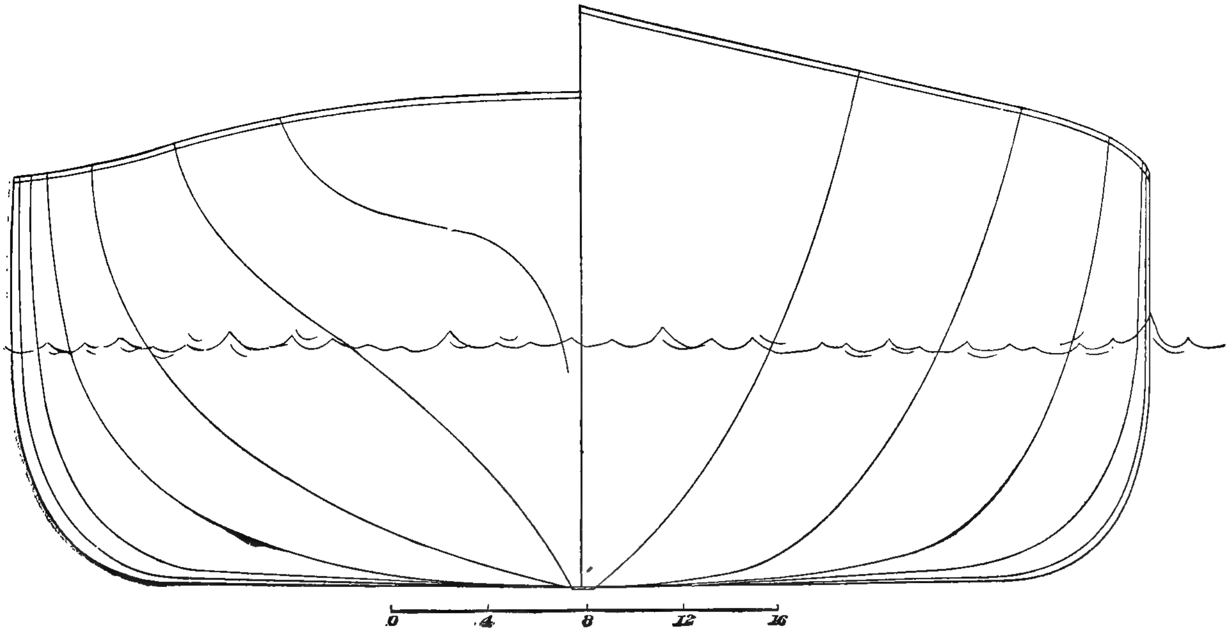

Fig. 45.—Lines of eastern river steamboat.

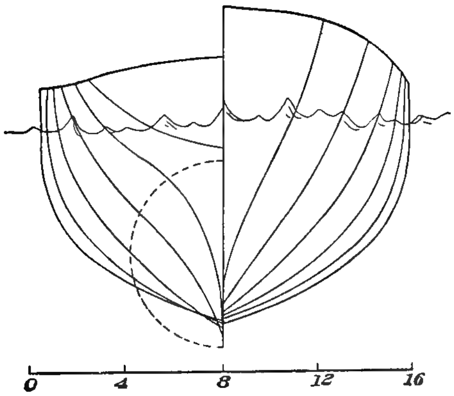

Fig. 46.—Lines of harbor tug.

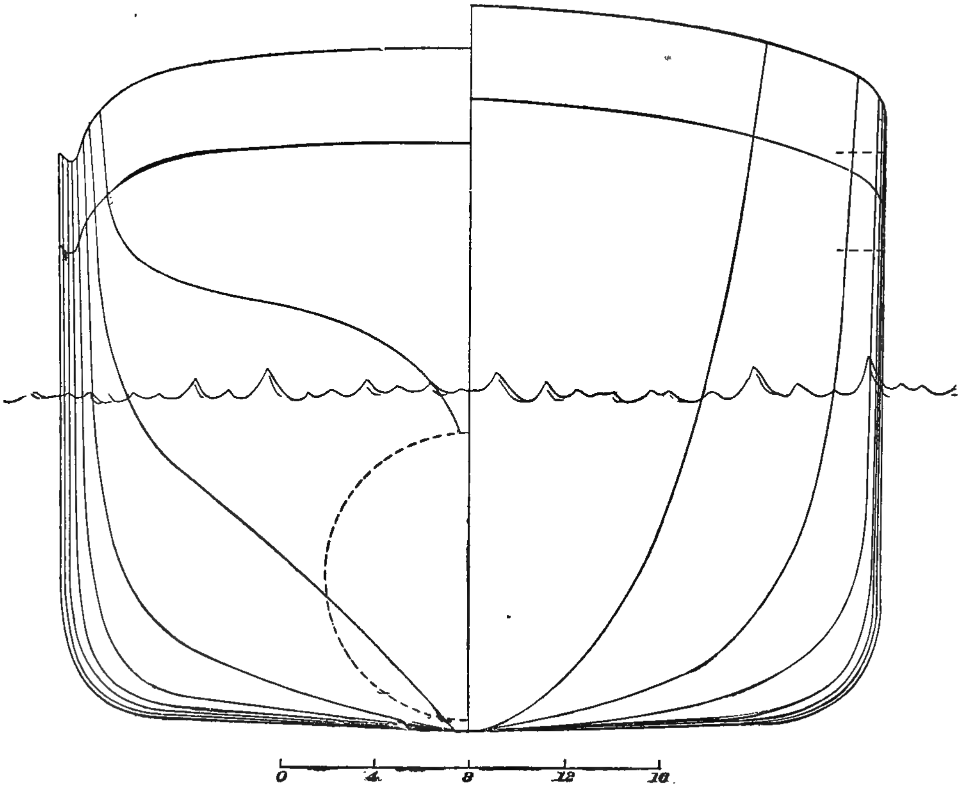

Fig. 47.—Lines of northern lakes propeller.

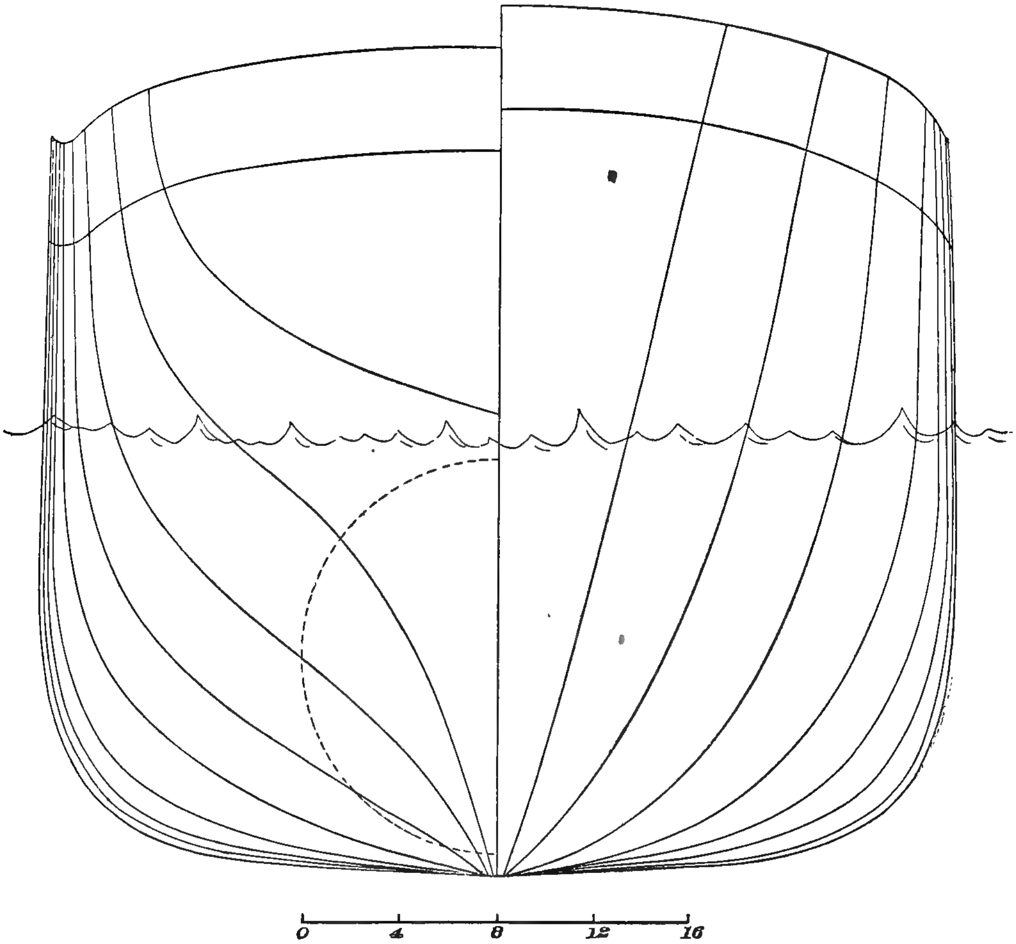

Fig. 48.—Lines of fast coasting propeller (iron).

of about one day, their voyages to Liverpool being made in from 9 days 17 hours to 12 days 9 hours, an average in a year of 10 days 21 hours; the return trip was accomplished in from 9 days 13 hours to 13 days 17 hours, the average being 11 days 3 hours. The ships had the confidence of the public, and were liberally patronized. From January to November, 1852, inclusive, for instance, they carried 4,306 passengers, as against 2,969 who went by the Cunarders. Their competition for freights brought the rates to Liverpool down from £7 10*s*. per ton to £4; a great public benefit, because the United States were importing enormous quantities of European manufactures and paying the cost of freighting to this country. The voyage to Europe was shortened by these ships and travel was promoted, and in eight years from the time they began the passenger traffic had increased fivefold.

The Cunard line began to build new and large steamers of greater power the moment the Collins line was undertaken. Collins' mail pay was increased to $858,000 a year, and greater speed was required of him. He fulfilled the requirement, and the company that backed him spent large sums of money in perfecting their engines and machinery and maintaining their boats in full efficiency. In 1854 the Arctic was lost at sea by a collision in a fog with the French steamer Vesta, only 45 out of the 368 people on board ever reaching land. The Pacific was lost in 1856 with all on board, numbering 186 persons, and a valuable cargo. The ship with her contents was insured for that trip for $2,000,000, and nothing was ever heard of her after leaving Liverpool, in January, 1856. Neither was built with bulkheads. Collins acted with energy in replacing the Arctic. In 1855 he built the colossal Adriatic, of 4,144 tons register, 345 feet long, 50 feet beam, and 33 feet hold, at a cost of $1,100,000. The ship cost more than was expected, owing to alterations in her machinery and her long detention in port while the changes were being made; but she was a good vessel, fast and capacious, and once in 1861 made a trip from Saint John's to Galway in the unprecedented time of 5 days 19¾ hours.

Beginning in 1853, a movement had sprung into existence for canceling Collins' subsidy. This agitation went on, until in 1856 the pay of Collins was reduced to $385,000 a year, and in 1857 it was withdrawn altogether by the refusal of the government to renew the contract; the contract with Mr. Mills also expired. Meanwhile the English people had been organizing new lines to America, and Collins and Mills could not contend with them single handed, as their round trips cost from $40,000 to $65,000 each, and ordinary receipts were from $10,000 to $16,000 less per trip. The Cunard line had a subsidy of $866,700 a year and the other English lines a generous compensation, though not so large. The odds being too great, the Collins and Mills ships were withdrawn and sold, and competition for the mail, express freight, and passenger business to the northern ports of America was deliberately abandoned to English, French, and German steamers. The war of 1861 broke out in the United States four years afterward. During and after that war the English steam companies extended their operations, and have since been gaining steadily in the trade of the whole Atlantic coast of North America. Beginning in 1856, Mr. Vanderbilt, of New York, ran a steamship bearing his name and two others to Havre for a short time, but afterward sold the vessel to the United States government. In 1866 an American company was formed in Boston, and two large oak-built wooden screw steamers, the Erie and the Ontario, were constructed at Essex and put into the business from Boston to Liverpool; but the English steamers instantly lowered their rates of freight, and after a very few voyages the two vessels had to be withdrawn.

A line was afterward started from Baltimore in connection with the Baltimore and Ohio railroad. This also had a brief existence.

The only other American steamship line to Europe was that which is still running from Philadelphia to Liverpool and has four iron propellers of American build. It was started in 1873. The ships run in connection with the Pennsylvania railroad, which owns the principal part of the stock of the company. The ships will be described in the chapter on iron-ship building.

The steam vessels of the United States were confessedly superior for transatlantic service to those of European build as much as the American sailing clippers were to their foreign rivals. Owing, however, to the artificial manner in which the steam shipping of Europe was brought into existence and maintained and the want of government compensation American owners of ocean steam tonnage were forced to withdraw from the traffic to Europe, and our builders were compelled to rely entirely on coasting trade for business.

Very few other attempts have been made to put American steamers into foreign trade. The coasting lines to the South have called at Havana in Cuba and have pushed their voyages to Mexico. Two or three attempts have been made to trade to Brazil. Commodore Garrison, of New York, ran some wooden steamers after the war from New York to Brazil for a few years with the aid of a subsidy, and John Roach ran a line of iron steamers during the years from 1878 to 1881.

The Pacific Mail has sent steamers to the Sandwich islands, Japan and China, and Australia. These ships will be more particularly referred to under the heading of iron vessels. No other attempts to run steamers in foreign trade have been made, except to Mexico and the West Indies.

As has already been seen, the steam craft of the United States were all built of wood in the earlier years. The frames were of white oak, chestnut, live oak, and locust; the planking was at first oak, but in time yellow pine came to be employed extensively at the ocean ports for the same purpose, as also for keelsons, beams, ceiling, etc. White pine has always been used for decking, houses, keelsons, and beams. On the western rivers white pine and poplar have been the light woods employed, nearly all the rest of the boat, outside and in, being of oak.

On the northern lakes the boats have been framed, planked, and ceiled with oak, beams, decking, and houses being of white pine. Of late iron has come into use extensively for hulls on the sea-coast and the northern lakes, and for many years past all the coasting steamers have been built of it; but this material is, as yet, little used on the western rivers, owing to the abundance of wood and the smoothness of the waters navigated. For the rough waters of the sea, and even for the smooth waters of deep rivers, iron is far superior to wood for steam vessels; and although its cost is high, it is now coming rapidly into use on the coast in all classes of boats, large and small. Tugs, ferry-boats, yachts, excursion steamers, Sound boats, and Hudson River boats, as well as coasting propellers, are now built indiscriminately of iron.

The localities in which steamers are now built in America, and the extent of the industry, are given below.

## OCEAN COASTS.

In Maine steamboat building is limited. Small fishing steamers are constructed at Boothbay, Eastport, Portland, and Kennebunk as they are needed from time to time, and a few tugs are produced every year. Both classes of boats are propellers. Occasionally a river or coasting steamboat of the ordinary type, with side paddle-wheels and walking-beam engine, is required, and a number of small propeller launches have been made for summer travel between local points among the islands of the coast. Latterly in Bath whale-ships have been supplied with engines of small power, with a propeller wheel capable of driving the ships about 6 miles per hour. In 1882 a freighting sail ship was supplied with the same power as an experiment, for use in the latitude of equatorial calms. So far as Maine is concerned, steamers are only a small item in the product of the ship-yards.

Essex is the principal place for building steamers in Massachusetts. Wooden propellers and tugs are frequently produced in that town, chiefly on Boston account. At Boston the work in this line is now entirely confined to ferry-boats and pleasure boats.

In Rhode Island there is an establishment at Bristol, called the Herreshoff Manufacturing Company, which builds a special class of small swift propellers to serve as vidette boats and pleasure yachts. These boats are modeled, constructed, and fitted out with a view of getting the highest possible speed, while at the same time leaving room for large and comfortable cabins for the guests. Two vidette boats built for the English government were 48 feet long, 9 feet beam, and 5 feet deep from the gunwales, and were framed with oak; the planking was fastened with brass screws. The engines were of 125 horse-power, and in each case the whole boat with machinery aboard weighed only 7 tons. With a pressure of 140 pounds of steam and the propeller making 550 revolutions per minute the boats ran at a speed of 17⅔ miles per hour. On their arrival in England they were each supplied with one Gatling gun, and were employed for the torpedo service. The late Herreshoff boats have been built with iron frames and wooden planking, and one of them has attained a speed of 25 miles an hour.

In model the Herreshoff boats have been varied, first one way, then another, as in regulating a watch, until the exact result has been attained at which the designer aimed. The hulls are long, low, and sharp from keel to gunwale, increasing in beam above the water. The water-lines are as sharp as practicable, and the draught of the hull forward is 2 or 3 feet less than it is aft. The hulls are built as lightly as possible, in order to obtain light draught, and the workmanship is correspondingly careful in order to obtain strength.

A description of the steam-yacht Leila (Fig. 49), built in 1878, will illustrate the Herreshoff idea. The boat is 100 feet long over all, and 95 feet 5 inches long from the forward edge of the stem to the after side of the stern-post on the water-line. Extreme breadth on deck, 15⅓ feet; on the water-line, 11¾ feet; depth of hull amidships from lower edge of planking to top of deck beams, 5 feet 10 inches; draught forward, 2 feet 7½ inches; aft, 5 feet 1½ inches. Midship section, 54½ feet from the forward edge of the stem. Coefficient of water-line, 62 per cent.; of midship section, 56 per cent.; displacement, 37 per cent.; dead rise, 21½°. Angle of entrance at bow, 17°; of run, 28°. Frames, iron, 1½ by 2¼ inches, ¼-inch thick; deck beams, 2 by 3½ inches. Stem, oak, 6 inches thick; stern-post, oak, 7 inches thick. Planking, pitch-pine, 1¼ inches; keel, oak, 7 by 10 inches; deck plank, $1\frac{3}{16}$ inches. Bulwarks, very light, 30 inches high. The total weight of the boat, with machinery, water, and coal aboard, was 37½ tons net. A brass propeller wheel was put in, 4 feet 7 inches in diameter, four-bladed, 9¾ inches long, with a pitch of 8 feet. The draught of water of the hull proper was so small that in order to bury the screw sufficiently the shaft was fitted very near to the top of the keel. The blades projected below the keel, which required the addition of a skag to protect the screw and support the metallic shoe underneath. The skag was 15½ inches deep below the bottom of the keel at the stern-post and 5 feet long on the keel, being sided 7 inches. In some Herreshoff boats the skag is replaced by a bent brass arm, which is riveted to the keel and extends downward and under the screw and then up again to receive the heel of the rudder-post. The rudder was of metal, counterbalanced, the axis being placed at one-quarter the breadth from the forward edge. The engine was compound condensing, and had 2 vertical cylinders, placed side by side, one of them 9 inches in diameter, with 18 inches stroke, the other 16 inches in diameter, with 18 inches stroke. The pistons were connected with cranks on the shaft at right angles to each other. A surface condenser was employed, consisting of a single copper pipe running outside of the vessel under water around the stern-post. The boiler is a peculiarity of all the Herreshoff boats. It has a circular furnace, into which descends a double coil of continuous wrought-iron pipe 1⅞ inches in diameter and $\frac{3}{16}$ of an inch thick, arranged as if it had been wrapped around two cones, one fitting beneath the other. The flames play about these coils; all the water in the boiler is in this pipe, entering at one end as water and going out at the other as steam. The advantages of this boiler are light weight, economy of fuel, quick raising of steam, and security against explosions. In the Leila the combustion was 2¼ pounds of coal per hour per horse-power. A pressure of 125 pounds was maintained in the boiler with 350 pounds of coal per hour, the speed of the boat being 14 miles an hour, and it required only from 3 to 5 minutes after starting the fire to make steam from cold water to work the engine. A small house was built upon the Leila to cover the machinery. The pilot-house was in front of it, and the cabin aft.

The invention of the safety-coil boiler has led to a wonderful multiplication of steam yachts throughout the whole of the United States within the last ten years. On all the small inland lakes, especially in New York state, where rowing and sail boats have been owned by young men for years in great numbers, the steam yacht has sprung into great popularity. The boats seldom exceed 25 feet in length, and would not be large enough to register in the custom-house, even if they were subject to it, under the laws of the United States. They are usually open boats, carry from 10 to 20 persons each, and are the popular luxury of prosperous men who live near romantic lakes. The hulls of these boats are always built entirely of wood, after the fashion of large rowing barges, and sometimes have cabins, but usually have awnings only.

The steamboat building of Connecticut now consists only of an occasional vessel at Noank, a few river boats on the Connecticut river, and a small fishing steamer now and then at South Norwalk. A large number of river boats and war vessels have been built in times past upon the Connecticut, but the industry is nearly at an end.

On the Hudson river small boats of the ordinary side-wheel pattern are built at Newburgh, Rondout, and Athens from time to time as they are needed for local traffic. Many of them are for towing only, having no houses, except simply to protect the machinery and wheels and accommodate the officers and crew. The hull is low in the water, the deck is open, and the cabin is supported aloft by a bridge between the wheel-houses. Iron hulls have latterly been made at Newburgh for these boats. The large passenger boats are now nearly all made with iron hulls at the yards on the Delaware, and as the tendency is strongly in this direction at present the wooden steamboat building of the river is expected steadily to decline. Oak and pine are so costly upon the upper Hudson that iron will now make advances.

Since the adoption of iron for the hulls of the Long Island Sound boats and the coasting propellers steamboat building has steadily declined at New York city, and all the large business has been transferred to the Delaware river. Several large engine and boiler shops still exist, and an immense amount of work, both new and old, is done by them every year. Many of the Delaware river hulls receive their machinery in New York city, while the Morgan iron works supply nearly all the engines required by the iron propellers built at Chester. Excursion and river steamers for New York use, wherever built, also buy their machinery largely in the city; but so far as the building of the boats themselves is concerned the business has nearly disappeared, all that remains being the production of wooden tugs, small propeller yachts, wooden ferry-boats for local use, and an occasional excursion steamer of the river type for carrying passengers to and from the summer resorts in the immediate vicinity of the city. These vessels are seldom built within New York city itself, but are made in the ship-yards scattered along the water front of Brooklyn all the way from Hell Gate to the lower part of Gowanus bay. A few tugs are made at Tottenville, at the lower end of Staten island.

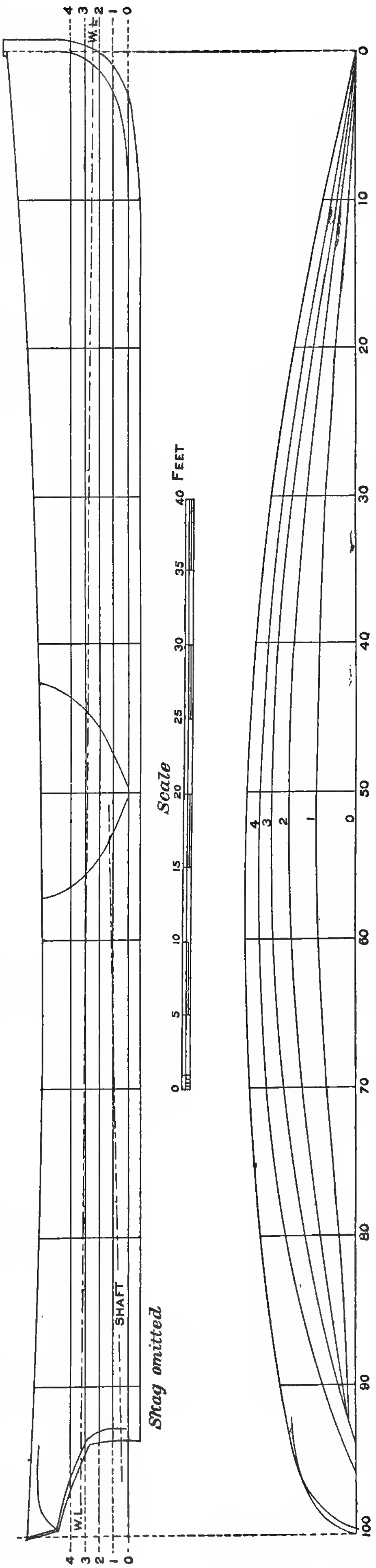

Fig. 49.—Water-lines of the steam-yacht Leila.

Bristol, Rhode Island, August 23, 1880.

The ferry-boats of New York are double-enders, sharp and swift, with side wheels, the deck highest amidships and dropping about 2 feet at the ends in a gradual curve. They are all of one general type, varying only in size. The machinery is stowed away in the hull as much as possible. The engine is low-pressure condensing, is often built with horizontal cylinder and piston, has a long stroke, and acts quickly. A narrow house rises in the center of the deck to shelter the machinery and cover the stairways to the hold, and on each side of this the deck is open for 10 feet, in order to allow horses and wagons to pass from end to end of the boat. The cabins for passengers are outside of the two gangways, one on each side of the boat, and extend two-thirds of the length, each cabin being in turn divided nearly in two by the wheel-house, which rises through it and leaves only a hallway 3 feet wide between the forward and after halves of each cabin. A roof covers the whole of the cabin, engine-house, and spaces between for teams, and the pilot-houses are on this roof, one at each end of the boat. A portion of the deck at each end is clear of structures of any kind, except the posts and chains needed to prevent the passengers and teams from crowding each other overboard while in the stream. These boats are an important feature of the business life of New York city. They run across the North and East rivers at numerous points, and from the city to Staten island, day and night, at intervals of from 5 to 30 minutes, according to the magnitude of the travel on each particular route. A large boat will carry 400 passengers and about 50 teams with wagons on a single trip. In the construction of this class of boats the New York builders have attained special excellence. The hulls are strongly but lightly framed with oak and chestnut and planked with oak, yellow pine being used for the rest of the vessel except the houses and the decking, which are of white pine and spruce, with cherry, black walnut, etc., in the joiner work of the cabins. They cost from $50,000 to $90,000 each, according to the size of the hull and the luxury of the cabins. The Jersey ferry-boat Princeton, of 888 tons, built in the census year, was one of the large class. She was 192 feet long, 36½ feet beam, and 12½ feet deep in the hold, and to build her it required 52,000 feet of oak, 10,000 feet of chestnut, 103,000 feet of white pine and spruce, and about 10,000 feet of yellow pine. Her machinery weighed 130 tons. Complete, the boat cost $85,000.

Steamboat building has taken the same course at the cities south of New York as it has at the latter port since the introduction of iron hulls, and the business has been absorbed in large measure by the iron ship-yards. Wooden boats are less in demand, and are only built for those whose capital is small and who need them for some special service. The yearly production is about as follows: At Camden, New Jersey, a few tugs, not to exceed five or six; at Philadelphia, two or three tugs, a yacht or two, and an occasional coasting propeller and small side-wheel steamboat; at Wilmington, an occasional tug and steamboat, some years none; at Baltimore, a steamboat every year or two for the Chesapeake bay business and three or four tugs; at Norfolk, sometimes nothing, sometimes a tug or a side-wheel steamer; at Elizabeth City and Washington, North Carolina, Charleston, South Carolina, and other points on the southern coast, an occasional light-draught stern-wheel boat, like a steam scow, for some local river service; at New Orleans, stern-wheel boats for the river and bayou trade. The whole wooden steam tonnage annually built at all these ports combined does not now equal the amount which was produced at either New York or Philadelphia alone in a single busy year before 1861.

On the Pacific coast steamboat building has developed slowly, owing to the lack of white-oak timber, which was long considered by builders the only wood fit for the hulls of the vessels. The practice has prevailed at San Francisco of ordering the finest of tugs and side-wheel boats in the East, where there has been a supply of oak timber, and where the art of constructing strong and light hulls has been thoroughly understood. Boats thus ordered have proved costly. In 1879 two side-wheel ferry-boats were completed at Oakland, on San Francisco bay, the hulls of which were gotten out in the East from oak and shipped by sailing vessels around cape Horn. These were the Garden City, of 1,080 tons, 210 feet long, 37 feet beam, and 13½ feet hold, and the Bay City, of 1,283 tons, 230 feet long, 36⅔ feet beam, and 13½ feet hold. The boats were put together in Oakland, the houses being built on them from Pacific coast woods, and the expenditure for labor, at $3 and $4 a day, was $33,000 on each boat. The iron was bought from a rolling-mill in San Francisco, and the engines for one of the boats from the Risdon iron works. When completed they cost $130,000 and $150,000 respectively, or one-third more than they could have been built for in New York city. The expense of this plan has led to the building of local vessels at home. A great variety of steam craft—tugs, ferry-boats, transfer steamers, propellers, and launches—have been made from Pacific coast fir within the last five or six years, one of the largest of them being the Transit car-ferry, built at the Central Pacific ship-yard in Oakland. This large vessel is 338 feet long over all, 316½ feet between perpendiculars, 40 feet beam, 75 feet wide over the guards, and 17½ feet deep from the beams to the keel, and is supplied with vertical condensing engines with 60-inch cylinders and 11 feet stroke. The wheels are 29 feet in diameter, carrying 20 paddles 12 feet long and 20 inches wide. A still larger one is the Solano, of 3,549 tons, a side-wheel transfer boat employed to ferry the overland railroad trains across the river. She is the largest transfer boat in the United States. Her dimensions are: Length, 407 feet; beam of hull, 65½ feet; hold, 17½ feet. Four tracks are laid upon her decks, capable of receiving 48 cars and engines. In the Solano sticks of fir were used for keelsons 150 feet long and 24 inches square. The engines are placed amidships, one behind the other, and the wheels, instead of being placed at the ends of one long paddle shaft reaching across the boat, are situated opposite the engines that drive them. The boats built of native fir have done so well that there is now no probability of further orders being sent to the East, except, possibly, for engines. There are many handsome oak and pine tug-boats in San Francisco bay, the Monarch, of 195 tons, standing at their head. She was built on the Delaware in 1873, and is about 95 feet long, 20 feet wide, and 16 feet deep, drawing $14\frac{1}{2}$ feet of water. Fir has been found latterly to answer as well for this class of vessel as any other timber, and as iron and machinery are now produced in San Francisco at moderate cost the city appears to be nearly independent of the eastern ship-yards.

A large wooden propeller was building in the upper part of San Francisco in the census year, and has since been launched. She is the most ambitious steamer built on the coast, and as she appears to be a complete success her construction is expected to give an impetus to the building of coasting vessels. The Mexico (Fig. 50) is a three-decker, 288 feet in extreme length, 275 feet between perpendiculars, 36 feet beam, and 28 feet deep below the spar deck, and is constructed entirely of Puget Sound fir with the exception of a few scattered pieces, which are of eastern white oak and Pacific Coast laurel. A statement of her scantling will allow a comparison to be made with oak and pine propellers in the East. The keel is in three lengths, 76, 106, and 108 feet, 16 by 22 inches square, with 11-foot scarfs and a 4-inch shoe. The keelsons are in pieces, some of them from 113 to 117 feet long. The main keelson is 16 by 23 inches, in three depths, with two $1\frac{3}{8}$-inch bolts clear through each frame and the keel; the sister keelsons are single logs of 16 by 23 inches, fastened with $1\frac{1}{8}$-inch iron bolts. The frames are spaced 27 inches, floors and futtocks sided 10 inches and top timbers 9 inches, and are molded 18 inches over the keel, 15 inches at the bilge, and 6 inches at the upper deck. There are two floors to each frame amidships, filled in solid under the engines, and at each end there are at least 8 frames with floors cut from natural crooks. The frames are bolted to the keel with two $1\frac{1}{8}$-inch iron bolts. The stem and apron are of white oak and laurel; the stern-post is of oak, molded 22 inches, and sided 16 inches at the keel and 28 inches at the center of the propeller shaft. The rudder-post is sided 13 inches at the keel and 16 inches at the counter, and is molded 18 inches. Both posts are secured to the keel with composition braces, one on each side, and one is fitted on top of the keel within the propeller space, each brace cast in one solid piece. The after deadwood and shaft box each have a heavy knee on the stern-post. Ceiling of the floor, 5 inches, fastened with $9\frac{1}{2}$-inch spikes; on the bilge 12 inches thick, in four streaks, each 14 inches wide; thence to the lower deck, 10 inches; the 10- and 12-inch stuff edge-bolted with $1\frac{1}{8}$-inch square iron in every frame space; from the lower to the main deck, 6-inch ceiling, edge-bolted with 1-inch square iron, with two $\frac{3}{4}$-inch bolts through each frame; from the main deck to the rail, 3-inch ceiling, spiked on. Clamps of the lower deck, 14 by 16 inches, in long lengths; main deck, 12 by 16 inches; upper deck, 8 by 12 inches. Water-ways of the lower two decks, 14 by 16 inches, in long pieces; plank-sheer, 4 by 14 inches. Planking: garboards, 10 by 16 inches and 7 by 14 inches; 5-inch planking to the main deck; 3 inches above that, all in lengths of from 40 to 100 feet, fastened with copper and locust treenails below the 14-foot water-line and with galvanized-iron spikes above. Beams of the lower deck, spaced $4\frac{1}{2}$ feet, 12 by 14 inches square in the middle and 12 by 9 at the ends. Main deck beams, 12 by 12 inches square, tapering to 8 by 12 at the ends; spaced $4\frac{1}{2}$ feet; upper deck beams 7 by 10 inches square, tapering to 5 by 10 at the ends. Knees of the lower deck, one hanging at each beam end, sided 10 inches, and 9-inch knees for the main deck. Two 11-inch hooks and pointers in the lower hold forward, with an 11-inch hook under each deck. The frame is single-strapped with $4\frac{1}{2}$- by $\frac{3}{4}$-inch iron, set 6 feet apart, running from the main deck to the lower turn of the bilge, and riveted into a 5- by $\frac{3}{4}$-inch iron band running clear around the ship at the main deck. Amidships, four sets of straps cross each other at right angles. The decking is $4\frac{1}{2}$, 4, and $1\frac{1}{4}$ inches, coming up from below. Three iron bulkheads of $\frac{1}{4}$-inch plates are fitted into the ship abaft the chain locker, forward of the coal bunkers and aft of the engines respectively. There were used in this vessel 70 tons of salt, 300 tons of bolts and straps, and about 900,000 feet of fir timber, and she cost $250,000 ready for sea. Her model is a good specimen of the coasting propeller of the present day.

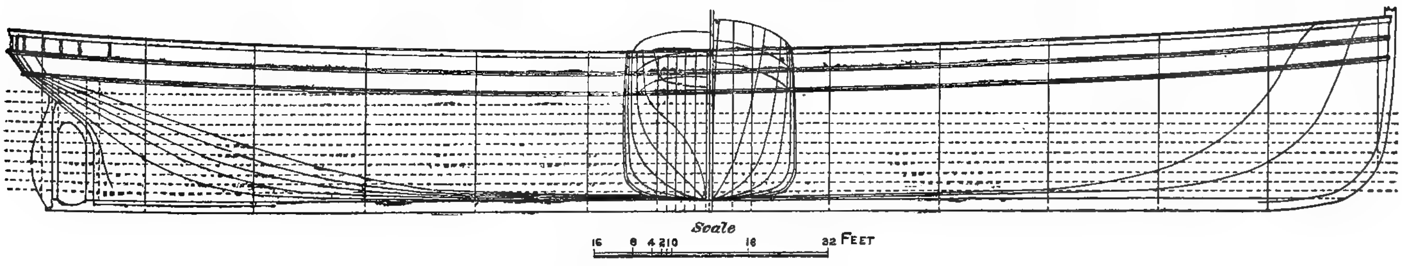

Fig. 50.—STEAMSHIP MEXICO.

Designed and built by Dickie Bros., San Francisco.

## ON THE COLUMBIA RIVER.

From the Cascade mountains to the sea-coast Oregon is covered with an almost unbroken and impenetrable forest of yellow fir, cedar, pine, hemlock, and hard wood; but in the valley of the Willamette, and along the Columbia and the Snake rivers, eastward of the mountains, the country is open and is suited to agriculture. Population has followed the coast and the rivers. The first settlements were made at Astoria, near the mouth of the Columbia, by fur traders, and agriculture in the valleys and lumbering both on lands adjoining the rivers and at a few points on the sea-coast have been the occupations of the people.

The great highways of travel and trade in Oregon have been the noble Columbia river and its branches. Ocean steamers from San Francisco ascend the river to Astoria and Portland, and the merchandise and passengers which they bring have been distributed to other towns by a numerous fleet of local steamboats. The same boats, seconded by river barges, have brought back the grain and other produce destined for export, either to San Francisco by steamer or to Europe by sailing vessel. There is a small industry in building ocean vessels at Coos bay, on the coast, which has already been described in the chapter on sailing vessels. It now remains to describe the steamboat and barge building of the Columbia and its branches.

It is reported that the first steamboat building on the rivers was in 1850; since that date Portland has built many steamboats, and others have been built at Oregon City, Salem, The Dalles, Celilo, and Wallula. There has also been some work at Astoria. The excellence of yellow fir was first exemplified by experience at Portland. Among the early vessels was the side-wheel steamer Eliza Anderson, built in 1858 in that city. Winter-cut timber was used in her frame, and the boat stood on the sandy beach of the river, exposed to the sun and weather, one whole summer before she was planked; thus she became thoroughly seasoned, and proved an excellent and durable boat. About five years ago she was taken out of the water at Seattle, Washington territory, for repair, and her copper taken off, and it is said that after the vessel stood on the ways long enough for the bottom to dry the planking began to drop off, the fastening having become corroded by the galvanic action of the copper and salt water. The plank and the frame, however, were both bright and sound, and even aft of the wheels, where decay is most likely to take place, the fir was almost as good as new. A number of the other early boats showed the same longevity even when not salted; some did not, but the decay of the timbers has been traced to the fact that the wood was cut at the wrong season of the year and was not properly seasoned. The builders of the Columbia have had to learn by experience what they might have learned from the yards on the Atlantic coast, that timber proves lasting only when cut in the months when the sap had ceased running and when properly seasoned after being cut. When experiment had shown that the fir was a good material, steamboats, barges, and schooners were built as fast as they were required by the local trade of the state. In 1850 there were built 2 schooners, of 122 tons; in 1870, 1 schooner, 5 sloops and barges, and 11 steamboats, a total of 988 tons; in 1879, 11 steamboats, aggregating 5,383 tons; in 1880, 1 schooner, 2 sloops, and 13 steamers, a total of 2,466 tons; but since 1880 there has been an advance.

The first steamboats on the rivers were side-wheelers; but they were not the best for the business of these shallow rivers, and the later ones have been stern-wheelers. The Portland builders have been successful in producing a class of boats which vie with those of the Ohio in light draught, carrying power, and speed combined. It will be noticed elsewhere in this chapter, that Ohio river boats have a rounded bow, with a long rake to the stem, which fits them for making landings alongshore, as the nose of the boat can be pushed up to the bank almost anywhere. The bottom is straight clear aft to the stern-post, and the run is formed by fitting two stern-posts, each carrying a rudder, into the stern 20 feet apart, and then modeling the stern as in ocean vessels, but suiting the requirements of two stern-posts. On the Columbia the boats are built differently. Forward, the keel begins to rise 15 or 20 feet from the bow and joins a rocker-stem; aft, the stern is not molded, but the bottom begins to rise 20 or 30 feet from the rudder and nearly reaches the surface of the water at the stern, which, above water, is cut off square. The boat is prevented from sagging by iron rods hooking into the keelsons away forward and aft and running up through decks and cabins to the top of central masts, and when they are in place they are screwed up until they take the weight off the bow and stern, and the vessel then keeps her shape perfectly.

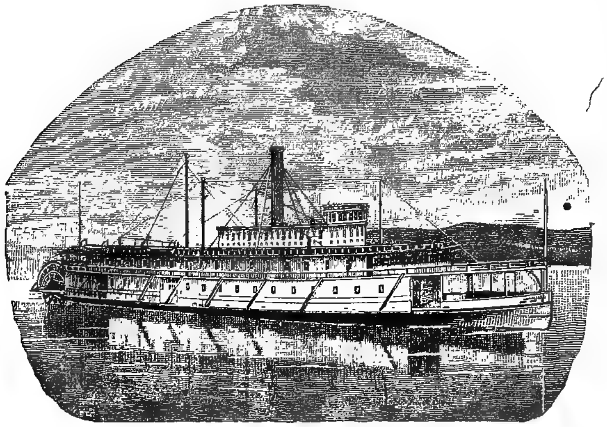
Fig. 51.—O. R. & N. Co.'s steamer Wide West.

One steamer built in the census year was the D. S. Baker, which was 165 feet long, 36 feet beam, and 5 feet hold, with a sharp bow and a square stern. The house covers the vessel from the stern forward to within 20 feet of the bow. The engines and the cargo space are on deck, and the cabins for passengers are built above the main house. The hull measures 302 register tons and the houses 408, a total of 710 tons. The stern-wheeler Hassaloe is 160 feet long, 31 broad, and about 5 feet deep. She has smaller houses, and registers 461 tons. The Frederick Billings is 199 feet long, 37 broad, and 7 feet deep in the hold, has towering cabins, and registers 1,236 tons. The smaller Columbia river boats range from 60 to 75 feet in length and 15 to 18 feet beam, and are each from 4 to 5 feet deep in the hold, the register being from 40 to 60 tons. The handsomest vessel on the river at present is the stern-wheeler Wide West (Fig. 51), built for passenger service. She is 215 feet long in the hull, 12 feet deep, molded, just aft of the bow, 10 feet deep amidships, the stern rising until the molded depth is only 7½ feet. She is of 1,201 tons register. The guards are 3½ feet wide, and she has a long, sharp bow, the fore part keeping on an even line with the keel and the boat sitting up forward well out of the water. The lower house covers the whole of the deck to within about 25 feet of the bow, and shelters the boilers, engines, and cargo. On the deck of this house is built a long, handsomely-furnished cabin and dining-room, with state-rooms on each side. As on the Long Island Sound steamers, there is a promenade around the cabin and out to the bow; above the cabin there is a short texas, and on top of that is the pilot-house. The Wide West is a fast, comfortable boat, and her speed has not been beaten on the Columbia river. The hulls of the river boats are made of yellow fir; the houses of white cedar and fir. The boats all have fore-and-aft bulkheads, side keelsons, and hog-chains, as in the Ohio river boats, the main hog-chains, however, generally running up to a tall mast in the center of the vessel. There are no bridges across the Columbia to interfere with the freedom of the builder in choosing the best arrangement of hog-chains and braces.

The barges built for river service are of considerable size, and are used for bringing down grain in bags to Portland, Kalama, and Astoria for shipment to Europe. Several are each 150 feet long, 35 feet beam, and 4½ feet deep, square at both ends, and registering 260 tons, while others are 185 feet long, 36 feet beam, and 7½ feet deep, measuring 360 tons each. The Wyetchie belongs to a larger class. She is 200 feet long, 44½ feet beam, and 10 feet deep, with a house on deck 18 feet long, 9 feet broad, and 7½ feet high. She is sharp at both ends, and registers 621 tons. The barges nearly all have small houses on deck, as they carry deck loads of grain in bags; they are towed by stern-wheel steamboats. The grain business of the Columbia is rapidly increasing.

Some of the little schooners of the river are fitted with small propeller engines, for use when going against the tide and the current of the river. They trade from point to point on their own account, dealing in butter, eggs, and produce.

At Portland, on the Willamette river, near the Columbia, there are five boat-yards. The largest is owned by the Oregon Railway and Navigation Company, and is employed for the building of steamboats and barges. A large barge was building in the census year. The yard is well equipped. This company is now making a large fixed dry-dock in East Portland, in which the iron coasting steamers of the line to San Francisco can be docked and repaired. E. Sorenson, formerly of Manitowoc, Wisconsin, was building a propeller for river service 130 feet long on deck, 28 feet beam, and 10½ feet hold, to cost $40,000. The frame of this vessel was cut out with a band-saw, at a cost of $300 for labor and use of the saw. A frame of the same size was hewn out by him on lake Michigan, where wages are one-half what they are here, at a cost of $980. The butts of the planking were secured in this propeller by through bolts, the rest of the fastening being spikes and treenails, and the ceiling was put on with treenails. This vessel was built entirely of yellow fir, which cost $12 per thousand for frame flitch and $20 per thousand for decking, planking, etc., dressed on four sides, and these were the ruling prices for ship timber in Portland. In one yard there was building a government stern-wheeler 150 feet long and 28 feet beam. This boat had a rocker stem and keel forward, and the bottom rose several feet aft, the height of the sheer from the base line being 10 feet at the bow, 6 feet amidships, and 8 feet aft. Wages were $2 50 and $3 a day for laborers, $3 50 a day for young carpenters, and $4 a day for the majority of men in the yards. There is some repairing of boats at Portland, and one of the yards has a small railway.

At Oregon City and at Celilo there are marine railways for the Oregon Railway and Navigation Company's boats. The yards at The Dalles, Wallula, and Salem occasionally build small vessels.

At Astoria there is one regular yard, but some small building is done from time to time by various persons there and at Oneatta and Columbia City in the district. The work is of a scattered and fragmentary character, but it is enough to train in ship-yard work many persons whose services may become available at any day when there is a demand for ship-building. Ships of the largest class could be built at Astoria, Portland, and other good points in the Columbia River valley. This valley is exporting 200 or 300 cargoes of wheat to Europe annually, and the trade promises to expand rapidly. British ships get this business. They are iron vessels, while sound yellow fir vessels, which would carry grain as safely and as well, could be built on the Columbia for two-thirds their cost. Timber is abundant and cheap, and yellow fir, cut at the proper time of year and put into a vessel in the summer time, when it can dry and season, is as lasting as white oak, and being lighter than oak, will make a more buoyant vessel, and thus a better carrier. There was building at Astoria in 1881 only one vessel—a large propeller tug, 110 feet long, 21 feet beam, and 9½ feet hold, to draw 9 feet aft and 7½ feet forward. The frames are 12 by 16 inches, 10 inches at the bilge, 7 at the plank-sheer, spaced 22 inches; garboards, 5 inches; bottom plank, 3½ inches; wales, 4 inches; ceiling on the bilge, 6 inches; clamps, 5 inches; beams, 10 by 10 inches, spaced 38 inches. In the floor timbers some tide-land spruce, taken from the roots, was used on account of its crooked shape. The stern-post and rudder-posts were white oak; the arch knee over the propeller was spruce; while all the rest of the tug was yellow fir, including the knees and hooks, which were fir roots. Mr. Whelan, the builder, bought his material for $12 a thousand right through. The knees cost 75 cents per inch of siding, and wages were $4 a day. The tug-boats of Astoria are powerful and handsome vessels. Each carries one mast, with a yard for the sail forward of the pilot-house; but some of them have second masts aft of the cabins, carrying schooner sails. Scow sloops are built to some extent for fishing and river cruising about Astoria.

## NORTHERN LAKES.

When Fulton began his experiments on the Hudson river, on the shores of lakes Ontario and Erie only was there any white population. The pioneer of lake steamers was the Ontario, of 232 tons, built at Sackett's Harbor, New York, in 1816. She was 110 feet long, and was a side-wheeler. One followed at Kingston, Canada, of 700 tons. The second on the American side was at Black Rock, New York, in 1818—the Walk-in-the-Water, of 342 tons. In the next ten years there were twenty steamboats built on the two lakes, the most of them on the American side, and all side-wheel boats, for the local service of the towns on the lakes. Unlike the Hudson river boats, those of the lakes had to encounter rough water and stormy winds, and were accordingly built with strong, deep hulls, like sailing vessels. Each generally bore at least one mast, for spreading sail in case of the breakage of the machinery; in size they ranged from 50 to 892 tons, the majority being from 250 to 400 tons register.

In 1829 an event occurred which stamped a special character on all the vessels trading between the lakes, steamboats included. The Welland canal was opened to enable the tonnage of one lake to pass through to the other. The smallest locks were 110 feet in length and 22 feet wide, with 8 feet draught of water—a size which permitted the passage of a boat carrying 400 tons. After the opening of this canal hulls of sailing vessels took the bluff, full form ever since peculiar to the lakes. The bows were made round, the bottoms flat, and the bodies straight, in order to reach the greatest capacity that could go through the locks of the canal; all steamboats that were intended to pass from one lake to the other approximated that form of hull, but they were not very numerous. Those intended for the local passenger traffic of each lake kept a sharp form; but they were never so sharp and shallow as those on the Hudson river.

The building towns on the American side were Sackett's Harbor, Oswego, Rochester, and Black Rock, New York; Erie, Pennsylvania; Cleveland, Huron, Black River, Sandusky, and Toledo, Ohio; and Detroit and Monroe, Michigan, oak, chestnut, and pine being abundant in all these localities. Afterward steamers were built wherever there was a ship-yard of any size. Many were side-wheelers, ranging in size from 250 to 600 tons, with an occasional big steamer of 700 tons; they had low-pressure engines, with walking-beams oscillating in the air above the cabins, and were in every important respect, save that of depth and strength of hull and their one or two masts, like the eastern river steamers.

As early as 1818 the Walk-in-the-Water had run to Detroit, and as fast as the country along the lakes filled up with settlers the steamboats followed, carrying fresh legions of immigrants, and supplying them with the manufactured goods and general supplies which the necessities of a new country required. About 1830 steamboats were running regularly to Chicago, and this added 650 miles to the 270 miles of navigation from Buffalo to Detroit. After the Welland canal opened, in 1831, the first increase of the lake steamboats was in the direction of the number of boats. The increase in size came later.

The era of large boats began in 1844 with the construction of the Empire, of 1,136 tons, at Cleveland, Ohio, and the Niagara, of 1,084 tons, at Buffalo, in 1845. These boats were too large for the Welland canal route, and were expressly intended for the passenger traffic from lake Erie ports to those on lake Michigan; but three years afterward, in view of the rush of travel, others were undertaken. In 1848 there were built the Globe, of 1,200 tons, at Trugo, Michigan; the Queen City, of 1,000 tons, at Buffalo, New York; the Bay State, of 1,100 tons, at Clayton, New York; and the Empire State, of 1,700 tons, at Saint Clair, Michigan. These were long, sharp, and fast boats, with towering cabins, handsome and elegantly furnished, and were the pride of the lakes. They were oak built throughout, save that the decks, some of the beams, the houses, and spars were of white pine, were well salted, and, like most of this class, were long lived. Vessels increased in magnitude and cost year after year until the Plymouth Rock was built in 1854 at Buffalo. This vessel was of 1,991 tons register, and was 310 feet long, 42 feet beam, and 12 feet hold, being 60 feet wide over the guards. In 1857 a similar steamer, named the City of Buffalo, was built at Buffalo. This was the culmination of side-wheel steamboat building on the lakes, and since that period this class of boats has steadily declined in size, popularity, and importance. The railroads along shore began as early as 1857 to draw away the flourishing passenger traffic, and no boats of the size of the Plymouth Rock were afterward built with side wheels on the lakes. The City of Buffalo was converted into a propeller; the Western Metropolis, of 1,860 tons, was changed into a bark; the Mississippi, of 1,829 tons, and the Western World, of 1,000 tons, were dismantled, and the hulls converted into floating dry-docks at Cleveland; a large hull was converted to the same use at Buffalo, and another at Erie, Pennsylvania; others were changed into barges; and in one way and another all the large passenger boats went out of use, and their places have not since been filled. Most of them were relegated to freighting during their active existence; and while a few of this type of vessels have continued to carry passengers, yet that branch of their business is now merely nominal, as travel exists only on few routes. Paddle-wheel steamers are now rarely built of greater size than 600 or 800 tons. From first to last, over 300 side-wheel boats have been constructed on the American side of the lakes, including lake Saint Clair, and, in addition, about one-third of that number are known to have been built on the Canada side. Not more than three or four a year are now produced.

One cause of disappearance of side-wheel boats has been the growing preference for the screw-propeller. It was better fitted to the Welland canal traffic than the paddle-wheel, the greater width of the latter class of boats completely excluding large side-wheel craft from that trade. Boats fitted with propellers could keep their narrow beam and make the trip through the canal with ease and safety. The screw is now almost the only wheel used on the northern lakes. The principal reason, other than the above, which has caused the preference in its favor is the fact that the harbors of Oswego, Buffalo, Cleveland, Chicago, and Milwaukee are rivers and canals, and consequently demand a narrow class of steam-vessels. Large numbers of the old side-wheel boats were changed and the new style of wheel put into them.

The first propeller on the lakes was the Vandalia, of 138 tons, built at Oswego, New York, in 1841, a bluff-bowed boat, with cutwater, bowsprit, and foremast and a sloop sail. She had a long cabin aft of the mast. Her machinery was well aft, and her smoke-stack was very nearly in the stern. She made a trip to the upper lakes in 1842. In ten years 53 propellers had been built at Oswego, Clayton, Dexter, New York, Buffalo, Cleveland, Maumee, Huron, Black River, Detroit, Saint Clair, Grand Haven, and Milwaukee, a total of 17,000 tons; they ranged in size from 150 to 700 tons, all except 10 of them being under 400 tons, so as to make the passage through the Welland canal. The popular size was 350 tons, and they bore a strong resemblance to fast Erie canal boats fitted up for lake navigation. The boats were all strongly framed, planked, and ceiled with white oak, were well salted and proved durable, and usually did good service for 30 years unless they met with some casualty. The Canadians enlarged the Welland locks to 150 feet in length, 26½ feet in breadth, and 10 feet depth of water, completing the work in 1853, and the change allowed vessels of 600 tons to pass from lake to lake. A few propellers for the canal were built, but the freighting of the lakes required large boats. An immense business had sprung up in carrying iron ore from the Michigan mines to Cleveland and other ports and grain and lumber from places on lakes Michigan, Huron, and Erie to the easternmost cities they could reach. Coal and merchandise were going back in large quantities from points on lakes Ontario and Erie, and Canada turned as large a share as possible of the eastward-bound grain and lumber destined for export to Europe to the lake Ontario and the river Saint Lawrence route. The facilities she created for the purpose would have led also to the building up of Oswego, New York, as well as of Kingston and Montreal; but she did not go far enough. Trade grew so fast that larger boats were demanded than could go down even to lake Ontario, certainly larger than could go to Montreal, and after 1855 a large number of screw-propellers of from 650 to 950 tons register were built, nearly all of them at Cleveland and Buffalo. In 1856 12 were built at Cleveland, aggregating 6,823 tons, and 14 at Buffalo, aggregating 8,633 tons, with 1 at Detroit of 862 tons and 1 at Milwaukee of 583 tons, as against only 2 side-wheel boats built in that year. This represents the actual building of the year. Some of the vessels were not documented at the custom-houses in the year they were launched. The boats were employed in trading from points above Detroit to Cleveland, Erie, and Buffalo.

In 1862 the B. F. Wade, of 1,120 tons, was built at Newport. Other large propellers followed, among them the Idaho, of 915 tons, and the Winslow, of 919 tons, at Cleveland in 1863; the D. Richmond, of 1,083 tons, at Cleveland in 1864; the Colorado, of 1,118 tons, at Buffalo, and the Roanoke, of 1,069 tons, at Cleveland in 1867; and after them vessels of from 1,200 to 2,000 register tons at all those places and at Detroit. With a view still to direct the export business of the lakes to Montreal, Canada has been enlarging the Welland and Lachine canals again, increasing the locks to 270 feet in length, 45 feet in width, and 14 feet depth of water. The work is now, in 1882, about completed, but again trade has grown fully up to the capacity of the canals. The most profitable propellers and schooners of the upper lakes are now from 1,600 to 2,000 register tons. They are from 270 to 280 feet in length, and draw 14 feet of water, and only by close squeezing and by lightening the boats at the entrance to the canals (reloading them at the port below) can they be employed in the canal traffic. Those longer than 270 feet, of which the number is large, cannot go into the canal. It must be said, however, that a medium class of iron steamers, drawing not over 14 feet of water, to which they are limited by a ledge of rocks in the Saint Clair river, and carrying up to 2,500 tons of grain, could be safely and perhaps profitably put into the through trade of the lakes, and preparations are making in Canada for trying the experiment. The distance from Chicago to Montreal is 1,261 miles, 1,005 miles of the route being lake navigation; from Chicago to New York, by way of Buffalo, the distance is 1,419 miles, of which only 865 miles are lake navigation.

Owing to the panic and the stop put to railroad building the freighting of iron ore and of coal fell off immensely, and building on the lakes was considerably depressed after 1873 for a few years. Since 1878 the business has revived, and is now brisk. New vessels have again come into demand, and at present about 25 propellers are required every year by the commerce of the lakes.

From 1841 to 1882 there have been built on the northern lakes more than 600 propellers varying from 50 to 200 tons for tugs and 130 to 2,000 tons for the passenger and freight business. The majority have been and are now employed exclusively in freighting, and are called "steam barges", in distinction from the class of boats which have houses from end to end for the accommodation of passengers. A barge has a small house aft, two stories high, to cover the machinery and to serve as quarters for some of the officers, and a small house forward, in the extreme bow, serving as a top-gallant forecastle, with a pilot-house atop. Between the two houses the spar deck is clear. It has one, two, three, and sometimes four masts, according to the fancy of the owners. The mizzen-mast seldom spreads a sail, as it is planted in close proximity to the smoke-pipe, and is used simply as a derrick for handling cargo. The propellers carry coal, grain, iron ore, and lumber.

The placing of the machinery away aft is a peculiarity of lake propellers. When light, the boats present a strange appearance, the bow being high up out of water and the hull down by the stern, and it is only when loaded that they sail on anything like an even keel. The practice of stowing the machinery aft is a convenient one with regard to the handling of cargo, and has only one disadvantage, that of tending to strain the hull when making trips in an unloaded condition. The lakes experience much heavy weather, and a hull working up and down in the waves with the stern as a fulcrum weakens rapidly amidships. To strengthen the hulls against this peculiar stress the builders of the lakes adopted the hog-frames of the side-wheel steamers for use in propellers. As soon as they began to build up to 175 and 200 feet in length some device of that sort was absolutely necessary, and as the hog-frame was the simplest means of gaining longitudinal rigidity, it was universally adopted, although undergoing some modifications in form. Instead of making the frame out of long, straight beams, united with iron rods, and giving it the angular appearance of a bridge-truss, the practice grew up of giving it the form of an arch, sweeping in a long, low, unbroken curve from end to end of the ship. The top chord was made out of several thicknesses of 4- or 6-inch oak plank, fitted so as to break joints, and strongly bolted together throughout the whole length, and was united to the hull with wooden braces, iron rods, and straps, the same as the ordinary hog-frame. It passed down through the deck and along the ceiling to the apron forward, the inner part aft being fastened to the hull in the strongest manner and secured with breast-hooks and braces. This was called the Bishop arch, from the name of the inventor. In the late propellers, say within the last five years, the hog-frame and the Bishop arch have both been discontinued, because they are both in the way, especially in handling lumber. The builders gain rigidity now by strapping the hulls with iron on the outside of the frames, by ceiling them heavily with oak, often bolting a broad arch strongly to the inner side of the timbers in the hold, and by augmenting the size and number of the keelsons. The propellers thus built strongly resemble ocean vessels in outward appearance, and are excellent boats in every respect.

Like the sailing vessels of the lakes, the propellers have to be built with flat bottoms, in order to carry full cargoes on a draught not exceeding 14 feet. The bottom being almost flat amidships and carried well forward and aft, the bilge is necessarily quick, being often described with a radius of not more than 18 to 24 inches. To strengthen this flat bottom the frames have double floors carried nearly from bilge to bilge, and a large number of keelsons are introduced. The central line of keelsons is usually composed of a main keelson about 16 by 32 inches, with a sister keelson each side about 14 by 26 inches. In some of the more recent large vessels the backbone is composed of three keelsons, side by side, 16 inches deep and 14, 16, and 14 inches wide respectively, with two rider keelsons atop, side by side, each 14 inches square. Floor keelsons parallel to the main are then put in, varying in size from 10 by 13 inches to 12 by 13 inches, according to the fancy of the builder, and from 12 to 20 inches apart. In all there are from 10 to 12 strakes of keelsons on the floor of the vessel in large propellers; in small propellers there is a great mass of keelsons in the center, with none at the sides. The bilge is strengthened with a few heavy strakes from 8 to 10 inches thick, molded to suit the curvature of that part of the vessel. The ceiling is then carried up in heavy strakes clear to the beams, being edge-bolted all the way up in the frame spaces. The spaces between the frames on the floor, and sometimes away forward, are generally filled in solid with white oak under the machinery, the filling extending a few feet up the bilge. Three methods are in vogue for flooring the hold. A usual method is to lay a course of 1½- or 2-inch pine or hemlock lumber athwartships across the floor keelsons, and on top of that another course of pine or oak planking about 2 inches thick, running fore and aft, trimming off all irregularities of the surface with an adze. A smooth floor is necessary, on account of carrying grain cargoes in bulk, the hold being cleared out, in discharging, with a steam shovel. A third method, a favorite one with the line propellers, which carry grain almost exclusively on the down trip, is to fit in a large number of chocks between the floor keelsons, their tops 3 inches below the tops of the keelsons. Three-inch oak plank is then laid on the chock flush with the top of the floor keelsons, the latter themselves forming a part of the floor. When the keelsons are massed in the center the flooring is laid on the frames, as in ocean vessels.

The beams of these vessels rest at each end on a broad shelf of oak plank from 4 to 6 inches thick and 2½ feet wide, to which they are firmly bolted; they are not kneed to the ceiling as in ocean vessels. The strake of the shelf next the side of the vessel is thicker than the one inside, and if there are three strakes the outer one is the thickest. The beam is cut to fit closely over the shelf-strakes and fays snugly to the ceiling. A heavy water-way is laid on top of the beam ends, and the beams are bolted strongly both to the shelf and the water-way. This arrangement of timber and iron makes the deck-frame a source of great lateral strength to the vessel. The beams are light, but are of white oak, and the manner in which they are secured protects the hull against racking stresses.

The sterns of lake steamers may be square, round, or elliptical, but the preference is for the elliptical stern, the old-fashioned square stern being now confined to sailing vessels. The overhang in propellers is from 12 to 18 feet, and the most convenient manner of framing it is to place in position a long and heavy "fan-tail" timber, resting on the deadwood and the head of the stern-post, and projecting the whole length of the overhang. The stern frames, or cants, heel on this timber.

It has become the fixed custom to supply propellers with masts and fore-and-aft sails, the sails being used almost constantly as auxiliary to steam; even when under a full head of steam every yard of canvas is spread if the wind favors. This practice has led to the introduction of center-boards to propellers. The freighting craft now have every requisite both of a good sailing vessel and a good steamer, and in this respect the propellers of the lakes are unique. The popular wheel on the lakes is the Philadelphia propeller, so called.

In the insurance rules for the characterization of lake vessels, drawn in 1875 pursuant to the action of a convention held in Buffalo in September, 1874, considerable stress was laid on the importance of adapting large vessels thereafter for transatlantic service. The Welland canal was soon to be completed, and the ocean service would permit of no looseness in construction; and rules were adopted for scantling, fastening, and freeboard suited to the broader field in which lake tonnage might thereafter possibly be employed. Builders have not been governed to any great extent by these rules, but owners have paid attention to them, and the result has been a decided improvement in the strength and excellence of hulls. Copper fastening has not as yet been introduced; but in all other respects the large lake vessels of the last six years have been so constructed as to adapt them to ocean service, and when the Canadian canals are completed more than a hundred staunch steamers could go at once into the carrying trade of the salt water.

LOCALITIES WHERE STEAMERS ARE BUILT.—On lake Ontario few steam vessels are now built. The railroads alongshore have deprived the water of a part of its carrying business, and tugs and canal-boats are now made to transact another part of it. The great side-wheelers and the numerous propellers of former times having nearly all disappeared, it is only now and then a steamboat or a tug is built on the American side of the lake, and then generally for some purely local use. Clayton, Ogdensburg, Oswego, and Irondequoit bay occasionally produce steamers, but the total production would not amount to more than three or four boats of small size annually. The scarcity of oak has had something to do with the change. The timber once grew in magnificent abundance, and ranged from $6 to $12 per thousand board feet, according to length and quality, but it is now scarce at $25.

A number of ship- and boat-yards flourish at Buffalo on the banks of the canals, and among them there are four or five which build and repair lake tonnage. This city has been a leading center of the industry from an early day, and since 1860 has produced steam tonnage actively. The grain trade began in that year to assume immense proportions, springing from 30,000,000 to 50,000,000 bushels in one year, since which time it has been steadily growing. Buffalo has a large lake trade, and the expansion of business gave rise to the employment of a fleet of propellers of the heaviest class, a large proportion of which have been produced locally. The city has had the advantage of engine-building works and the possession of large insurance capital, and has also until recently been able to buy oak at reasonable prices. The large repair business of the port has also been an advantage. Three yards had large dry-docks and railways, with steady work for several hundred competent workmen, and so were equipped to do new work cheaply. In 1873 the panic in financial circles made ship-building dull for several years, but since 1878 the yards at Buffalo have all been quite active. In 1879 and 1880 a good deal of tonnage, large and small, was produced, among the rest the propellers Rochester and New York, of 2,000 and 1,920 tons, respectively. The New York was 269 feet long, custom-house measurement, 37 feet beam, and 16½ feet hold, with upper works, and was able to carry about 1,800 tons of cargo. The Rochester is a representative of the largest class now engaged in the lake trades. She is 287 feet long over all, 40 feet beam, 28 feet total depth of hold, with a carrying power of 2,200 tons. The keel of this vessel is 10 by 14 inches square, the frame 17 by 18 inches over the keel, the main keelson 16 inches square, sister keelsons 14 by 16 inches, and the floor keelsons 12 by 16 inches. The ceiling varies from 6 to 9 inches, and the planking is 4 and 6 inches. She is oak built throughout, except that the decking, houses, and some of the beams of the upper decks are of white pine. Following the late fashion, the hull is strapped with ½ by 5-inch iron, 4 feet apart. Two compound engines, with 2 steel boilers, comprise the machinery, which will develop 1,000 horse-power and drive the vessel at a speed of 12 knots an hour. To build vessels of this size almost a million feet of lumber have to be bought, and as oak in Buffalo cannot now be bought to advantage, the builders are beginning to feel the severe competition of the yards farther west, which are nearer the oak supply.

The next point is Cleveland, Ohio, where three yards are devoted to the production of large propellers. A builder who has been in business more than 33 years had built a few small vessels, when, in 1878, he went into the construction of large propellers. He built in 1878 the John N. Glidden, of 1,323 tons, 222 feet keel, 35 feet beam, and 20 feet hold; in 1880 the A. Everett, of 1,200 tons, 210 feet keel, 35 feet beam, 18½ feet hold; and in 1881 a propeller of 1,393 tons, 248 feet keel, 36½ feet beam, 19½ feet hold. These vessels were all two-decked and oak built, the frames, beams, ceiling, planking, keels, and keelsons being of that timber, while the deckings, houses, spars, and a few beams were of white pine. The frames were cut from 6- and 8-inch flitch and spaced about 22 inches from center to center. They were molded 16 inches over the keel, 14 inches at the bilge, and 7 or 8 inches at the plank-sheer, and as the timbers were not large enough to take treenails the planking was spiked on with bolts at the butts. Salt was freely used, a large quantity being placed between the frames in the usual manner, and the upper side of the beams was channeled and filled with salt and the keelsons thoroughly pickled. Hackmatack knees were used. The stem of a lake propeller is perpendicular, and the rule for the overhang of the stern is to extend it a little more than far enough to shelter the screw-wheel and the rudder. The three vessels of Mr. Radcliff consumed about 750,000 feet of white oak and 60,000 feet of white pine each, and cost about $75,000 apiece.

A firm which began to build in 1850 have launched a great deal of heavy tonnage for the trade of Cleveland and the lakes generally, making a specialty of steam craft. In 1880 and 1881 they built two oak propellers, costing $100,000 and $125,000 respectively. The steam barge Columbia, of about 1,300 tons, was on the stocks in the census year. She was 236 feet long on the keel, 250 feet over all, $35\frac{2}{3}$ feet beam, $19\frac{2}{3}$ feet hold, and drew 6 feet 5 inches when launched. It required 750,000 feet of oak, 50,000 feet of white pine, and 125 tons of iron to build her, and the total cost was $120,000. The frame was molded 16 inches at the keel, 14 inches at the bilge, and 6 inches at the head, and the double frame sided 12 inches. A main keelson was put in 16 inches square, with a sister keelson on each side 14 inches square. Floor keelsons, 12 inches square and a foot apart, were laid away out to the bilge on both sides. In a sharp ship these logs could have been placed amidships, and would have made a center keelson 2 feet thick and 11 feet high, but the flatness of the floor made the distribution of the keelsons preferable. There were only 8 inches dead rise. The ceiling of the bilge was heavy, to match with the keelson, but tapered to 6 inches, which thickness it carried to the upper deck, and was edge-bolted from the bilge to the rail. The bottom plank was 5 inches thick; that of the sides 4 inches, square-fastened with iron spikes and butt-bolted clear through. No hog-frame was used in the boat, but an arch of oak 4 inches thick and 6 feet in depth was strongly bolted to the ceiling and frame on each side of the vessel, extending from the bilge within 20 feet of stem and stern and rising to the upper deck amidships. The beams were spaced 2 feet apart below and 3 feet above, and rested on strong shelves, which in turn were strongly supported by heavy hackmatack knees. The ceiling, arch planks, and beams were grooved for brine. The machinery was placed away aft, within 20 feet of the stern-post, and was composed of two low-pressure engines 3 feet in diameter, with 3 feet stroke, and a boiler 12 feet in diameter and 18 feet long. The latter, which was between decks, rested in a wrought-iron pan, sustained by 16 double T-iron beams, 17 inches apart. The screw was 11 feet in diameter—a fair type of the ordinary lake propeller.

Another firm at Cleveland (T. Quayle's Sons) builds oak propellers of the largest size engaged in the trade of the lakes. Among the product of their yards are the following:

| Years. | Propellers. | Keel. | Beam. | Hold. | Tonnage. |
|---|---|---|---|---|---|
| | | *Feet.* | *Feet.* | *Feet.* | |
| 1878 | Delaware | 250 | 36 | 16 | 1,732 |
| 1878 | Conestoga | 250 | 36 | 16 | 1,726 |
| 1878 | Buffalo | 260 | 36 | 16 | 1,763 |
| 1879 | Milwaukee | 265 | 36 | 16 | 1,771 |
| 1879 | Chicago | 265 | 36 | 18 | 1,847 |
| 1880 | Wococken | 250 | 37 | 19 | 1,800 |
| 1880 | Henry Chisholm | | | | 1,775 |
| 1881 | John B. Lyon | 255 | 38 | 20 | 1,710 |
| 1881 | City of Rome | 268 | 40 | 21 | 1,908 |
| 1881 | Cumberland | 250 | 37 | 16 | 1,601 |

For the length over all from 16 to 18 feet must be added to the length of keel, according to the size of the vessel. The first five of these boats were fitted with Bishop arches, or hog-frames, and had each one spar, a foremast. The others had no hog-frames, but were strapped diagonally with iron on the outside of the frame timbers and belted with iron at the top of the straps. Arches of iron plate a foot wide were bolted outside and inside of the frames. Each carried 4 masts, the forward ones about 95 feet long, with short topmasts, the jigger having no topmast and ending in a pole and ball. The large propellers each consumed about 950,000 feet of oak, 90,000 feet of white pine, and 130 tons of iron, exclusive of machinery and outfits. The firm had a new oak 1,800-ton propeller on the stocks in the census year $261\frac{1}{2}$ feet long on the keel, 278 feet long over all, $38\frac{1}{4}$ feet beam, and $22\frac{1}{2}$ feet hold, a four-master, designed to carry 1,900 tons of grain, which was being fitted with a center-board, for use when under sail. These lake propellers are always under sail when the wind favors, as well as under steam.

Wages in Cleveland ranged from $1 25 to $2 25 per day, the most of the men in the yard getting $2 and $2 25. It requires about 50 men, working nine months, to set a large propeller afloat, the labor bill being about $20,000. Oak costs about $25 per thousand board feet. In the round log, in rafts, it is delivered at the yard for $21 and $22 per thousand, and to saw it costs about $3 50 a thousand. The price of plank varies from $25 to $28. Before the war oak was bought in Cleveland for from $12 to $15, but the timber is now growing scarce. Cleveland has its own engine-building works, and thus possesses every facility for ship-building on a large scale. The yards here are all equipped in a thorough manner. The bevel saw is used for getting out the frames, and bolt-cutters, derricks worked by teams of horses, planers, steam-hauling apparatus, and every device known to man for simplifying and saving labor is employed. The large repair business of a port with an extensive lake commerce enables the proprietors of yards to keep their men together in the intervals of building, and thus they are always ready to take a new contract and perform the work promptly.

There are various places on the Ohio shore where fishing boats, schooners, tugs, and other vessels are built, but it is only at Cleveland that steamers are made a specialty. On the two rivers and the lake which connect lake

Erie with lake Huron there are a number of places dependent on Detroit for machinery which produce a great deal of steam tonnage. They are, in order, Gibraltar, Wyandotte, below Detroit, Marine City, Mount Clemens, and Port Huron, all in the state of Michigan.

At Gibraltar there is one large yard, fitted up in first-class manner, capable of constructing the largest sized wooden propellers. The builders undertake about one a year. They employ from 30 to 50 men, pay them fair wages (about $2 a day), do a quiet but prosperous business, and build from 1,200 up to 1,500 tons, at a cost of $70 or $75 a ton equipped ready for sea. Their steamer in the census year was 246 feet long, 36 feet beam, 19¾ feet hold, a two-decker with 4 masts, registering 1,399 tons.

The yard at Wyandotte is exclusively employed in the construction of iron vessels.

Detroit has three large ship-yards, at which is done a mixed business of building and repairing. The repair business of the city is extensive. Engine and boiler shops exist here in abundance, and in the city is owned an immense amount of tonnage, which naturally seeks the home port for carpentry, iron work, and refitting generally. Detroit is one of the old and prominent building places of the upper lakes. The panic of 1873 was felt here severely, and little was done during the four years of depression save the keeping of old boats in repair. The yards were almost idle, and the workmen became very much scattered. In 1877 the country had recovered from the shock, and a new demand for iron and lumber sprang up. Michigan was the state which chiefly supplied the East with these products, and the thrill of new life in trade quickly set in motion every ax and hammer in the ship-yards of Detroit. Since that time business has been brisk and growing; in fact, the demand for ship-carpenters has been so great that about 250 Frenchmen have been brought from Quebec and Montreal to supply the deficiency at the yards, and though not so efficient as Americans, they are docile and are now being rapidly trained, and will add materially to the resources of Detroit for ship-building. Two of the yards here are owned by an organization of large capital, which also owns the iron ship-yard at Wyandotte and employs the best available engineering talent. Its contracts for sail or steam or wooden or iron vessels are executed in whichever one of its three yards can best perform the work. In the yards of this concern in Detroit every form of labor-saving device is employed. The hauling of timbers, the fashioning of them for ship's use, and the handling and lifting are all done by steam- or horse-power; nothing is done by human muscle that can be avoided. The operations of this large concern are thought to indicate the strong tendency in the commerce of the lakes to concentrate enterprise in the hands of a few large firms having heavy capital. Men of smaller capital find it difficult to withstand this competition, because the big concerns can build and repair at a lower rate of compensation, just as they can operate the vessels when built at a lower charge for freighting. There were built two schooners of 528 and 859 tons respectively in the census year, and the following wooden steamers: propeller Iron Age, of 859 tons, 175 feet long, 34 feet beam, and 20 feet hold, molded, and the screw ferry- and river-boat Garland, of 248 tons, 110 feet long, 29 feet beam, and 10 feet hold, molded—all oak built. Wages were $1 and $1 25 a day for laborers, and $2 and $2 25 for carpenters and other skilled men. Oak was formerly $10 and $15 per thousand feet, according to length and quality; it is now $20 in the flitch, $25 in the squared timber, and $30 for first-rate plank. The growing scarcity of good oak was complained of, and the shortness of the stuff put into the frames, keels, and keelsons of vessels was noticeable. One builder was building a screw ferry- and river-boat with a long raking stem, for ice-breaking in the winter, 107 feet long over all, the keel and stem of which were composed of six pieces, only one of which was more than 28 feet long, and that not over 40 feet. In the frame there was not a stick over 12 feet long. In the yard of the Dry-Dock Company a steam barge was building 250 feet long and 37 feet beam, to register about 1,600 tons. The bottom amidships was almost flat, and the sides were straight from the very quick bilge to the rail. The form was well adapted to the use of long timber, and on Puget sound the frames would have been made of not more than ten pieces each, six of them from 20 to 33 feet in length, with four short ones at the bilge. In this vessel there were fourteen pieces in each square body frame, two of them not over 30 feet, and ten pieces under 14 feet each. Longer stuff would have been hard to get, and consequently was too expensive. The tendency in Detroit is now strongly in favor of iron steamers.

Mount Clemens is a pretty little village strung out along a bluff on a tributary of lake Saint Clair, a community of saw-mills, lumber yards, and stave factories. There are three ship-yards in the place. The town is surrounded with woods, which formerly yielded large oak in abundance. A few big trees are still cut now and then not far from the town, and some fine specimens of the old growth were to be seen at the saw-mills when visited, one log being seen which was 35 inches in diameter and 360 years old. At one mill they told of sawing a white-oak log 4½ feet in diameter and squaring 1,700 feet out of the tree, and a few years ago one was cut that was 6½ feet through at the butt and 3¾ feet through 60 feet from the ground, furnishing five 16-foot logs. That gigantic specimen grew in a favored locality, and was probably not less than 350 years old. One oak tree was still standing near Mount Clemens 5 feet through at the butt. These giants of primitive growth are now rare, and in fact nearly all the large timber of this locality has been culled from the woods. Much of it has been squared up and rafted off to the markets on the lower lakes, and what is left is either small or grows on the uplands, where it fails to reach the perfection of the oak found in swamp lands. The best stuff put into Mount Clemens vessels now comes from swamps in Canada. It is a common practice here to buy the common stuff for a vessel in the woods, paying from $9 to $12 per thousand feet in the round log, delivered in the yard, getting the plank and better pieces in Canada. Plank costs from $20 to $26 per thousand, according to length; white pine $40 per thousand finished. Two or three small vessels for the freighting of coal, lumber, and grain are built at Mount Clemens every year. In the census year three steam barges were built, one of 325 tons for $30,000, the others smaller. Wages were $2 a day for the best men, but the majority of ship-yard hands got from $1 25 to $1 50. There was a large mingling of the lately imported Canadian French element among the men. Two medium-sized steam barges were on the stocks in the census year, and in one of them the builders were employing an original arrangement of the keelsons to gain longitudinal strength while economizing space. In most lake propellers the keelsons are spaced across the whole width of the floor and the ceiling laid atop of them, a plan whereby a foot in the depth of hold is lost. In this propeller they were assembled in the center. Five logs 12 inches square were laid side by side and strongly bolted to the frames and keel and to each other, and two riders were placed atop of them, each 14 by 16 inches and about 6 inches apart. In the forward hold an additional log, 10 by 12 inches, was placed on each rider; but for about half the length of the vessel forward of the machinery, where the stress chiefly comes, the 10 by 12 logs were replaced with 14 by 16 inch logs, which were sprung up 12 inches in the middle by oak blocks, placed at intervals. These two top strakes of the keelson took the form of an arch, and two strong bolts were driven through each arching log clear down through keelson, frame, and keel, imparting great strength to the structure. The vessel measured 160 feet on the keel, with 11 feet overhang of stern, 31 feet beam, and 11 feet hold. In general respects she was like other lake propellers.

Marine City is a small town on the Saint Clair river, and has about the same characteristics as Mount Clemens.

Port Huron, at the gateway into the lake of the same name, was formerly an active building locality. It is favorably situated at the entrance to the Saint Clair river, through which flows the whole current of the upper lake traffic, and there is an abundance of oak timber in its own county and all along the lake above. There are three large and well-equipped yards in Port Huron, but they do little except repair work. The panic of 1873 put a sudden end to the building of new vessels here.

East Saginaw and Bay City, both on the Saginaw river, and in the center of an immense salt and lumber business, build many fine wooden propellers for freighting. There are three yards in the former and four large yards in the latter. Schooners and tugs are also built, but the principal and the best product of both towns is in the line of large propellers. The industry has flourished for 20 years and more. The Saginaw river felt the effects of the panic of 1873 as much as the other lake towns, and a memento of that disastrous revulsion existed at East Saginaw in 1881 in the form of a center-board vessel in frame which had been begun in 1873. The panic came just as the frame had been set up. The payment of money stopped, and as the builder could find no one to aid him to complete the job the vessel was abandoned, the weather-beaten frames sagging and tumbling down into the grass that had grown all over the bank. This depression lasted about five years on the Saginaw river, and then there sprang up a new demand for lumber, which put life into every lumber-yard and ship-yard on the stream. In the census year business was brisk. Oak has always been cheap here, and the local builders still enjoy the advantage of buying at a slightly lower price than at any other point on the lakes. The peculiarities of the yards are the admirable manner in which steam has been utilized for as many purposes as possible and the thorough system employed in all branches of the work. The finest ship-yards for wooden ship-building in the United States are on the Saginaw river. Those at Bay City are four in number, of which one may be taken as a type of a northern lakes yard. A railroad runs past the yard, by means of which a great deal of the heavy oak is brought to the spot. The logs are rolled from the platform cars and lie upon the ground until called for, and a long rope from within the shops is attached to each log as it lies on the ground, or the end of the trunk is lifted up and supported by a pair of wheels and the rope is then attached. Steam-power is then applied, and the log is drawn across the railroad track down to the yard, through the gate, and along the beaten path to the saw-mill. It is there cut into flitch or square timber, as the case may be, planed, and passed on, all the while by steam-power, to a place in the yard where it can lie and season. The stick never changes end, and no steps are wasted in handling it. Whether designed to go through the bevel saw for fashioning into a frame or intended for the steam box to be softened for planking it passes on and on until it is finally lifted to its place in the vessel by a steam derrick. The yard has a complete equipment of bevel, jig, and joiner's saws, bolt-cutters, steam boxes, planers, treenail machines, and small tools. These arrangements were originally made necessary by the scarcity of labor; but they especially fulfill the purpose of saving expense in constructing the ship, and it is claimed that one-half of the labor formerly required is now saved. Nearly all the best yards on the lakes are organized on this plan. The Saginaw and some other lake builders launch their vessels sideways, a safer method than launching endways, owing to the great length of the vessels now required in the lake trade.

The Saginaw river vessels are built both for local owners and for others. A great deal of business comes from places even as far distant as Buffalo. Every new vessel can be immediately loaded with lumber and salt without leaving the stream. Oak is now brought from the interior by river and by railroad. Standing in the woods, it can be bought for $5 and $6 per thousand feet for short stuff and not exceeding $11 and $12 per thousand for long, and is cut, rolled to the water's edge, and rafted down, or is hauled to the railroad and placed on cars. At one yard in Bay City 1,500,000 feet of oak were floating in the river alongside of the wharf at one time in the census year. The cost of sawing in the yard is small, from $2 50 to $3 50 a thousand feet, and the slabs nearly or quite pay the expense, as a great deal of thin plank can be got out of them. Oak flitch can be bought from the saw-mills, delivered, for $17 and $18 per thousand; white-pine decking and finishing stuff costs from $35 to $40 per thousand. It is a singular fact that the builders of the lake Huron region buy their decking generally in Toledo and other lake Erie ports. The long white-pine logs are rafted thither from the Saginaw river, and the finished lumber is freighted back; but the local mills do not handle that kind of stuff, owing to its length. Wages at Bay City and East Saginaw are low. Carpenters get an average of $2, and seldom more than $2 25; laborers $1 and $1 25 per day. Cheap lumber and low wages guarantee the production of cheap ships.

The Oceanica, launched early in 1881 for a Buffalo owner, is a good specimen of the Bay City propeller. She measures 1,490 tons, was built for ocean service, if required, and is 250 feet keel, 265½ feet in length over all, 38¾ feet beam, 19½ feet hold, with two decks and three masts. She had the usual full-bottomed model, and was oak built and strongly strapped. The frames were cut from 6-inch flitch, and the floors were trebled to 4 feet up the bilge; they were molded 16 and sided 18 inches over the keel, and spaced 22 inches. The main keelson was 16 by 17 inches; the two sister keelsons were 14 by 13 inches. Six floor keelsons on each side of the main keelson were 13 by 12 inches, all securely bolted through the frames with 1⅛- and 1¼-inch iron. The thick stuff on the bilge was 11, 9, and 8 inches thick, with 6-inch ceiling above and 4 streaks of clamps 14 inches wide and 7 thick, all edge-bolted with 1-inch round iron. The shelf of the lower deck was 3 feet wide, 6 inches thick; of the upper deck, 3 feet wide; the middle streak 7 inches thick, the other two 6 inches. The outside plank is 5 inches thick, square-fastened with two bolts and two 10-inch spikes in every frame. Lower deck beams, 9 by 14 inches; upper deck beams, 7 by 10 inches, with 8-inch hanging knees under the shelves. The main strap, running around the vessel near the plank-sheer, is 10 inches wide and ⅞ inch thick, while the diagonal straps are 5 inches wide and ½ inch thick, and are riveted to the main strap and bolted through frames and ceiling. Amidships a few of the diagonal straps cross each other at right angles and are riveted to each other. The houses are away forward and aft, after the fashion of lake propellers, and the deck between is clear of everything and is very spacious. Five long hatches (long athwartships) are employed in handling cargo. The machinery for this vessel was prepared in Detroit, as is usual for the Saginaw river yards. The engines were compound, having a high-pressure cylinder of 30-inch bore and 40-inch stroke and a low-pressure cylinder of 50-inch bore and 40-inch stroke. The shaft was 11 inches in diameter, and carried a 12-foot wheel. Two steel boilers 9 feet in diameter and 16 feet long were put in. The lower masts were tall, the topmasts light; they were wire rigged, in accordance with the practice of the lakes. A Providence windlass was placed in the forecastle, with 1½- and 1¾-inch iron cables. It cost $125,000 to build and fit this vessel out. Her capacity was 2,000 tons of heavy cargo on 14 feet draught of water, and she was manned with 16 men.

There are a number of small towns on the lake Michigan shore where vessel building is carried on from time to time, but at only two were there any steamers built in the census year, namely, Saint Joseph and Grand Haven. There is plenty of oak in the shore counties yet; but the panic of 1873 made business dull until within two or three years, and it was not until 1881 that the ship-yards of Grand Haven and Saint Joseph had fairly got to work again. The production of the latter town in the census year was the propeller Sky Lark, of 260 tons, 123 feet long, 23 feet beam, and 8½ feet hold; the steamer Mary Graham, of 91 tons, a 96-foot boat; and the sloop J. C. King, of 14 tons, 35 feet long, 15 feet beam, and 5 feet hold. Facilities exist in the town for large work. Machinery is bought in Chicago. At Grand Haven, a large propeller was finished in 1881, after the close of the census year, 245 feet long over all, 35 feet beam, and 18⅔ feet hold, registering 1,187 tons—a fine specimen of the lake steamer. Statistics were obtained in regard to 5 tugs, 226 tons, costing $43,000, a propeller of 335 tons, costing $35,000, and a schooner of 152 tons, worth $15,000; all built in one year. There are two yards in Grand Haven with every facility for large work. Wages are the same as in other parts of Michigan, viz: $2 25 for best carpenters, $1 25 and $1 50 for cheap hands. Short oak can be bought for $6 a thousand standing in the woods and $8 and $10 a thousand for long. To cut, haul, and saw brings the price up to $16 and $17 a thousand for flitch and from $20 to $25 for plank. White pine is $30 for decking, and from $20 to $40 for the houses. Some Norway pine is used, but not much. It is cheap, but the Michigan men use very little inferior stuff in their vessels.

At Muskegon a few tugs are built yearly.

On the Wisconsin shore there are three places where steamers are built, Milwaukee, Manitowoc, and Green Bay, and these towns complete the list of localities on the northern lakes producing steam tonnage—fifteen in all. The two yards at Milwaukee are both equipped in the finest manner. Each has facilities for docking and repairing vessels; each has built a large number of tugs, schooners, and freighting propellers, and at one of them since 1868 more than 35 vessels have been set afloat. Milwaukee felt the hard times following 1873 severely, and not until the census year had the construction of new tonnage again become active. Each yard began a propeller of medium size, and the prospect was that the general revival of trade and freighting would keep the yards busy with new work. Three hundred ship-carpenters could be employed at each yard in repairing and building, but business had not in 1880 revived to an extent sufficient to employ more than that number in all the ship-work of the city. The chief disadvantage at Milwaukee is the lack of local timber, as the oak has been cut off and the yards have to resort to places farther down the lake, or over in Michigan, for all their supplies of oak and pine, and, in consequence, have to pay $5 or $6 more per thousand feet; but their superior equipment of labor-saving machinery has thus far enabled them to overcome this disadvantage in competing for contracts.

Manitowoc, situated in the midst of forests and reached by railroad only within a few years, thrives chiefly on the work of its three large ship-yards. The tonnage produced at this place was formerly in the line of schooners and tugs, but since the revival of business, three years ago, a number of steamers have been built, the preference of owners now being for that class of vessels. In 15 years one yard built 30 sailing vessels and 3 or 4 tugs. Another yard, founded in 1855, has in late years built 15 sailing vessels, 6 tugs, and 7 or 8 propellers, and in 1881 had under way a propeller and a large tug for the lumber business. The third yard has not as yet done much. A large tug was ordered by three firms which had a large number of sailing vessels in the lumber business and expected to use the tug jointly. In the chapter on sailing vessels it has already been stated how popular is the practice on the lakes of collecting a string of from four to eight schooners, loaded to deep-water line with lumber, salt, or grain, hoisting all sail, and aiding them on the voyage with a powerful tug or propeller, sailing far ahead and attached to the foremost vessel of the tow with a long cable. The new tug at Manitowoc was designed for this purpose. Her dimensions and scantling are as follows: Keel, 150 feet; beam, molded, 28 feet; depth, molded, 13 feet; keel, 13 by 15 inches square; keelson, 14 by 14 inches, with a rider 6 by 8 inches on each side of the stanchions; sister keelsons, 12 inches square. As the boat was sharp on the floor, no side keelsons were required. Frames, 10 by 12½ inches over the keel, molded 10½ inches on the bilge and 6½ inches at the head; spacing, 21 inches. Double floors were used, so as to avoid butts over the keel, and the frames were solid under the engine and bearings. Ceiling on flat of floor, 3 inches; bilge-streaks, 6 in number, 5½ inches thick and 9 inches wide, edge-bolted; above that to the clamps, 5 inches, square-fastened with 2 bolts and 2 spikes. Planking: Garboards, 6 inches; all the rest 4 inches, being 10 to 13 inches wide on the bottom, 8 inches on the bilge, 7 and 6½ inches on the wales, and 6 inches near the plank-sheer, square-fastened with 1 bolt and 3 spikes. Shelf, 30 inches wide, 5 inches thick, edge-bolted. Beams: Oak, 9 inches square, molded 8 inches at the end, notched over the thick streak of the shelf and dovetailed into the clamps; spacing, 30 inches; upper-deck beams, one of oak, 4 by 5 inches every 7 feet; the rest of white pine, 3 by 4 inches. Deck plank, 3 by 5 inches; upper deck, 2½ by 4 inches. There are two hooks with pointers at each end of the boat, with braces between those forward. Plank-sheer, 5 inches; main rail, two pieces, 4 by 6 inches, with two stringer pieces of the same size; hanging knees under each deck, 7-inch siding in the hold, tow-posts going through both decks, capped with iron and kneed and braced below. The bow of this powerful boat was covered with ¼-inch sheet-iron, to resist the action of ice, and the stem was ironed with a piece 4 inches wide and 3 inches thick, which hooded the edges of the plating.

The yards at Green Bay occasionally build steam craft. The locality is a favorite one with contractors who have no fixed habitation and with some who have offices in Chicago, who get their contracts in that city and go to Green Bay to build the vessel. Oak is abundant and cheap, and expenses of all kinds are low.

Steamer building on the lakes is prosperous, successful, and profitable. Builders have fitted up their yards admirably, producing vessels that have satisfied the requirements of trade at each stage of western development, and their business has flourished peacefully under the protection of the navigation laws of the United States, which reserves to American vessels the trade between different parts of our coast. Their vessels are cheap, staunch, and durable. The center of their industry has moved westward with the disappearance of the oak forests of the East; but this, as well as all other changes, has been strictly in the line of adapting themselves to the circumstances under which their operations are carried on. Steamer building is the growing branch of the industry, as competition with railroads is gradually converting the lake tonnage into vessels propelled wholly or in part by machinery. The supply of oak is giving out, but building does not slacken on that account, and yards are being established for the construction of vessels of iron.

## ON THE WESTERN RIVERS.

The Mississippi river and its tributaries drain a region a million and a quarter square miles in area. Nineteen populous states and several growing territories use these streams as commercial highways. The total length of route available for steamboat navigation is about 12,000 miles, besides portions of streams available only at high water, which would swell the aggregate to some 14,000 miles.

These rivers, while having some features in common, have special characteristics. The Ohio, the scene of the busiest traffic and most active boat-building, runs through a country that was covered originally by a great hard-wood forest, and even as late as 1850 the banks on both sides were covered with dense woods, with scarce a break except where towns were planted. The upper part of the river, from Pittsburgh to Cincinnati, flows between hills from 200 to 300 feet high, but below Cincinnati the high banks recede, and the country is more level. The Ohio is subject to great fluctuations in the depth of water. In August and September the river is so low that sand-bars and ledges of rocks show up from the river bed with not more than 18 inches of water over them, and hundreds of steamboats have to be laid up at Pittsburgh and Cincinnati in consequence. Three times in the year the river rises, namely, in February, in May or June, and in November, the spring rise being the highest. At Cincinnati in 1832 the river rose 63 feet (a) above low-water mark. The commercial activity of this river is intimately connected with the periods of deep water. In preparation for a rise, thousands of flat boats and barges are loaded with coal and other goods in the upper tributaries of the Ohio, towing steamers for moving them being held in readiness to take quick advantage of the flood, and when the water deepens to 6 feet it liberates the imprisoned fleets, and one after another they dart out from the Monongahela, Allegheny, Kanawha, and other streams and speed down the Ohio in rapid succession to their various destinations below. Intermingled with the tows of barges are large numbers of passenger and freight steamers, brought out to resume the traffic between the different river cities, and throughout its whole length the river is in a state of intense activity. The Ohio always has a rapid current; that is to say, from 2 to 3½ miles per hour in deep places and 7 or 8 miles over the shallows and in floods. There is one obstacle to the navigation of the Ohio, namely, the rapids at Louisville; but a canal has been built around them at a cost of $3,500,000.

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(a) It has reached 65¼ feet in 1883.

The Mississippi river above Saint Louis is liable to fluctuations in the depth of water, but not to such an extent as the Ohio. There is seldom less than 4 feet of water all the way to Saint Paul, recent improvements having given that depth, and the river is available for navigation during seven months of the year. For five months the upper river is closed by ice, but below Cairo the river is never closed either by ice or low water. The whole stream is the route of a great commerce.

The Missouri river is not much navigated above Saint Joseph, although in times of deep water steamboats can run to Fort Benton, 2,600 miles from its mouth. The upper river is closed by ice five months in the year.

The southern rivers are seldom closed by ice or low water. At some points on the Tennessee wing-dams are used to deepen the channel, and at certain places windlasses have been established on the bank to assist boats against the current; that noble river affords passage to steamboats drawing 4 feet and less for a distance of 800 miles above and below the works in progress at the Mussel shoals, which interrupt navigation Most of the other southern rivers are subject to variations in depth, but they are all good highways.

The traffic of the rivers is largely of a general character, such as would naturally be expected to grow up between a number of cities having means of easy communication with each other. In addition, however, it has strong special features. Saint Louis and the Ohio river towns, Pittsburgh, Cincinnati, and Louisville especially, have long enjoyed a large trade in supplying the South with agricultural implements, wagons, and manufactured goods generally. Coal is also sent in immense quantities from the upper tributaries of the Ohio to the towns farther down the river and all along the Mississippi, and grain is sent in increasing bulk from Saint Louis for export. On the other hand, New Orleans supplies the upper towns with groceries, railroad iron, and a large variety of other imported goods. In the varying nature of the products of the different parts of the region permeated by the rivers, and in their varying needs, all the elements exist of a large internal trade and a busy river traffic. The navigation laws of the United States reserve the navigation of these rivers to American vessels exclusively, and foreign vessels are not permitted to trade above New Orleans.

Steamboating in the West is carried on under very different circumstances from that in the East, as will have been already seen. The system of intercommunication is of enormous extent; the rivers are swift and fluctuate in depth; and steamboating has been compelled to adapt itself to these peculiarities of the situation. The imperative necessity has been laid upon builders, in the first place, of obtaining the smallest possible draught. In the early days, while under the influence of deep-sea ideas, and while building boats with double frames and heavy scantling generally, the only resource for light draught was to give the boats a perfectly flat bottom; but in later years, especially after 1840, builders learned to add to the flat bottom a system of building with single frames and light scantling, which greatly lessened the weight of their vessels and made them marvels of naval construction. Light-draught construction has finally reached the perfection of a fine art, and nowhere else are vessels built which can carry such heavy cargoes on so small a depth of water, steamboats existing to-day which float at the 6-foot water-mark with 2,000 tons of goods aboard. Next in order, builders have been compelled to study how to supply their boats with machinery of great power without increasing their weight. To breast the flood of the rivers, and especially to guide tows of loaded barges through intricate channels, boats must have engine power nearly equal to that of ocean steamers. Originally the ordinary type of condensing engines was used, with walking-beam oscillating in the air aloft; but these were soon given up for a lighter type with stronger action. Condensation was dispensed with first, and the walking-beam next. The engines were brought up from the hold and laid horizontally on deck, one on each side of the boat, with pistons and long connecting-rods directly attached to the paddle-wheel shaft, and were worked with a pressure of from 50 to 150 pounds of steam, and with a long, slow, powerful stroke. Though consuming an excessive amount of fuel, this type of engine had the advantage of being stronger and lighter and of occupying less room than that of the eastern boats. A third peculiarity of the western boats has arisen from the ever-changing depth of water, and the consequent impossibility of employing fixed wharves for landings. On inland lakes and the coast rivers no country landing is without its little cheaply built pier. On the western rivers, wherever any structure is employed at all, it can only be of the character of a floating wharf, or wharf-boat—a broad, flat-bottomed, strongly built barge with square ends, having an overhanging platform and a large deck-house to protect the accumulations of freight and shelter the officers of the steamboat companies. These floats are employed at all towns having a regular traffic, and are moored by strong cables to iron rings, bolted into the heads of piles driven into the river bank, there being rows of these rings all the way up the bank, for use at different stages of the water. But wharf-boats are expensive structures, and cannot be employed in country places, where steamers only call occasionally. There are thousands of localities all along the rivers where small lots of goods and a few people must be put off or taken on from time to time. At these points the steamer must shove her bow slowly up on the sloping sandy beach, keep her wheel slowly moving, throw a plank ashore quickly, carry a line up to a tree to steady her, and effect the transfer of packages and passengers before the current of the river swings her off again. To qualify steamers for landings of this description they have to be built with full bows, having a long rounding rake, the forward deck being carried out on them as broad as possible, often, though not always, overhanging at the sides like a platform, and framed square across on a line with the stem. The great passenger boats usually have bows as sharp at least as those on Long Island sound, but the great majority of western steamers have the full raking bow. So far as the fourth point above alluded to is concerned—the vast extent of the river navigation of the West—its influence is chiefly in the large size of the boats and the great multitude of them. At the present time the fleet includes 1,198 vessels, measuring 251,792.85 tons register, and even this large fleet cannot move the traffic of the western rivers. Auxiliary to the steamboats there is an immense fleet of flat-boats and barges, towed by steamers, for the carriage of grain, coal, iron, building-stone, and general merchandise. So extended has been the production of these barges of late years that the city of Pittsburgh, Pennsylvania, now owns the most vessel tonnage of any port in the United States, having about 3,800 vessels of all kinds, measuring in all 850,000 tons. On all the western rivers tributary to the Mississippi there are now 5,397 flat-boats and barges, measuring 1,251,528.74 tons. The grand total of the tonnage of the rivers is 6,595 vessels; capacity, 1,503,321.59 tons. The barges are now exempt by law from registration.

The steamers of the West in the early times were mainly side-wheelers, though stern-wheel boats were built to a certain extent; but the preference until after 1850 was for vessels of the class first named. Up to about that date stern-wheel boats were not sanctioned by the insurance companies for the Missouri, Red, and some other western rivers, though for towing they were far superior. Since 1850 they have come into common use, and outnumber the side-wheelers about three to one.

Steamboating was introduced to the West by the same men who were the pioneers on the Hudson. Fulton and Livingston, having secured what they hoped would be a monopoly of the Ohio and Mississippi rivers, in 1811 built at Pittsburgh the little stern-wheel boat Orleans, of about 200 tons burden, rigged with masts and sails, the latter to be spread when the rivers were broad and the wind fair. Wood was used for fuel. The boat was regularly and strongly framed, but had no guards or upper works, and, like all the early boats, only one chimney. January 10, 1812, she arrived at New Orleans for the first time, her speed being about 3 miles per hour. This pioneer of the rivers ran for two years between New Orleans and Natchez as a packet, and was sunk by a snag near Baton Rouge in 1814. When the Orleans made this first trip down the Ohio the river was navigated only by small sailing craft and flat-boats, the latter pushed along with poles or rowed with long sweeps, like oars; but the superiority and success of steam was so instantly demonstrated that new steamboats followed as fast as the capital could be secured to build them. The Comet, a stern-wheeler with vibrating engines, was built at Pittsburgh in 1813, and also ran down to New Orleans, her machinery being sold there for a cotton factory. The Vesuvius followed, built at Pittsburgh in 1813 by R. W. Fulton, and sent, like the others, to the great river below. A small steamer of 50 tons was built at Brownsville, on the Monongahela, in 1814, and the same year the Etna, of 300 tons, was launched at Pittsburgh for the trade between Natchez and Louisville. Wheeling next caught the fever; some one there built the Washington, the first boat with two decks. The machinery, which in previous boats had been placed in the hold, was set up on the deck of the hull—a position it has since retained in all western river boats. The low power of the engines had made it practicable to employ her predecessors only on the lower Ohio and the Mississippi when the current was less than 3 miles per hour, and they could never ascend the swifter parts of the river after having once gone down. The Washington was, on the other hand, a powerful boat for her size. After she had gone over the falls of the Ohio at Louisville, she made two trips to New Orleans and back to Shippingport, (*a*) performing one round trip in 45 days. Her success was the signal for the construction of a great many small steamboats at different points on the Ohio river, on which stream all the early building took place, and which to-day still produces five-sixths of all the new tonnage of the West. By 1818 there were half a dozen yards around the falls of the Ohio river near Louisville. Engines were often put in at New Orleans. In 1818, at Cincinnati, was built the General Pike, famous in her day, intended for passenger traffic exclusively. This boat had a 100-foot keel and 25 feet beam, and a handsome cabin was erected on her deck between the engines. The central hall measured 40 by 18 feet, and at one end there were 6 and at the other 8 state-rooms for travelers. She ran as a packet between Louisville, Cincinnati, and Maysville. These early boats were all strong and durable, as they were built from the native oak of the Ohio and were framed and planked on the same plan as boats for the deep sea. The East at one time aspired to build vessels for the West, and in 1818 the Maid of Orleans, of 100 tons, was sent from the Philadelphia yards. She was a two-masted schooner, with steam-power, for use on the river. She ascended as far as Saint Louis in 1818, and was the first craft that reached that city from an Atlantic port. There were few ventures of that sort, however. The early steamboats were all small and of low speed; traffic was light in those days, and little was expected of the boats except to carry comfortably and safely the mails, a little general merchandise, and the few travelers who were compelled by political or mercantile errands to pass from point to point in the sparsely settled regions of the West, and if they could breast the current of the rivers and make any sort of speed at all they fulfilled the needs of the

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*a* At the lower end of the falls, now included in Louisville.

times. After 1820 the country grew rapidly in population. Manufacturing developed along the Ohio, and special attention was paid to the needs of the South. New Orleans was building up a thriving foreign trade, and the basis was established for a large exchange of products between the lower and the upper portions of the river. Travel and trade increased; rival steamboats came into existence, which strove to excel each other in speed, size, comfort, carrying power, and general adaptability to the special requirements of the river trade; boat-yards were established all along the banks of the Ohio, at Saint Louis, and at New Orleans; and for more than 50 years steamboat building flourished in the West, reaching large proportions. The yards were scattered principally along the Monongahela and Ohio. Active work was done at Brownsville, Pittsburgh, Allegheny City, Sewickley, and Freedom, Pennsylvania; Steubenville, Marietta, Ironton, and Cincinnati, Ohio; Wheeling, Virginia; Newport, Louisville, and Portland, Kentucky; Madison, New Albany, and Jeffersonville, Indiana; Cairo and Mound City, Illinois; Saint Louis, Missouri; Dubuque, Iowa; Stillwater, Minnesota, and New Orleans. Besides yards at these places, a large number grew into existence at intermediate points for the repairing of vessels or for the building of barges and flat-boats, or for both repairing and building.

The early boats were all of low speed, as has been before noted, and up to 1818 no faster trip had been made from New Orleans to Louisville than 19 days. The Shelby had made the trip in that time with 51 passengers and a cargo of groceries, dry goods, etc., having stopped at ten places *en route*. Her running time was 15 days and 5 hours, but the usual time up the river was from 25 to 30 days. The fast steamer Cincinnati made round trips from Cincinnati to New Orleans in about 40 days, but once consumed nearly 100 days on the upward trip alone, having broken down *en route*, finding no place where repairs could be made until she reached Louisville. Efforts were finally made to improve the time of passenger boats, especially after 1830, and with such success that in 1838 the Diana made the run from New Orleans to Louisville in less than 6 days, winning a premium of $500 from the Post-Office Department for so doing. The passenger boats were side-wheelers, with pretty sharp bows and flat floors amidships, drawing from 4 to 6 feet of water, and were from 400 to 600 tons register. In the smaller boats the cabin was on the main deck aft between the engines. In 1838 upper cabins were rare, but they came into popularity later; cabins are now never placed on the main deck, except in a few ferry-boats. When the era of fast boats began, in 1830, the speed of every new-comer from the ship-yard was tested, and the course selected for this purpose was the lower Mississippi, which was deep and comparatively free from bars. Racing over this course from New Orleans to the cities north became the fashion after 1830, and has remained a feature of western boating to the present day. Rivalry reached such a point at times that both before and after the late war boats were sent over the course, stripped of every pound of cargo, baggage, and incumbrance, including even a part of the wood work of the vessel, and were driven with the full power of the engines and sent along without making stops, merely to beat the record of all previous trips and establish a reputation for speed. The passion for fast time and the carrying of steam at high pressure led to immense loss of life and property by explosions until legislation interfered and regulated the pressure of steam and the strength of the boilers. The speed of later boats has been secured not so much by an increase of steam pressure as by enlarging the cylinders of the engines. From 1830 to 1840 cylinders varied from 18 to 24 inches diameter in passenger boats, and occasionally they were larger, though not often; but in later steamers the diameter was increased to 30 inches, and since the war it has increased to 42 inches in many boats. The stroke has been 5 and 6 feet in small boats and from 8 to 11 feet in the large and fast ones.

Without following the development of steamboating in the West step by step through all its history, it will answer the purpose of this report to give a few data about particular vessels and then pass on to the facts about the boats and boat-yards of to-day.

From 1830 to 1840 the popular size was from 100 to 300 tons register; a few smaller craft were used as ferry-boats at local points, and there were a few large ones of from 400 to 600 tons engaged on the long routes. The following were fair specimens of the dimensions popularly used:

| Length from bow to stern. | Beam. | Depth of hold. | Register tonnage. | BOILERS. | | | ENGINES. | |
|---|---|---|---|---|---|---|---|---|
| | | | | Length. | Diameter. | Number of boilers. | Diameter of cylinder. | Length of stroke. |
| *Feet.* | *Feet.* | *Feet.* | | *Feet.* | *Inches.* | | *Inches.* | *Feet.* |
| 175 | 27 | 8½ | 440 | 24 | 42 | 8 | 25 | 8½ |
| 150 | 20 | 6½ | 166 | 20 | 40 | 4 | 22 | 8 |
| 165 | 28 | 7½ | 295 | 26 | 42 | 6 | 22½ | 10 |
| 230 | 28 | 8 | 600 | 30 | 42 | 6 | 25 | 10 |
| 130 | 21 | 4 | 112 | 20 | 38 | 2 | 14½ | 6 |
| 134 | 18 | 5 | 130 | 18 | 39 | 4 | 27 | 5½ |
| 130 | 18½ | 5½ | 130 | 18 | 36 | 3 | 18 | 5 |
| 130 | 19½ | 5½ | 129 | 18 | 34 | 4 | 20½ | 5 |
| 158 | 26 | 8 | 307 | 21 | 42 | 7 | 30 | 6½ |
| 153 | 28½ | 10 | 435 | 21 | 40 | 9 | 30 | 6 |
| 137 | 21 | 6½ | 200 | 23 | 36 | 6 | 24 | 5 |
| 169 | 27 | 10 | 440 | 21 | 40 | 7 | 32 | 6½ |

These boats had sometimes one, but generally two smoke-pipes, and the cabin was sometimes aft between the engines and sometimes aloft. They all had ample deck room for cargo.

After 1840 larger boats made their appearance for passenger service on the Ohio below Cincinnati, and on the Mississippi from Saint Louis to New Orleans. These boats were all side-wheelers, and were all built on the Ohio. One of the first was the fleet Sultana, built in 1843, which was 250 feet long, 35 feet beam, and 8 feet hold. Her boilers were 7 in number, 32 feet long, 42 inches in diameter, the engines 30 inches in diameter and 10 feet stroke, and the paddle-wheels 30 feet in diameter, with 14-foot buckets. This boat developed a speed of 15½ miles per hour going up stream, and made one trip from New Orleans to Louisville in 4 days 22 hours.

The Peytona was built in 1846 on the same measurements, except that she was 10 feet longer and had 6 boilers 32 feet by 42 inches; engines, 30½ inches in diameter and 10 feet stroke, and wheels 33 feet in diameter, with 16-foot buckets. She beat the time of the Sultana to Louisville by 2 hours. This boat once ran from Evansville to Louisville, a distance of 200 miles, with 300 tons of freight, in 13 hours, the fastest time ever made on that river, (*a*) the ordinary trip between those two points being 24 hours.

In 1852 the Eclipse was built at New Albany, just below the falls, and was one of the largest boats ever built in the West, being 363 feet long, 36 feet beam, and 9 feet deep in the hold. She was sumptuously fitted up with a richly furnished saloon-cabin and a texas or steerage cabin atop, had 8 boilers 42 inches in diameter and 32½ feet long and 2 engines 36 inches in diameter, and was the only boat of the day with 11-foot stroke. The wheels were 41 feet in diameter, with 15-foot buckets. How lightly built her hull was may be seen from the following data: Her frames were single, and were cut from 4- and 4½-inch flitch oak, molded 13 inches on the floor, 10 inches at the bilge, and 5½ inches at the heads. The main keelson was 12 by 16 inches, the bilge log 7 by 11½ inches, and there were 18 floor keelsons, varying from 3½ by 10 to 4 by 11 inches square. Fore and aft bulkheads of wood were put in to strengthen her. She was planked with 3½- to 4¼-inch oak. The Eclipse was finished at a cost of $300,000, and for many years was the most fashionable and popular boat of the West. Her exploits were the pride of the people. In 1852 she ran from New Orleans to Louisville in 4 days 18 hours, and in the next year made the same trip in 4 days 9 hours 30 minutes, an average of 13⅓ miles per hour, having lost 35 minutes *en route* by the blowing out of the packing of a piston. Her highest speed was 16 miles an hour. It must be remembered that this was up stream, as down stream it was not unusual for the Eclipse to make 25 miles an hour.

The A. L. Shotwell, built the same year as the Eclipse, was 310 feet long, 36 feet beam, and 8 feet deep in the hold. She had six 32-foot by 42-inch boilers, and two engines 30 inches in diameter with 10 feet stroke. The wheels were 37 feet in diameter, and had 15-foot buckets. The Shotwell was built sharp, with a view to speed, and was the only vessel that dared challenge the Eclipse. These two boats were racing when the latter made her celebrated record of 1853. Both were stripped for the effort, and carried neither passengers nor freight. Furniture, landing stages, and fenders were sent ashore, the bulkheads in the wheel-houses and part of the deck were removed, and everything was done that could be thought of to lighten the two boats and qualify them for the contest. The Shotwell, being the shorter boat, had the advantage in turning bends of the river, but she once ventured in too close, got aground, and lost 2½ hours, and thereby lost the race. Her running time, however, was very nearly the same as that of the Eclipse, and her record made her one of the most popular boats of that day.

Following these two famous steamers came a number of large and swift boats for the packet service from principal points to the South and back. These ranged from 250 to 300 feet in length, and were sumptuously fitted up with upper and top-gallant cabins. They were, in the main, side-wheel boats, this type having always been preferred for passenger traffic on the grand routes; some were, however, stern-wheelers. They were all usually owned in Pittsburgh, Cincinnati, and Saint Louis.

The war interrupted the river traffic for a period of four years, and during its progress a great deal of the old tonnage disappeared. After that traffic was resumed, slowly at first, but with increasing activity, and a fleet of new boats came out fully the equals of the earlier steamers, some of them of great size and speed. Two of them were the R. E. Lee, built in 1866, and the Natchez, built in 1869. The Lee was 300 feet long, 44 feet beam, and 10 feet deep, with engines 40 inches in diameter and 10-foot stroke, and wheels 38 feet in diameter, having 16½-foot paddles. The Natchez was very nearly of the same size, being 301½ feet long, 42½ feet beam, and 9½ feet in the hold, her engines, however, being 34 inches in diameter, with 10-foot stroke, and wheels 42 feet in diameter. with 16-foot paddles. In 1870 these two boats raced from New Orleans to Saint Louis, a distance of 1,200 miles, Both boats stripped for the race, and left about 5 p. m. of June 30, 1870. They kept each other in sight a large part of the way, made about 17 miles an hour on the lower river, and were only an hour apart at Memphis and at Cairo. The R. E. Lee reached Saint Louis in the unprecedented time of 3 days 18 hours and 14 minutes, the Natchez arriving 6 hours and 33 minutes later.

Among the large boats the Great Republic was built at Pittsburgh in 1867. She was 296 feet long, 50½ feet broad, and 9½ feet deep; not a fast steamer, but a capacious one, and a large carrier. In 1872 she was enlarged at Saint Louis, and then became 350 feet long, with a register of 2,441 tons. She was dismantled in 1879 and converted into a barge for towing.

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[a] Henry Clay was on board.

In 1876 a steamer was built at Saint Louis called the Grand Republic, intended to be a monster passenger and cotton boat. She was 338⅔ feet long, 56⅔ feet broad on the beam, and 103 feet wide over the paddle-wheel guards, with a depth of hold ranging from 10½ to 17 feet. Her boilers were steel, 7 in number, 28 feet long and 42 inches in diameter. Two engines were 55 inches in diameter and 10 feet stroke, and were taken from the Great Republic, and two others were 26 inches in diameter, with 10 feet stroke. The power was immense. The wheels were 37 feet. State-rooms were supplied for 280 passengers, and the boat was so admirably built that she floated light at 32 inches draught forward and 48 inches aft, and on 10 feet draught could carry 4,000 tons of freight. Her cost was $190,000; her register, 2,600 tons. The boat was burned at her wharf in Saint Louis in 1877 while undergoing repairs.

Several large side-wheel boats came out in 1878, among them the Ed. Richardson, of 2,048 tons, and the J. M. White, of 2,028 tons, both remarkably handsome vessels, and good specimens of the side-wheel steamer of the West of the present time. The Ed. Richardson cost $125,000, and was 303 feet long, 48½ feet broad on the beam, and 10 feet deep in the hold. She had 9 boilers, 42 inches in diameter and 32 feet long, and the cylinders were 38 inches by 10 feet. The cabin was 140 feet long, from 26 to 45 feet wide, and 17½ feet high.

While many 300-foot boats have been built since 1878, that being a favorite length for the great Saint Louis packets, none have been built so large as the J. M. White. As a representative of her class she may be described in detail, and this description will answer for all the side-wheel boats, because others differ from her only in dimensions and the slight changes in scantling and size of engines due to the difference in tonnage. The hull of the J. M. White is 321 feet long, 48 feet broad on the main beam, 10½ feet deep in the hold in the shoalest place, the plank-sheer rising to 16½ feet at the bow and stern. This 6 feet of sheer is peculiar to boats built for the lower Mississippi, the river being too smooth above to require more than a faint rise of the deck forward. The floor amidships is nearly flat. The bilge is rounding and the sides are slightly flaring, and more than one-half the length of the hull amidships is straight, with only a faint taper in that part of its length. The bow is about 80 feet long, long and tapering, with hollow water-lines below, but flaring above, so that the deck may be carried forward as broad as possible, with 2 or 3 feet of guards. The after part of the boat is fuller. The hull is framed as follows: Keel, broad and flat; frames, molded, 11 inches, and sided 4½ and 5 inches amidships, increasing to 6 inches in the bow, with some of 4 inches aft; side timbers, molded 10 inches at the bilge and 5 inches at the head. The spacing varies from 14 inches amidships to 12 at the bow, with flitch side futtocks at the bilge. Main keelson, 11 by 18 inches; bilge or knuckle keelsons, 9 by 13 inches. Twelve floor keelsons parallel to the main, as follows: two, 4½ by 12 inches; four, 4 by 10; two, 6 by 10; two, 7½ by 9; two, 9 by 10½—this last pair supporting bulkheads and the heels of wooden masts or braces, over which the hog-chains of the boat pass. Ceiling, none, except that a light floor is laid on the bottom of the boat; three side streaks, or stringers, are fastened to the top timbers on each side for rigidity, one of them being 3½ by 12, the other two 4 by 12 inches. Clamps, 4 by 15 and 3½ by 13 inches. The beams, 4½ and 4 by 9 inches, are supported by several long rows of slender stanchions resting on the floor keelsons, and by three fore-and-aft bulkheads, made by nailing light poplar planks to the stanchions. The planking is, like the rest of the boat, white oak, 4½ inches thick on the bottom, diminishing to 4 inches aft, 5 at the bilge, and 4½ tapering to 4 inches on the sides. Decking, 2½-inch white pine. The bow for 25 feet is solid oak and iron, with strong breast-hooks and braces, and the guards amidships are 22½ feet wide. A strong iron band weighing 2,500 pounds is placed upon the fore edge of the stem, running under the boat and ending on the keel. Fore-and-aft rigidity is not left to depend on the keelsons and bulkheads, but is gained chiefly by an elaborate system of hog-chains, so called; that is to say, of long iron rods stretching from end to end and from side to side of the boat. These rods fasten under the main and heavy floor keelsons and run up over the end of long rows of square pine masts and braces, which are set up on the keelsons perpendicularly amidships, but are inclined forward in the fore body and backward in the after body. The rods vary from 1½ to 2 inches in diameter, and contain about 58 tons of iron; by their agency the weight, both of the ends of the boat and of the guards, rests in part on the central portion of the boat. This system is universal in all the steamers of the West, and a hog-frame is never seen. The great width of the J. M. White, 95 feet, affords spacious deck-room for the boilers and engines and the stowage of cargo. The lower deck is covered with a roof or deck, supported on light stanchions, and the sides are all open forward, being closed at times against the weather by canvas awnings only. The wheel-houses and a part of the lower deck aft are inclosed; the cabin is built upon the upper deck. The main cabin is 233 feet in length, 13 feet high in the clear, and 19 feet wide, exclusive of state-rooms. The office is in the forward part of the cabin on one side, the bar-room on the other. Twenty-three state-rooms, 10 feet deep, line each side of the central hall, and there are two state-rooms 13 by 14 feet. Aft of the main cabin is a hall 17 feet deep and 46 feet wide, exclusively for ladies. Tables are spread in the main cabin, at which 250 guests can sit at dinner. The pantry, cupboard, barber-shop, etc., are on the upper deck, forward of the wheel-houses. A promenade deck 30 feet wide by 64 feet long extends in front of the cabin, which is reached from below by an ash and black walnut stairway. On top of the main cabin is the texas, or upper cabin, 180 feet long by 28 feet wide, with 50 state-rooms, including accommodations for the officers, the cabin-boys, a few first-class passengers, and the colored passengers. A bell weighing 2,500 pounds hangs in front of the texas. The pilot-house is on the roof, and is 15½ feet square and 17½ feet high. These upper works are of the very lightest and frailest description, the stuff being white pine and poplar ¼ and ½ inch thick, supported by a very light framing of pine and fastened with small nails. Steam-power is supplied by a battery of ten steel boilers, each 42 inches in diameter and 34 feet long, containing two flues 16 inches in diameter. The smoke-pipes are two in number, reaching to a height of about 75 feet from the main deck, showily ornamented at the top, their mouths flaring like enormous sunflowers with coarse petals. The boilers are allowed to carry 173 pounds of steam. The stowage space for coal is provided in front of and around the boilers. The engines are placed horizontally amidships, one on each side of the boat, having 43-inch cylinders with 11 feet stroke. They are of the regular lever, puppet-valve type, and are each placed on two massive parallel timbers built up of solid oak logs, called cylinder timbers, scarped and keyed together. These cylinder timbers are a feature of all western boats. Heavy oak stanchions are placed in the hold to support their weight, and strong iron rods run down to the keelsons, securing them in position. The cross-head of each piston runs on iron ways on top of the cylinder timbers, and a pitman 44 feet long connects the cross-head with the crank of the paddle-wheel shaft. The escape steam finds its way into the open air, in slow, strong puffs, from pipes that rise through the roof of the texas like small smoke-stacks. No racing steamer has ever had larger wheels than the J. M. White, as they are 44 feet in diameter, and carry paddles 19 feet long by 3 wide, and are driven at a speed of 18 revolutions a minute. With 100 pounds of steam the engines develop 2,800 horse-power and drive the boat at a velocity of 20 miles per hour. The cargo is stowed on the ample lower deck, and also in the hold, and there is room for 10,000 bales of cotton. Small engines are provided for raising freight from the hold and for working the capstans and the landing stages. The landing stages are two in number, about 50 feet long and 8 feet wide, being strong but lightly built platforms, and, owing to the lack of room for them on the deck and the frequency with which they have to be used, they are carried suspended in the air over the forward deck, projecting diagonally upward, like horns. There are 290 tons of iron in the fastenings, hog-chains, boilers, engines, and outfit of this steamer, and with this load and about 60 tons of water and 400 tons of coal aboard she draws 6½ feet, and on a draught of 10 feet will carry 250 passengers and 2,600 tons of freight. This boat was built expressly for the cotton-carrying and passenger traffic of the lower Mississippi, and cost about $220,000.

The following are the main data of size, etc., of a number of the leading side-wheel boats of the West, including those above enumerated:

| Year. | Boats. | HULL. | | | BOILERS. | | | ENGINES. | | WHEELS. | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Length. | Beam. | Hold. | Number. | Length. | Diameter. | Diameter. | Stroke. | Diameter. | Length of paddles. |
| | | *Feet.* | *Feet.* | *Feet.* | | *Feet* | *Inches.* | *Inches.* | *Feet.* | *Feet.* | *Feet.* |
| 1843 | Sultana | 250 | 35 | 8 | 7 | 32 | 42 | 30 | 10 | 30 | 14 |
| 1844 | J. M. White | 250 | 31 | 8⅓ | 7 | 32 | 42 | 30 | 10 | 32 | 15 |
| 1846 | Peytona | 260 | 35 | 8 | 6 | 32 | 42 | 30½ | 10 | 33 | 16 |
| 1848 | Aleck Scott | 285 | 84 | 7⅔ | 5 | 32 | 42 | 30½ | 10 | ........ | ........ |
| 1852 | Eclipse | 363 | 36 | 9 | 8 | 32½ | 42 | 36 | 11 | 41 | 15 |
| 1852 | A. L. Shotwell | 310 | 36 | 8 | 6 | 32 | 42 | 30 | 10 | 37 | 15 |
| 1855 | Princess | 280 | 38 | 9⅓ | 6 | 34 | 42 | 34 | 9 | 40 | ........ |
| 1866 | R. E. Lee | 300 | 44 | 10 | 8 | 32 | 42 | 40 | 10 | 38 | 16½ |
| 1867 | Great Republic | 349½ | 50½ | 8⅓ | ........ | ........ | ........ | ........ | ........ | ........ | ........ |
| 1868 | Frank Pargoud | 250 | 41 | 9⅓ | 7 | 28 | 38 | 32½ | 9 | 36½ | 15½ |
| 1869 | Natchez | 301½ | 42½ | 9½ | 8 | 34 | 40 | 34 | 10 | 42 | 16 |
| 1876 | R. E. Lee | 315 | 48½ | 10½ | 9 | 32 | 42 | 40 | 10 | 39 | 17 |
| 1876 | Grand Republic | 338⅔ | 56⅔ | 10½ | 7 | 28 | 42 | 55 | 10 | 37 | ........ |
| 1878 | John W. Cannon | 250 | 43 | 9½ | 7 | 34 | 42 | 34 | 9 | 37½ | 16 |
| 1878 | J. M. White | 321 | 50 | 11½ | 10 | 34 | 42 | 43 | 11 | 44 | 19 |
| 1878 | Ed. Richardson | 303 | 48½ | 10 | 9 | 32 | 42 | 38 | 10 | ........ | ........ |
| 1880 | Natchez | 304 | 46½ | 9⅔ | ........ | ........ | ........ | 34 | 10 | ........ | ........ |
| 1881 | City of New Orleans | 300 | 48 | 9 | 5 | 30 | 44 | 26 | 10 | 35 | 15 |
| 1881 | City of Baton Rouge | 300 | 48 | 9 | 5 | 30 | 44 | 26 | 10 | 35 | 15 |
| | Belle Lee | 300 | 43 | 9 | ........ | ........ | ........ | ........ | ........ | ........ | ........ |
| 1881 | Edward J. Gay | 250 | 40½ | 8½ | 6 | 32 | 42 | 27 | 48 | ........ | ........ |
| | Annie P. Silver | 300 | 41 | 8⅔ | ........ | ........ | ........ | ........ | ........ | ........ | ........ |
| | John A. Scudder | 300 | 50 | 8⅓ | ........ | ........ | ........ | ........ | ........ | ........ | ........ |

These boats draw an average of between 36 and 48 inches light and from 6 to 10 feet loaded, carrying from 1,000 to 2,600 tons of cargo. On the upper Mississippi the packets are smaller, varying now from 180 to 230 feet in length and from 35 to 40 feet beam, drawing from 4 to 6 feet loaded. They are of the same type exactly as those of the lower river. The use of side-wheel boats is now confined almost exclusively to the Mississippi river and the lower portion of the Ohio.

On the upper part of the Ohio, the Missouri, the Arkansas, and all the other tributary streams of the West, the passenger and freight boats, as well as the towing boats, are almost exclusively stern-wheelers (Fig. 52). Experience has demonstrated the superiority of the stern-wheelers for handling fleets of barges, and the peculiarities of navigation on the Ohio have given them the preference for the passenger and freight traffic of that

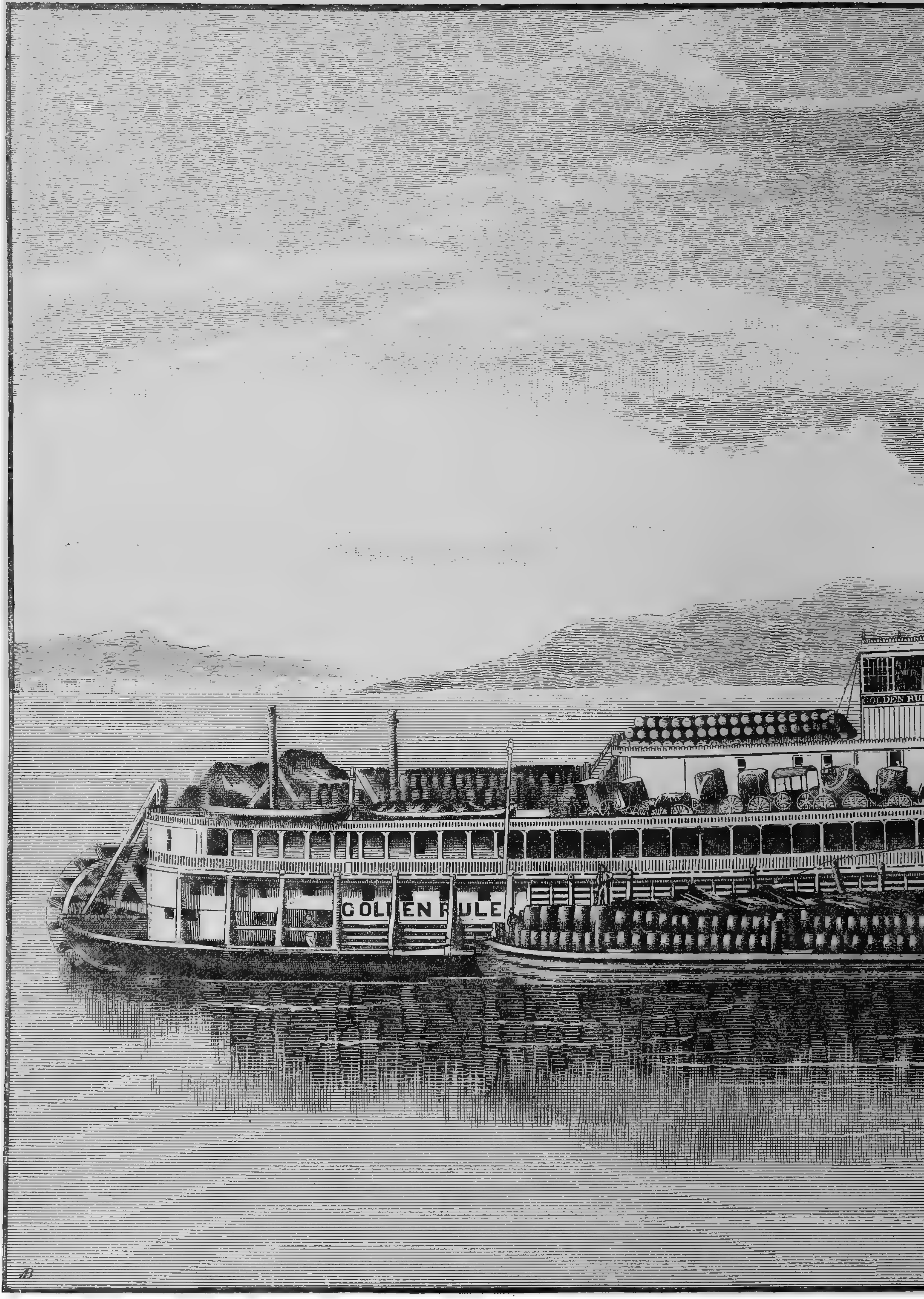
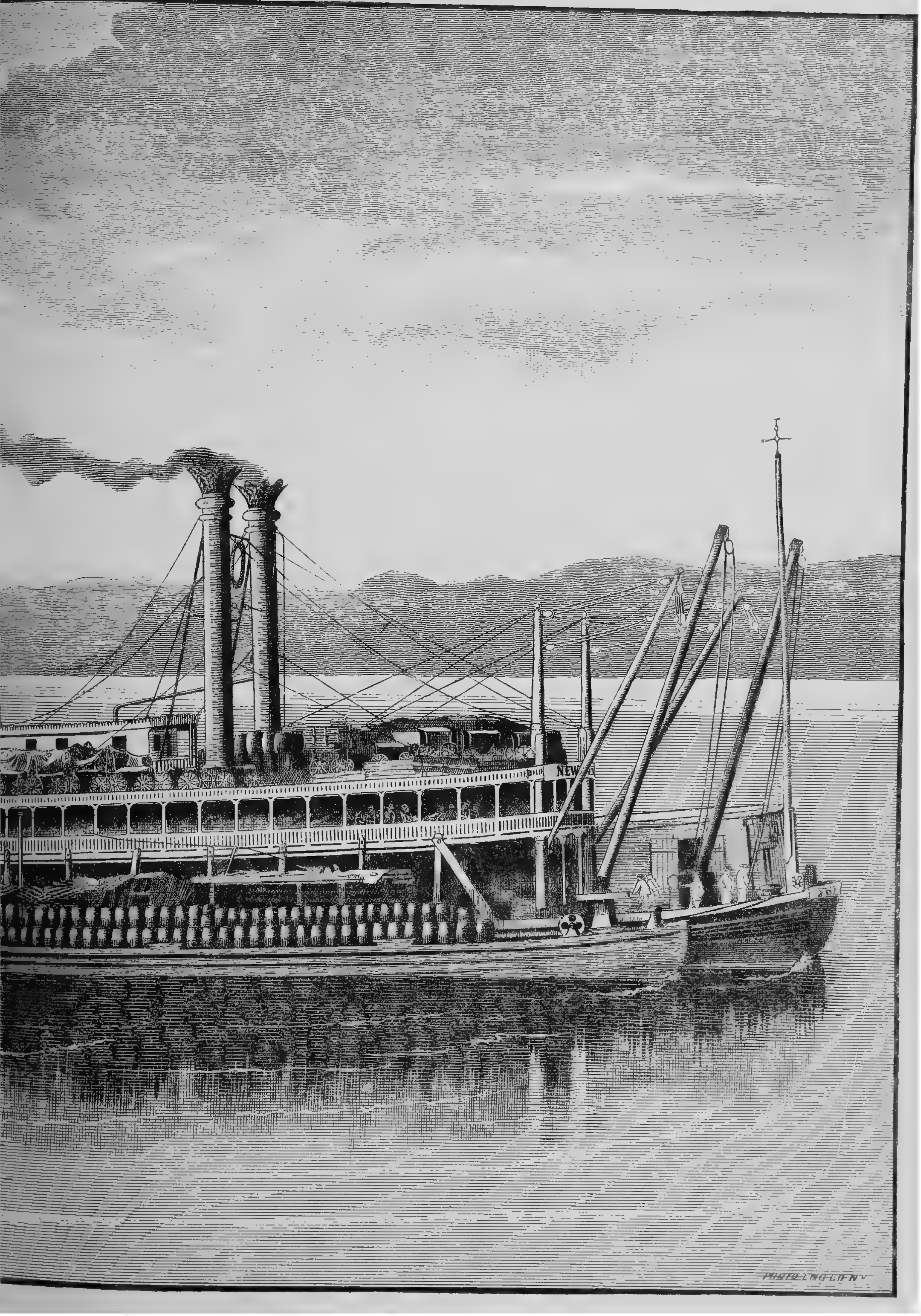


Fig. 53.—STERN-WHEEL PASSEN

881 tons, 265 feet long, 41⅔ feet beam, 6⅜ feet deep. At Cincinnati, prepared for a light-water trip to Cairo, the barge-loads there to



GHT BOAT GOLDEN RULE.

he steamer for transportation to points on the lower Mississippi. One barge carries cargo, the other one both cargo and coal.

stream. The canal at Louisville is only 82 feet wide, and the largest stern-wheelers can slip through this channel with perfect ease, while on the other hand side-wheel boats usually measure from 83 to 95 feet over the guards, and are therefore shut out from the trade to points above Louisville. For another reason the river captains of the Ohio find it convenient to place the paddle-wheel aft. When the river is low the large boats bound for New Orleans cannot carry a full cargo without danger of grounding, and find it useful, therefore, to lay freight barges alongside of the steamer, one on each side (Fig. 53), loading one with goods and the other with coal and running in this manner to Cairo. At that point the whole of the cargo is transferred to the steamer. This is what they call "a light-water trip" on the Ohio, and for such purposes the stern-wheel boat is superior to all others. The placing of the wheel aft works a few changes in the build of the steamers. The wheel-houses and guards at the sides are dispensed with, the cylinder timbers are carried away aft and are made to project about 25 feet behind the hull, with a slight sheer upward; the paddle-wheel shaft rests on these timbers, and the system of hog-chains is extended aft, so as to support the weight of the large wheel and transmit the stress of it to the forward part of the boat. The only other important change is in the form of the hull. The model does not taper aft; it has to keep its full breadth on deck and on the bottom clear to the stern, so that there is no taper at all to the after body of the boat except for a few feet. The body is carried back square; the floor of the boat rises in the middle at the stern, however, so as to allow the water to clear easily, giving the stern the appearance of two hulls joined by arching timbers planked over. This form of stern permits the use of three or four rudders, those at the sides being hung on the upright stern-post, while those in the middle are hung on stout rudder-posts and project partly under the boat, being shaped on the balance-rudder principle. The bows of the stern-wheelers are all full and raking. The cylinder timbers in some of the stern-wheelers of recent construction are made of plate-iron, as are also the paddle-wheels, both being lighter in consequence.

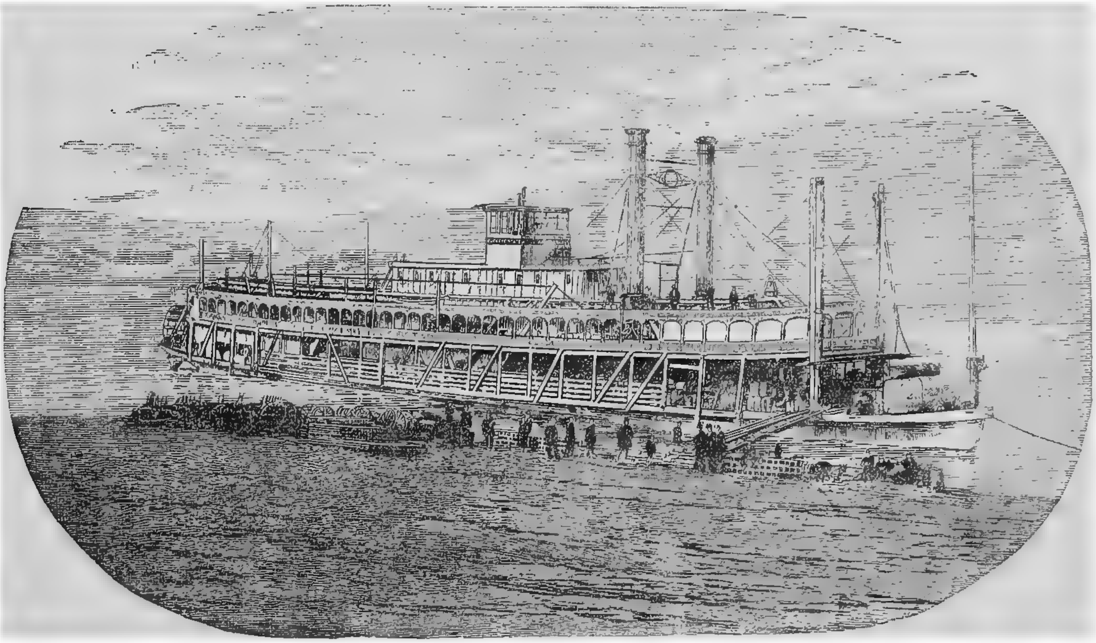


Fig. 52.—Buckeye State.

Built at Pittsburgh, Pennsylvania. Stern-wheel passenger and freight boat.

The passenger and freight boats of this class are handsome vessels of from 200 to 265 feet in length and from 35 to 42 feet beam, and have from 6 to 10 feet depth of hold amidships, with ample cabins and upper works. Those that go down the Mississippi are given a good deal of sheer. They carry from 1,200 to 2,200 tons of cargo on 7 to 10 feet draught, their hulls being immersed to within a foot of the plank-sheer when loaded. The towing boats are not so large in the hull, and have small cabins, but they have stronger bows. They are now from 150 to 250 feet in length, and draw from 6 to 8 feet forward and not over 4 feet aft, the smaller sizes being used on the upper Ohio and in towing barges on the Mississippi. The great tow-boats make up large fleets of coal barges at Louisville below the canal and take them to New Orleans. The Ajax and the Harry Brown will take from 20 to 35 loaded coal barges at one time.

The average length of life of the western steamers is 7 years.

**Barges.**—There are four classes of barges at present in use. The smallest is the flat-boat (Fig. 54), square and box-like, with a raking bow and stern, about 90 feet long, 16 feet wide, and 5½ to 7 feet deep, undecked, registering about 75 tons. Its use is always local on small streams for short trips for carrying about 115 tons of coal, stone, or other coarse cargo. Next is the coal barge, an open boat, strongly built, with raking ends, about 130 feet long, 24 feet wide, and 7½ feet deep, registering about 225 tons, and carrying from 400 to 500 net tons of coal. The later boats are 135 by 25 by 8 feet. The majority of the barges are employed between the coal mines in Pennsylvania and West Virginia and the markets below all the way to New Orleans. They are valuable boats, and are almost always brought back after the down trip. The coal boat, or broad-horn (Fig. 55), is about 170 feet long, 25 feet wide, and 9½ feet deep, registering about 375 tons, and carrying about 950 net tons of coal. The coal boat has a strong hemlock, pine, or oak bottom, but the sides are flimsy. It was formerly customary to leave coal-boats at New Orleans to be broken up for lumber, for the same reason that the immense multitude of grain barges which float down the rivers of Russia every year are not taken back. To tow them to Pittsburgh again, a distance of 1,900 miles, in the face of the current did not pay. Latterly, however, since the boats have reached a large size and have been better built, it has been cheaper to bring them back than to sell them, and the majority are now built for more than one trip. Next in order is the model barge. These boats have hulls built like steamboats, sharp at both ends, decked, and covered with a house or "cargo box" when used for package freights. The smaller ones are used on the Mississippi above Saint Louis for carrying iron-ore, ice, building-stone, and other coarse freight, of which each carries about 500 tons on 5 feet draught, while the larger ones, 235 feet long, are employed in the bulk grain trade of the Mississippi to New Orleans, and carry up to 1,800 tons of cargo on about 8 feet draught.

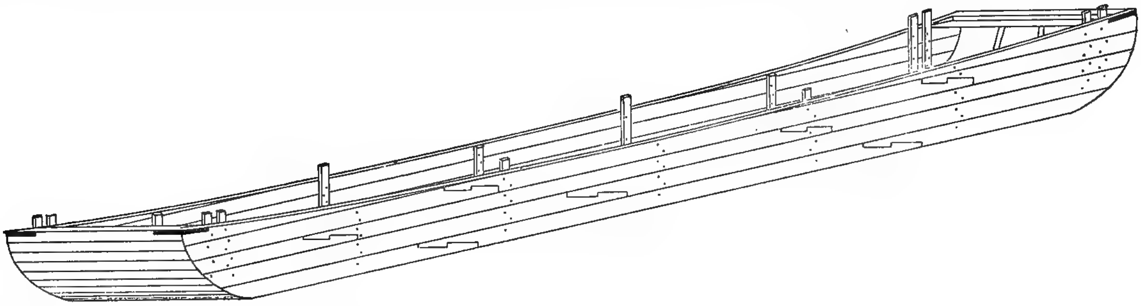


Fig. 54.—Flat-boat.

90 feet long, 16 feet beam, 6 feet depth of side; capacity, 115 tons. Coal barge; same model exactly, except that there is a bulkhead in each end.

Flat-boats are built as follows: They are put together on a long row of stout wooden horses or building ways. The sides are built up of four, or, in deep boats, five tiers of solid white-pine logs, 8, 7, and 6 inches thick, laid one above the other, and strongly bolted together edgewise with square iron spikes. In another part of the country where boats are also built with "gunwale" sides, namely, on the Erie canal, the bolts go clear through from top to bottom, being driven with great effort by a heavy swinging hammer; but on the western rivers each set of gunwales is fastened on separately, the bolts through one tier being driven in the intervals between those of the tier below. The lowest gunwale is made of three logs, 8 inches thick and 18 inches deep, fitted together with 5- or 6-foot scarfs. The tier above is 7 by 18 inches, fastened with 11 spikes 28 inches long by ¾-inch square. A third tier of logs in two lengths, scarfed, is then laid on and fastened with 12 spikes 44 inches long and ¾-inch square, the spikes thus going down into the lower gunwales. The fourth or top gunwale is 6 by 14 inches square, in three lengths, fastened with 14 spikes 40 inches long by ¾-inch square. On top of this gunwale sheer pieces are placed at each end 30 feet long, 15 inches high at one end, tapering to 2 inches at the inner end. This is spiked on with light iron, generally with 24-inch spikes. Each side of the boat is made in this manner, each being laid flat on the row of wooden horses until bolted. The sides are then raised to a perpendicular position. The floor is constructed by laying a number of floor timbers of pine or hemlock, 6 by 12 inches in 5-foot boats and 7 by 14 inches in deeper boats, athwart a number of fore-and-aft floor streaks; they are put in about 12 feet apart, the ends tenoning into the lower gunwale, which is always heavier than those above. The floor streaks or "streamers" are four in number, of 3 by 9 inch oak, laid from end to end of the boat, being fastened under the floors with strong spikes. The bottom is then planked across with 2- or 3-inch hemlock, when it can be had; otherwise, with white pine or oak; sometimes the bottom is built wrong-side up and then turned over. The plank of the raking ends is supported by rake timbers, heeling into a floor timber below and capped at the top by a transom or fender of oak about 9 by 13 inches square, this log being connected to the sheer pieces at the corners of the boat by short straps of iron 6 inches wide and ½ or ¾ inch thick. One strap is placed outside and another inside the corners of the boat, and the two are joined by screw-bolts through the wood. Oak or hemlock stanchions are set up on the ends of the floor timbers and bolted to the sides of the boat, and about 30 feet from each end of the boat one strong stanchion on each side is carried up above the top gunwale and shaped into a timber-head for towing purposes. A pair of stout oak bitts, 6 by 12 inches square, is put in at each end of the boat and fastened with strong screw-bolts, and usually a light bulkhead cuts off the raking ends of the boat from the rest of the hull, it being considered undesirable to allow the weight of the coal to rest there. Such a flat can be built with from 13,000 to 18,000 feet of lumber, according to depth, and 1,450 pounds of iron, and weighs from 18 to 22 tons, floating light at 4 from to 6 inches draught. These flats are well calked, but are not painted, and last six or seven years. The cost is from $500 to $650, depending on the size of the boat. The smallest item in the cost is labor, which, with wages averaging $2 a day, does not exceed from $85 to $100.

The coal barge is merely a larger and better flat-boat. The average size has been given, but the trade now calls for barges 135 feet long, 25 feet wide, and 8 feet deep. About 150 coal barges are built every year on the Monongahela alone. Owing to their size the several tiers of gunwales are laid in three and four pieces each, the logs varying from 20 to 50 feet in length. There are about 6 tiers of gunwales, 8 inches thick below and 7 and 6 inches above. It requires 34,000 feet of lumber and 3,000 pounds of iron to build a barge, and the expense is from $1,000 to $1,200, from $150 to $190 being for labor. They weigh about 45 net tons each, and, like the flats, draw only from 4 to 6 inches of water light. A few have been built at Pittsburgh 160 feet long, 24 feet wide, and 8 feet deep.

For coal boats, or broad-horns (Fig. 55), the standard size is now 170 feet in length, 25 feet beam, and 9 or 9½ feet in depth of side; but they vary in dimensions, sometimes being a foot wider, and sometimes 2 or 3 feet shallower. One large firm on the Monongahela builds them 165 feet in length, 28 feet beam, and 8½ feet in depth, the capacity and cost in all cases being about the same. The coal boat has a barge bottom, with one bilge-log or gunwale about 9 by 16 inches square, strengthened at the scarfs by a piece inside 18 feet long, 4 by 16 inches square, fastened on with 10 large treenails, 7 or 8 screw bolts, and a number of spikes. This bottom is generally built of hemlock or of hard wood, whichever can be most cheaply bought in the locality. A sheer piece is put on top of the gunwale at each end. The ends of the bottom overhang as in a flat, and the tops are flimsily built. A long row of studs, about 6 by 2½ inches square, is set up perpendicularly on the bilge-log and sheer pieces, clear around the boat, from 32 to 36 inches apart, and these are simply and lightly planked over, generally with broad 1½-inch hemlock boards, though sometimes with white pine. A thread or two of oakum is driven into the seams, so as to make the boat water tight for one trip at any rate. Two-inch boards are used in boats which are to make several trips. This kind of a top needs to be braced, and accordingly carlines or light beams of 4 by 4 inch hemlock are put in about 8 feet apart, the ends supported by a light clamp, nailed to the studs. A light stringer is nailed to the head of the studs inside for additional strength. Coal boats are built on the Monongahela, upper Ohio, and Great Kanawha. The bottoms are usually built away up in the woods on the small tributaries, where hemlock and hard wood are cheap, and are floated down to the saw-mills below, where they are "sided up", as it is called. Bottoms vary in cost from $300 to $375. With wages at about $2, the labor of "siding up" costs about $95 and the materials $255, and the finished boat sells for from $800 to $900. Although this class of boat has nearly twice the capacity of a barge, it contains no more lumber—only about 35,000 feet in all. It draws only about 4 inches of water light, and stands up so high out of water after discharging cargo that it catches the wind and is hard to handle where the rivers are broad. The raking overhang of the bottom alone makes it possible to tow them up stream.

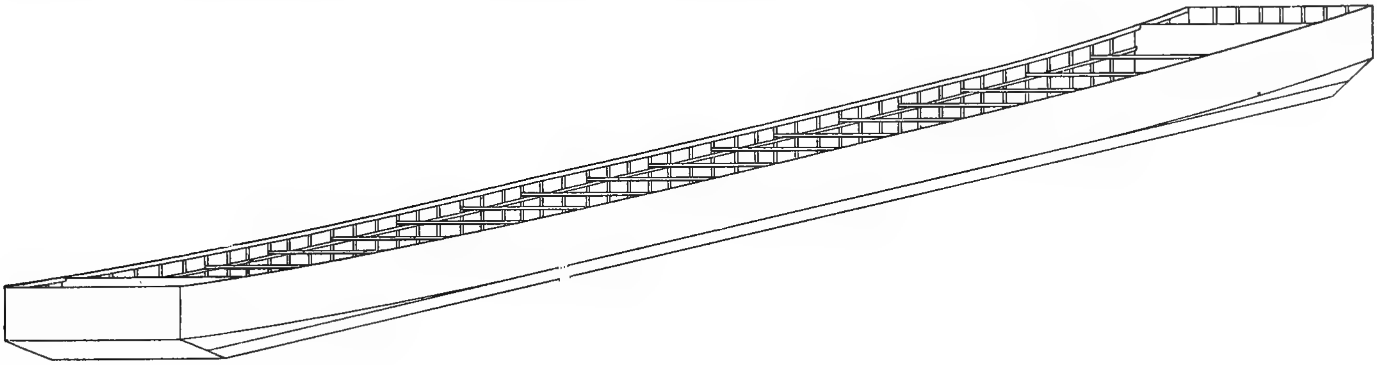


Fig. 55.—Coal boat, or broad-horn.

170 feet long, 25 feet wide, 9½ feet deep on the side; capacity, 950 tons.

On the lower Ohio what are called "produce boats" are built from time to time on the same principle as the broad-horns. They are each about 122 feet long, 22 feet wide, and 7 feet deep, and cost from $800 to $900. After carrying a load of produce to New Orleans the boats are sold to the boat brokers for about $200 each, as it would cost nearly $300 to tow them back.

These three classes of barges were originally poled down the rivers or were rowed with sweeps, consisting of long poles with a short board nailed on the end at the proper angle for a paddle blade; for a great many years after the coal trade from the upper Ohio began the cargoes of coal were floated down the river in barges thus propelled. They generally went in pairs, and the crews were divided into watches and labored at the sweeps by turns; but that practice has been entirely discontinued so far as freighting is concerned. A certain number of flats are still owned by private persons, however, who deck and paint the boats, build houses on them, and employ them as traveling tin-shops, blacksmith-shops, and small trading vessels. They visit the bayous and sluggish rivers of the South at regular seasons of the year very much as peddlers travel about in wagons in northern communities, doing odd jobs of work, and are propelled in the old-fashioned way.

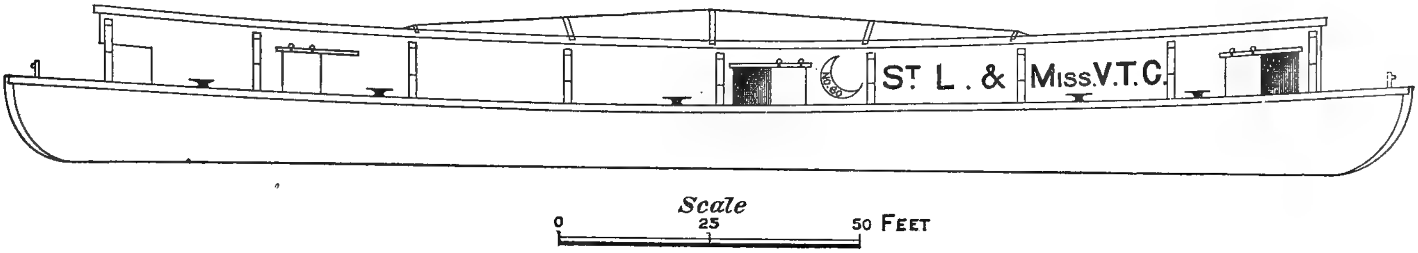
The pride of the western boatman is the model barge (Figs. 56 and 57). When painted, decked, housed, and well modeled these boats excite in a remarkable manner the enthusiasm of the river men, and the clippers of the ocean, with their fine proportions and towering clouds of snow-white canvas, do not stir a Jack Tar to more extravagant eulogy than the model barges receive from the western boatman. There are four sizes of these boats, carrying 600, 800, 1,000, and 1,200 or 1,300 tons of cargo respectively; and to say that the hulls are all modeled with a "pinkie" stern, that is to say, are sharp at both ends, and that they are framed on the same principle as steamboat hulls, is to describe the general points of their construction. Each has, however, only one hog-chain. This is placed in the center line of the boat, hooking under the main keelson at the bow and stern, and supported amidships by four or five pine posts or braces. A light collision bulkhead is built in the bow and also in the stern; when the hold is destined for grain in bulk or package freights it is ceiled up in such manner as to create a great cargo box, with an air-space of about 2 feet between it and the sides of the hull all around. This manner of ceiling up the hold diminishes the register tonnage without affecting the carrying power. The bodies of the boats are straight, the modeled portion of the ends being in length equal to about 1½ the breadth of beam.

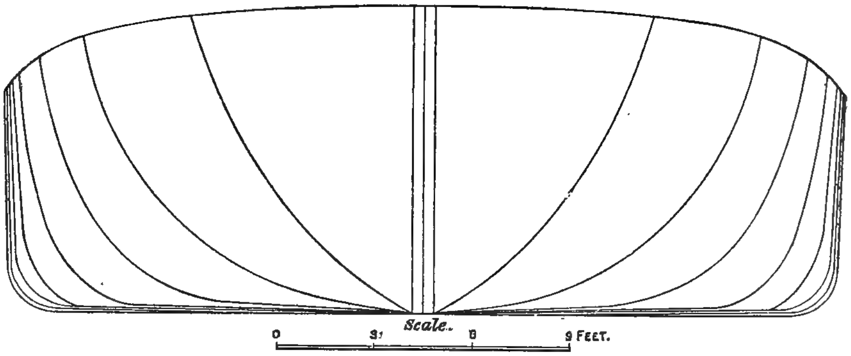
The following are some of the sizes of model barges recently built:

| Where built. | DIMENSIONS. | | | CARGO BOX. | | Register tonnage (tons of 100 cubic feet). | Carrying capacity in net tons. |
|---|---|---|---|---|---|---|---|
| | Length. | Width. | Depth. | Length. | Height. | | |
| | *Feet.* | *Feet.* | *Feet* | *Feet.* | *Feet.* | | |
| Pittsburgh, Pa | 183 | 30½ | 6 | 147 | [illegible] | 670 | 560 |
| Do | 186 | 34½ | 6⅔ | 153 | 8½ | 741 | 775 |
| Do | 186 | 34½ | 6⅘ | 153 | 10½ | 832 | 775 |
| Do | 200 | 35 | 7 | ........ | ........ | 399 | 840 |
| Do | 200 | 36 | 6½ | 169 | 10 | 908 | 825 |
| Do | 235 | 38½ | 7 | 210 | 10 | 1,298 | 1,200 |
| Freedom, Pa | 230 | 38 | 6½ | 200 | 9½ | ........ | ........ |
| Cincinnati, Ohio | 225 | 36 | [illegible] | 210 | 9½ | 1,250 | 1,300 |
| Do | 214 | 35 | 8 | 190 | 9½ | 975 | 1,050 |
| Do | 175 | 30 | 6½ | ........ | ........ | 250 | 525 |
| Jeffersonville, Ind | 220 | 34⅔ | 7½ | 200 | 10 | 1,050 | 1,000 |
| Do | 225 | 36⅓ | 7½ | 210 | 10 | 1,248 | 1,175 |
| Do | 226 | 36⅓ | 5⅔ | 210 | 10 | 1,107 | 1,000 |
| Registered at Saint Louis, Mo., and built at various points on the Ohio. | 160 | 32 | 6 | ........ | ........ | 215 | 625 |
| Do | 166 | 32 | 6 | ........ | ........ | 225 | 650 |
| Do | 180 | 31½ | 5⅔ | 150 | 10 | 674 | 600 |
| Do | 183 | 30½ | 6 | 150 | 10 | 670 | 600 |
| Do | 183 | 31 | 7 | 150 | 10 | 733 | 675 |
| Do | 200 | 36 | 7⅔ | 180 | 10 | 1,016 | 1,000 |
| Do | 200 | 36 | 8 | 165 | 10 | 996 | 1,000 |
| Do | 200 | 35⅘ | 6½ | 170 | 9½ | 836 | 850 |
| Do | 226 | 34⅔ | 8⅘ | 200 | 10 | 1,158 | 1,250 |
| Do | 226 | 36⅔ | 6⅔ | 200 | 10 | 1,164 | 1,100 |
| Do | 238 | 36⅓ | 8⅘ | 210 | 10 | 1,237 | 1,350 |

The use of model barges is continually growing between the principal trading points on the Ohio and Mississippi. The barges carry iron ore, railroad iron, tile, grain in bulk, and general merchandise. More than 120 are owned in Saint Louis, and are employed for the transportation of grain down the river and of imported iron and other goods back. The barges Monongahela and Allegheny were built at Belle Vernon, on the Monongahela, in 1880, at a cost of $9,000 each. They were 200 feet long, 36 feet beam, and 6½ feet hold, with cargo boxes 169 feet long, 11 feet in height to the top of the roof, and 33 feet wide. Their scantling were: Frames, single, 4 by 8 inches, spaced 14 inches; keel, 4 by 16 inches, laid flat; main keelson, two pieces, 1½ inches apart, so as to receive the heels of the stanchions, 5 by 9½ inches each; bilge keelson, 11 by 6 inches; three light floor keelsons each side; beams, 3½ and 4 inches by 5, the heaviest ones at the hatches, 28 inches apart; nine stanchions, 4 inches square, under every beam, there being about 600 in each boat; three hatches on each side of the main keelson bulkhead. On the floor light planking of 1½-inch pine is laid, with a railroad track and push-car upon it. Planking of the bottom, 4 inches; sides, 3 inches; top streak of sides, 4½ by 11 inches; decking, 2-inch pine. Cargo box, lightly framed and sided up. The hulls had 2 feet sheer, the cargo box 4. The whole boat was of oak, except the beams between the hatches, the bulkheads, floor, deck, and house, which were of pine or poplar. This is a good sample of the scantling of a model barge. The measurements of the keelsons are often varied, but their cross-sections have about the same area in boats of the same size.

One of the new large 1,200-ton barges was as follows: Length, 225 feet; beam, 36 feet; depth, 9½ feet, all oak, except where specified. Frames, 4 by 8 inches on the floor, single; spaced 14 inches in the body of the hull, 12 inches at the bow and stern. Keelsons: main, 6 by 8 inches; six stanchion keelsons, 6 by 6 inches; six intermediate floor keelsons, or footlings, 3 by 6 inches; bilge, 5 by 12 inches. Four clamps, one 3 by 10 inches, the others $2\frac{1}{2}$ by 10 inches. Stringers on the top timbers, $3\frac{1}{2}$ by 6 inches. Poplar stanchions $5\frac{1}{2}$ inches square under every beam on the main keelsons, sided up on each side with 1-inch poplar as a bulkhead. Stanchions on the six large side keelsons under every other beam. Beams, $3\frac{1}{2}$ by 6 inches, in part pine; decking, 2-inch pine. Planking on the bottom, 4 inches; sides, 4, $3\frac{1}{2}$, and $2\frac{1}{2}$, with two upper streaks of 3 inches. Sides of the cargo box, $1\frac{1}{2}$-inch pine. Two heavy breast-hooks and a deck hook at each end, braced. Stem band at each end, 25 feet long, of $3\frac{1}{2}$- by $2\frac{1}{2}$-inch half-round iron, flattened out below and made flush with the planking of the bottom. Hog-chain, $1\frac{3}{4}$-inch iron; a strong plank-sheer of oak, pierced in nine places with strong oak snubbing posts, bolted to the sides below and rising above to within a foot or two of the top of the house to protect it. A strong beam across the boat on top of each pair of posts; about six 10-inch cavils or mooring cleats on each gunwale, and 12-inch bitts in the bow or stern. The barge has two $5\frac{1}{2}$-inch pumps, with 3-inch gas-pipe waste. The weight of hull is about 200 tons. The boat floats light at 12 inches draught, increasing to 16 inches with age, and carries 1,200 tons on 6 feet draught.





Figs. 56 and 57.—Model barge.

235 feet long, 36 feet beam, $9\frac{1}{2}$ feet deep, registering 1,200 tons; carrying capacity, 1,200 tons.

The method of towing barges in the West differs from that of the East. On the Hudson river, Long Island sound, and elsewhere the tug steams ahead of the barges, drawing them with a long cable; but on the western rivers the barges are pushed. They are made up into a group, in files, often eight boats wide and four boats long (Fig. 58), strongly lashed together, and arranged ahead and alongside of the bow of the steamer. About one-fourth of the length of the steamer is buried in the group. The deck is carried out square to the bow, ending in a strong transom or fender for pushing, and, being just two coal barges wide, allows the two central files of the tow to rest their whole weight against the steamer. A fleet thus made up is often 200 feet wide and 640 feet long, counting the tow-boat, and transports from 15,000 to 23,000 tons of coal. To steer such a fleet around the sharp bends of a rapidly running river is a delicate matter, and is accomplished by trusting largely to the current. When nearing

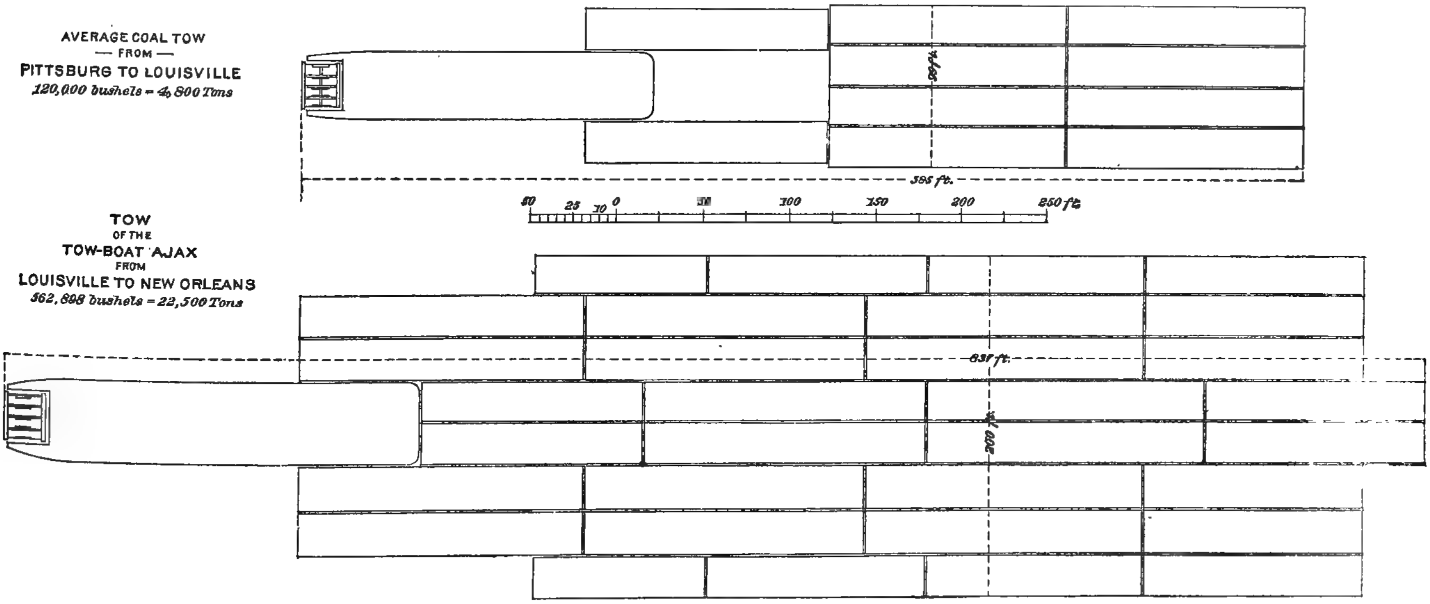


Fig. 58.—Diagrams of coal tows.

a turn in the channel the steamer slackens speed and then begins to back strongly, the object being to check the headway and allow the tow to drift with the stream. The rudders are turned so as to throw the steamer over toward the convex shore, keeping the coal boats in the swiftest and deepest water. The tow floats down half sideways until a clear course opens up ahead, when the wheel is started forward strongly and the tow is pushed straight on again. Owing to the flat bottoms of coal barges it is comparatively easy to handle them in fleets of from 20 to 30. The model barges give the towing captains the most trouble, as they are long and have sharp ends, and five of the larger ones are all that any one cares to pilot down the river and back again.

The principal seat of the barge-building industry is around the head of the Ohio river; that is to say, on the Allegheny, Monongahela, and Great Kanawha rivers, and on the Ohio between Wheeling and Pittsburgh. On the Allegheny the industry is confined to the making of bottoms for coal boats. Hemlock is plentiful at various points all along the stream, and the conversion of the lumber to the purpose stated keeps a great many men busy in a small way in the winter time. The yards are generally in the vicinity of saw-mills. When built, the bottoms are set afloat, loaded with any coarse freight like hay, fire-clay, lumber, etc., that is on hand, and floated down the shallow river to its junction with the Monongahela. They are then towed to the yards in Pittsburgh or on the Monongahela for "siding up". The oak on the Allegheny is worthless, but the pine and hemlock are good.

The Monongahela for 35 miles above Pittsburgh is an active boat-building region, its industry thriving by virtue of the liberal supply of native oak and pine and the existence of an immense coal traffic. The river flows between high wood-covered hills which are full of soft coal, and every mile or two there is a hole in the hillside away above the river, running in often a mile or two, and sometimes away inland into a second range of hills. The coal is quarried underground and brought in small iron cars to the mouth of the mine, whence it is run out on a trestle-work until it is over the water's edge and dumped into chutes running down to within a few feet of the surface of the river. The flats, barges, and broad-horns lying in the stream are brought underneath, loaded with coal, and then moved aside and moored in large fleets, awaiting the months of deep water. The coal trade is active three times a year. Six or eight feet of water in the river bring a swarm of tow-boats up from Pittsburgh. Each steamer takes as many barges as it can handle down stream to Pittsburgh, Wheeling, Ironton, Cincinnati, and all the lower markets, the fleets intended for points on the Mississippi being doubled up after passing the canal at Louisville. Business is done with a rush in times of deep water, and a million tons of coal will often go out of the Monongahela in four weeks' time after a rise of water.

VESSEL-BUILDING LOCALITIES.—There are 31 boat and barge yards on the Monongahela, but such a large part of their product is destroyed every year by being broken up, by wreck, and by natural decay, that the yards are continually at work.

At Rice's landing, about 35 miles from Pittsburgh, coal-boat bottoms are made and barges built, about 20 or 30 of the latter every year. The bottoms are made from hard wood, at a cost of about $300.

At Brownsville there are three yards, two on one side of the river devoted to siding up coal boats with pine and hemlock, and the third, on the other side of the river, an old yard, where the smaller class of steamboats are built in considerable number. Almost without exception the boat-builders of the Monongahela have each a saw-mill in their yards, and the three at Brownsville are not exceptions. At the steamboat yard the mill is employed in general business to some extent, but its main use is to manufacture material for the boats. The oak comes down the river in rafts from points in West Virginia, and costs from $10 to $14 a thousand feet in the rough log, while the pine and hemlock come principally in the round log from the Allegheny river. While enjoying cheap timber, the Brownsville men labor under the disadvantage of having several dams across the river below them. Of steamboats, therefore, they can make nothing except the hulls for the medium class of boats, for they have to send them down over the dams. Hulls 250 feet long have to be built below the dams, and the majority at Brownsville do not exceed 180 feet in length. They cost from $2,000 to $4,000 each, one-third of which is for labor, and there are from 50,000 to 150,000 feet of lumber consumed in making each hull. Tow-boats are of heavier scantling, and, for their size, consume more material. The main yard at Brownsville built 10 hulls and many coal boats in the census year. Wages were low, ranging from $1 25 to $2 25 per day, but nearer Pittsburgh they were 50 cents or more higher. The coal boats at Brownsville were each 170 feet long, 26 feet broad, and 9 feet deep, costing $900.

At Greenfield 15 or 20 flats and about 25 broad-horns are built yearly. The size of flat in the census year was 90 feet long, 16 feet broad, and 5½ feet deep. Each cost $600, of which $100 was for labor. Hemlock and oak were the woods used.

California, below Greenfield, formerly had a yard or two.

At Belle Vernon there is a yard whose owners have built more than 40 model barges and numerous steamboat hulls. Oak costs from $13 to $15 a thousand feet in the squared log at this point. Three hulls and 2 model barges were built in the census year. The hull of the Plow Boy, 150 feet long, 28½ beam, and 3 feet hold, cost $2,000, while those of the Dacotah and the Montana, stern-wheelers, 252 feet long, 48⅔ feet beam, 5½ feet deep, and register capacity of the hull 575 tons, cost $8,000 each. A model barge 200 feet long, with deck-houses, costs $9,000. These river boat yards used few heavy pieces of machinery, as the scantling of the boats is light. Bevel saws are not required, nor are bolt-cutters required to any extent.

At Monongahela City there are two yards, one of them devoted chiefly to repair work. At the main yard a large saw-mill is employed, and an active business is done in building and siding up coal barges and boats for the mines in the vicinity. The barges are 130 feet long. The repair yard is provided with a marine railway having five tracks, and vessels are taken out sideways, this being the fashion in the West. The windlass is worked by hand-power. Repairs consist of calking and carpentry work.

Three yards at Elizabeth are devoted to work for the coal trade. From 60 to 80 barges and flats are built yearly. A larger number of broad-horns are sided up; sometimes more than 150 bottoms are bought on the Allegheny. One firm had contracts out for 100 bottoms in the census year, to cost from $350 to $400 each, and in each of the yards a master carpenter was employed to build and side the boats for a certain sum per vessel, materials being supplied. This is a common practice on the Monongahela, where the yards are frequently owned, as at Elizabeth, by coal dealers. Contract prices for labor vary with the times. The following facts were obtained:

*Flats.*—Value of the boats in 1880, $500 to $690; labor, $90; lumber in each boat, 20,000 feet; iron, about 2,000 pounds.

*Barges.*—Value, from $1,000 to $1,300; labor, from $155 to $195; lumber in each boat, 34,000 feet; iron, 2 tons.

*Coal boats* (165 feet long, 28 feet beam, 8½ feet deep).—Bottoms, from $350 to $400; cost of docking and calking, each $70; siding up, $350, of which $95 was for labor; lumber in the top, 9,000 feet; iron, 750 pounds.

One of the Elizabeth concerns was busy in 1880 with a government contract, and it was building for the Mississippi river improvement commission two decked barges 211 feet long, 35 feet wide, and 5 feet deep, two of the same size but only 25 feet wide, and ten 100 feet long, 25 feet wide, and 5 feet deep. Near Elizabeth three small sectional dry-docks were stationed for repairing.

At Dravosburg a coal firm builds its own boats, consisting largely of strong barges, each 130 feet long, 25 feet wide, and 7½ feet deep, with six gunwales on a side, made of white pine, with the exception of the streamers and bitts. One consumes 31,000 feet of white pine, 3,500 feet of oak, and 2 tons of iron, the cost being about $1,000.

A few miles below this place is a new yard. Very little work was done in the census year, but some 135-foot barges were building in 1881, and four small sectional docks were employed in repairing.

At McKeesport, a manufacturing town, there are four yards, two of them devoted to repair work, the others to coal-boat building.

A large saw-mill is located at Six-Mile Ferry, at which from 50 to 75 coal barges of different classes are produced yearly. At this yard some barges of unusual size have been built. Each is 160 feet long, 24 feet wide, and 8 feet deep, consuming 36,000 feet of lumber, and cost $1,200 each, $265 of it for labor.

In Clare township, just above Pittsburgh and below the place last named, there are three yards which come under the influence of the high wages of the city. They were paying $2, $2 50, and $3 50 a day in 1881, and at one of them a mixed business of repairing and building was carried on. The proprietors said that work was leaving them for places further up the river, and for Freedom and Sewickley, below Pittsburgh.

Within the limits of Pittsburgh and Allegheny City there are three firms which build and side up boats, three firms which thrive by cabin building, one firm which is now building steel hulls for river vessels, and several firms which make engines and boilers. The joiner work of the cabins is generally ½-inch white pine or poplar. About 45,000 superficial feet are required for the cabins of a steamer of moderate size, and about 95,000 for those of a 250-foot boat. Altogether on the two rivers there are built every year about 600 completed barges and hulls, employing an average of 420 men at steady work.

At Freedom, Pennsylvania, there is one yard, long established, where for 30 years river steamers of all sizes used on the upper Ohio have been built. Here were built the fast packets that ran to Cincinnati. One boat, the Messenger No. 2, 250 feet long and 60 feet beam, once made a famous trip from Cincinnati to Pittsburgh. She was stripped for the race, and "carried only her machinery and Jenny Lind". The voyage was usually made in 30 hours, but this time it was accomplished in 18. The proprietors submitted for inspection a great mass of specifications and contracts for hulls, almost all for stern-wheelers. One of them was for a 290-foot side-wheel boat, several were for 250-foot, and the rest for from 100- to 235-foot stern-wheel boats. The building price has been from $30 to $35 per register ton for strong-built hulls. The cabins and machinery are put in at Pittsburgh, where the vessels are usually owned. The lumber used at Freedom is white oak and poplar from the upper part of the Monongahela and white pine. The poplar comes down with the oak, being incorporated in the rafts as floats. The wood is light and durable, and is the best material for fore-and-aft bulkheads, cabins, etc. Oak costs in the log from $13 to $15 and pine about $10 per thousand feet, and the yard saws its own lumber. It was stated here that oak wastes extremely in working up, owing to the large quantity of defective pieces. A worm hole, a shake, or a stain in the wood causes its instant rejection, as no vessel owner will accept a stick or a plank having the slightest flaw. Were it not for this fact, nearly every cubic foot in the logs after they are squared could be used, for these western boats require little crooked timber in the frames and almost none anywhere else. The bilge is turned with flitch knees, nailed to the side of the frames, and only in the extreme bow and stern are crooked frame timbers used. The hulls of seven steamboats were built at Freedom in the census year, at a cost of from $30 to $35 per register ton of capacity. Two towing-boats were each 177 feet long, and one was 132 feet long. The Harry Brown, a towing-boat of 772 tons, was 210 feet long, 49½ feet beam, and 6 feet deep, and has proved to be a powerful boat. Her total cost was about $75,000, the machinery costing $22,000. One of the new boats was the passenger steamer Carrier, 250 feet long, 40 feet beam, and 5½ feet hold, registering 815 tons, built for the Missouri river trade. About 35 men find steady occupation at this yard.

At Sewickley, Pennsylvania, there is one yard, a new one, which, like the one at Freedom, is devoted entirely to steamboat and model-barge work. It has its saw-mill, bevel saw, and general outfit of tools. Four steamers were in course of construction when the yard was visited in the census year, of which two were afloat and two on the ways, all stern-wheelers. In 1881 the river was so low that there was not over 3 inches of water on the sand-bars above, and as at least 3 feet of water were required in order to send the hulls up to Pittsburgh the proprietors were compelled to put the tops of the new boats on at Sewickley, the joiners going down from the city every day for that purpose. The new boats were all for towing (Fig. 59), and were accordingly strongly framed. The two on the stocks were 192 feet long, 35 feet beam, 34 feet wide on the floor amidships, and were molded 6 feet deep. One of those afloat was 200 feet long, $38\frac{7}{12}$ feet beam, 46 feet wide over all, 6 feet deep, with 38 inches sheer forward and 18 inches aft. A description of this boat will show about how the towing steamers are made. Frames: floors single, 4 by $7\frac{1}{2}$ inches, extending from bilge to bilge in the square body; in the bow and molded part of the stern the floor reaches only half across the boat, and there are futtocks abutting over the keel; top timbers, 4 by $6\frac{1}{2}$ inches; spacing 13 inches. Stem sided 11 inches, molded about 30 inches in the thickest part; no apron, but a sort of stemson. Two stern-posts 11 inches thick. Keelsons: main, 7 by 18 inches; one wing keelson each side, 5 by 14 inches; two floor streaks each side, 3 by 8; bilge keelson, 5 by 10. Two clamps, 3 by 12, and $2\frac{1}{2}$ by 12 inches. No ceiling. Beams, 4 by 7 inches, with 9 inches spring; aft, $3\frac{1}{2}$ by 7. Head piece at bow, 8 by 16 inches, being 46 feet long. Stanchions on main keelson, 3 by 4 inches, sided up with 2-inch poplar to form a double bulkhead. Stanchions on wing keelsons, $3\frac{1}{2}$ by 4 inches, sided up with $2\frac{1}{2}$-inch poplar, forming a single bulkhead. Stanchions, 4 inches square on each floor streak. Plank of bottom, 4 inches; grub streak on the bilge, 5 inches; sides $3\frac{1}{2}$, tapering to 3 inches. Short flitch knees or futtocks at the bilge. The bilge secured at each frame by bolts of $\frac{1}{2}$-inch iron, driven clear through the streak of bilge planking, the frame timber, and the bilge keelson. Decking, $2\frac{1}{2}$-inch white pine. Top plank-sheer, 3 by 14 inches; under one, 2 by 12 inches; nosing, $3\frac{1}{2}$ by 11 inches. Cylinder timbers, oak, sided 13 inches, 4 feet deep in the thickest place. Heel pieces on the floors for the main hog-chain braces, each side, 13 by 22 inches. Four main hog-chain braces on each side of the boat from 42 to 46 feet long, white pine, 13 inches square below, 11 inches above, carrying on their top a $1\frac{3}{4}$ bar-iron rod, or, as they call it in the West, a chain, which descends at the ends to the keelson and supports the ends of the boat. In line with these braces is another set, called relief braces, 8 inches square, carrying a $1\frac{7}{8}$ chain, which supports the hull at different points from the others. On the main keelson there is a row of posts, or braces, 11 inches square, over which runs the main center chain of 2-inch iron, descending to the main keelson at each end. The bilges are supported by 8 thwartship $1\frac{1}{2}$-inch chains, supported by as many sets of light braces. The weight of the boilers and of the wheel is supported by other sets of chains and braces. Four rudders with 14-foot blades, the middle two to have 9-foot balance blades; rudder stocks 17 inches square. Stem band, $3\frac{1}{2}$-inch half-round iron for 9 feet; the rest of the way of flat iron 1 by 6 inches. Calking of bottom, 5 threads; of sides, 3 or 4; the oakum to be driven through flush with the inside of the plank, this being the universal practice in the West. Two spars, to stand on the forward deck at the fore edge of the upper works, 14 inches in diameter, 38 feet long. Two derricks, 9 inches in diameter, 34 feet long, and four 6 inches by 20 feet. Six boilers, each 47 inches in diameter and 28 feet long, having 6 flues 10 inches in diameter. Boilers set 40 feet from the bow. Chimneys, rising to 54 feet from the deck, 58 inches in diameter. Two engines, each $24\frac{1}{2}$ inches in diameter, 12 feet stroke, set 34 feet from the stern. Wheel, 28 feet in diameter; buckets, 28 feet long and 3 feet wide. Launching draught of hull, 20 inches aft and 24 inches forward; with machinery, water, and 285 tons of coal aboard, 42 inches even draught, the displacement being 785 tons.

There were seven steamers built at Sewickley in the census year, all towing and freight boats, the most of them stern-wheelers. One, the Florida, was a side-wheeler, 180 feet long, destined for coast service. The cost of the hull was from \$30 to \$35 per register ton. One tow-boat was 122 feet long; the others ranged from 180 to 260 feet, consuming from 100,000 to 225,000 feet of oak, pine, and poplar. The yard gives employment to 65 men in busy times at \$1 25 a day for laborers and \$2 25 for good carpenters.

Freedom and Sewickley are now the main dependence of Pittsburgh for her steamboats, as are the two rivers above the city for her coal barges. The whole tonnage of the city has to be renewed every six or seven years; as Pittsburgh owns the most of any port in the Union, the basis exists for a prosperous business. An effort is now being made to extend the use of iron hulls for steamers. During the last fifteen years the district about Pittsburgh has produced 340 steamers.

At Steubenville, Ohio, there is a small yard, where much work is done in busy years.

Wheeling, West Virginia, once did a flourishing business in making steamers and the machinery for them, and from 5 to 10 vessels were launched every year, as well as many barges. The principal firm owned a tract of 1,500 acres of timber in Marshall county, the trees of which they cleared off and put into boats. They built a class of vessels adapted for the small rivers and bayous of the South, both side- and stern-wheel, but when the war broke out lost heavily from inability to collect what was due. The industry in Wheeling was greatly affected by the war, and of late the yards have done nothing except to make a few barges from time to time. Two firms of joiners do a little business, however, in putting cabins on boats built at various points in that region on the Ohio and on the West Virginia streams, and one firm builds machinery for the same boats, from eight to ten boats a year being so fitted out.

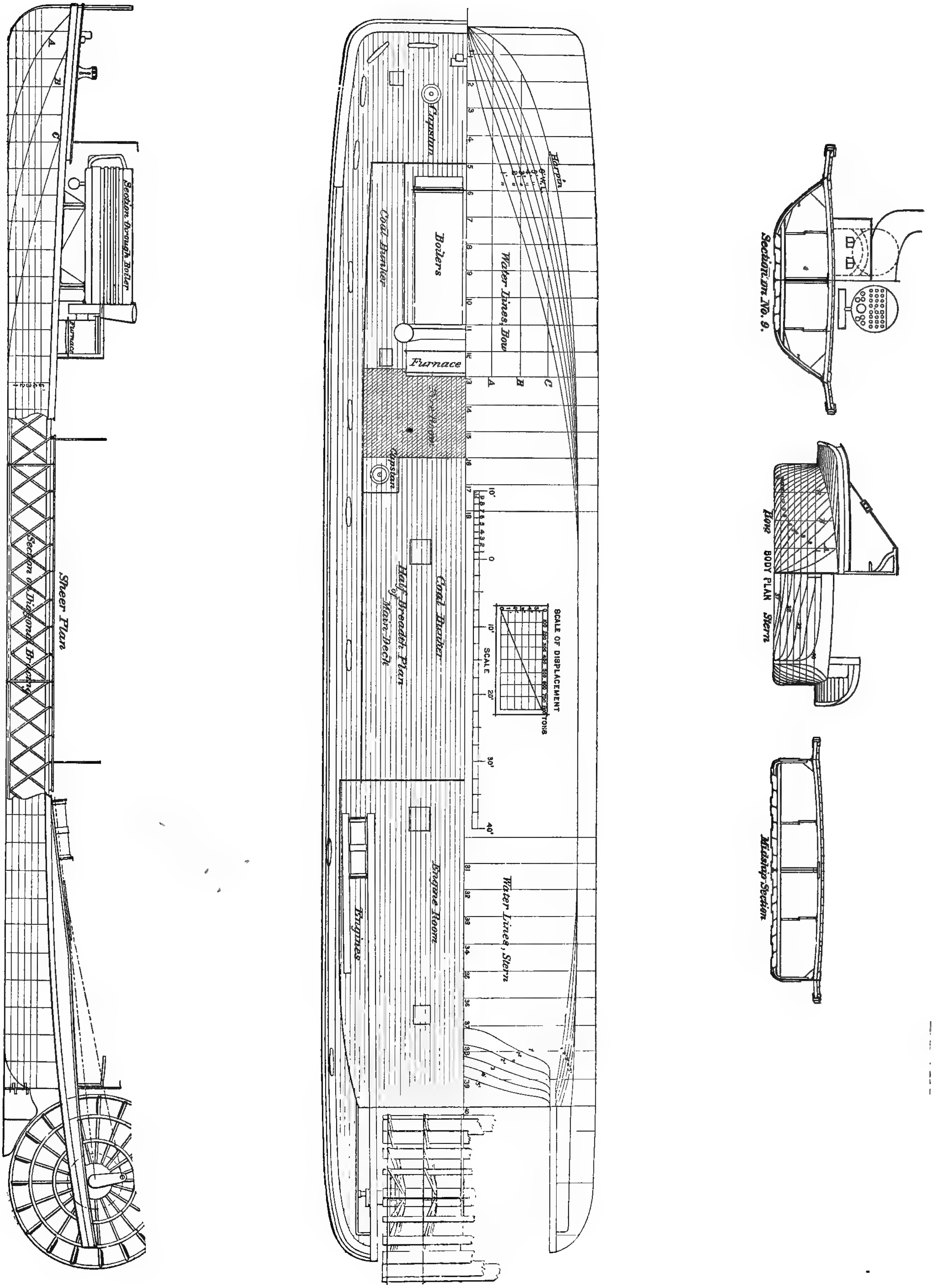


Fig. 59.—WESTERN RIVER TOWING BOAT.

This illustration is a good representation of the model of the stern-wheel steamboat of the West. The plan is intended for an iron hull.

A rising coal trade on the Great Kanawha river calls for local barge building, its commencement appearing at a number of points. From 30 to 50 boat bottoms are made on the Elk river every year, and are floated down to Charleston on the main stream and there sided up. At Coalburg, up the Kanawha, from 10 to 20 barges are built yearly by the coal company, and a dozen or more are made at Charleston. There is an abundance of timber in this region, and time will bring the capital and the enterprise; but saw-mills and railroads are needed. The one yard at Charleston could have built 100 barges in the census year if the lumber had been obtainable. Owing to low water in the river pine could not be brought in, and a lumber famine often occurs, during which oak will rise to $25 per thousand feet. The barges built at Charleston range from 100 feet in length, 18 feet beam, and 5 feet depth, to 130 feet in length, 24 feet beam, and 7 feet in depth. A little steamboat work is done here, and there is a float for repairing. Coal-boat bottoms cost from $150 to $250 at Charleston; the labor of siding up costs $45, and the boats, when finished, were worth $450. Wages were from $1 25 to $1 75 a day. The Kanawha is already one dependence of the cities on the Ohio for coal, every flood bringing out of the river a considerable rush of steamers and barges.

The points where small work is done in West Virginia are Point Pleasant, Murrayville, and Mason City; they enjoy the advantage of abundant timber.

A little yard at Marietta, Ohio, employs about 35 men in building small steamers. There is another at Ironton, Ohio, on the side of a steep bank, where many vessels have been launched, including more than 25 model barges; also a yard at Portsmouth, Ohio. At Middleport there is a dry-dock for repairing, and a small yard at Ashland, Kentucky, builds ferry and passenger boats and does repair work.

Cincinnati has two large yards. The Marine Railway and Dry Dock Company's yard is one of the largest and best equipped in the West, and has its own saw-mill and a complete outfit of machinery and tools, lumber being bought in rafts, hauled up on the bank by steam-power, and sawed to suit the vessels under construction. Few concerns in any part of the United States, excepting only the iron-ship builders, keep so elaborate a set of books as this company. A faithful account being kept of every foot of lumber of the various kinds, of every pound of iron, paint, and oakum, of the days of labor, and of every other detail of the cost of the several boats and jobs of repairing, the exact cost of each vessel is thus ascertained, and the various items tabulated for future reference. This process enables the firm to bid accurately and successfully for contracts. Bookkeeping is not as a rule minutely carried on by the ship-builders of the United States, and in a large number of yards the accounts are kept roughly, often on loose sheets of paper or in little pocket note-books, and sometimes on shingles. More than one large yard was visited (not on the Ohio river) where the proprietors did not know what a vessel had actually cost them when finished, the data about the various jobs of work not being thoroughly sifted out and kept apart. At the Cincinnati yard thorough system was observed, at no appreciable increase of running expense; and the facts obtained about river vessels in general were of the most satisfactory character. Seven steamers and three model barges were built by the Marine Railway and Dry Dock Company in the census year, viz:

| | Tonnage. | Length. | Beam. | Width of floor amidships. | Depth of hold. | Cargo-carrying power. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Feet.* | *Feet.* | *Feet.* | *Tons.* |
| Side-wheeler Natchez | 1,477 | 303½ | 46½ | 38½ | 10 | 2,000 |
| Stern-wheeler Granite State | 531 | 223 | 35½ | 34½ | 5½ | 800 |
| Side-wheeler Bostona | 993 | 302½ | 43½ | 42 | 10 | 1,000 |
| Stern-wheeler Will Kyle | 1,017 | 260½ | 45⅔ | 43⅔ | 6⅓ | 1,350 |
| Stern-wheeler Hettie | 176 | ........ | ........ | ........ | ........ | ........ |
| Stern-wheeler Pittsburgh | 722 | 252 | 39 | 38 | 6 | 900 |
| Stern-wheeler Clifton | 716 | 152 | 30 | 37 | 6 | 900 |
| Model barges 3 in number | 236 | 160 | 28 | 27 | 5½ | 350 |
| | 270 | 180 | 32 | 31 | 6½ | 650 |
| | 270 | 180 | 32 | 31 | 6½ | 650 |

Although dependent on the tributaries of the upper Ohio for oak and poplar, and always embarrassed when the rivers are so low as to prohibit the rafting of logs, the Cincinnati yards are able to build as cheaply as their competitors up stream, hulls being made for from $20 to $30 per register ton. In Cincinnati, as in Pittsburgh and Wheeling, cabin building is a separate occupation; the contract is usually sublet to some joiner, who owns a large saw-mill and manufactures his own lumber. Poplar, the cheapest and best wood for cabins, is extensively used, and ranges in price from $16 to $30, but is usually nearer to $20 per thousand feet when finished. Oak, white pine, and poplar are the building woods. As a novelty, yellow pine and cypress from the South were put into the beams of the Natchez. This boat was sharp built and intended for speed. She was strongly framed, her floors being 4 by 11 inches square amidships and 5 and 6 by 11 forward, spaced 14 and 15 inches. Her main keelson was 9 by 18 inches, bilge 8 by 14 inches, ten floor streaks 6 by 10 inches, and stringers 3 and 3½ by 12 inches; clamps 3, 3½, and 4 by 40 inches. The central bulkhead of this boat was made of 5-inch poplar, edge-bolted with ½-inch iron 3 feet apart. The waste of wood in making these boats is nearly one-half. The Natchez consumed 390,000 feet of oak, 120,000 feet of pine and poplar, and 29,000 pounds of iron in the hull, and 200,000 feet of wood in her cabins. Her machinery weighed 200 tons, the cylinders being 34 inches, with 10-foot stroke. She was a strong, fast, handsome side-wheel boat, with broad guards for cotton carrying.

The other yard at Cincinnati made 3 steamboats, 4 model barges, and a wharf-boat in the census year. The barges were for the grain trade of the Mississippi. Contracts for more than 20 of those boats had been given out in the census year, distributed all along the Ohio. They were of two sizes: 200 feet long, 35 feet beam, and 8 feet hold, and 225 feet long, 36 feet beam, 9 feet hold, all with cargo boxes, and carrying about 50,000 bushels of grain. The cost of the barges was $9,000 and $10,000 each, according to size.

A yard at Covington, Kentucky, thrives chiefly by repair work. The shops are located on the high bank of the river, out of the reach of ordinary floods, and the vessels are drawn out by steam-power, sideways, upon the railway. A few small steamboats and 15 or 20 coal barges are produced in good years.

In Indiana there are large yards at Madison, Jeffersonville, and New Albany, all old building places. Four or five steamers and a few barges are launched yearly at Madison, and repair work is there done on a large set of ways.

Jeffersonville has two large and flourishing yards. It is remarkable that on the Ohio the yards are located chiefly on the northern bank. Those at Jeffersonville employ jointly about 400 men in good years, the majority of them men with families, who are prosperous. At least as early as 1819 boats were built here out of the oak that clothed the region in dense forests. The side-wheeler United States, of 700 tons, was launched in 1819 and sent to New Orleans to receive her machinery, which was imported from England and was modeled after that put into Fulton's steam frigate, then lately built at New York. The popular boats of that day were smaller than 700 tons, but quite a number of them were required, from five to ten being launched in this vicinity every year. The war of 1861 interrupted the business; but since that time it has grown to larger proportions than ever, and in no locality in the West have there been more large and famous boats built than at Jeffersonville and around the falls of the Ohio, a mile or two below. In 1866 the owner of the older yard put in a planer for fairing the planking, beams, etc. All the lumber of these western boats is planed. The diminish in the thickness of the plank at various points in the hull is put in by means of the planer, and the success of this machine led to its general adoption in the boat-yards of the West. In the census year the product of this yard was 12 model barges, several flats, and 6 steamboats. Eight of the barges were for the Mississippi Valley Transportation Company for grain carrying, and registered from 1,150 to 1,250 tons, being 200- and 225-foot boats, with cargo boxes. A little repair work is done. The bottoms of the freight boats here are given 3 or 4 inches of dead rise only; the passenger boats about 14 inches.

The other establishment at Jeffersonville was started in 1834, since which time it had built 318 steamboats up to the census year of 1879–'80, mostly stern-wheelers, but also including a great many of the fast and famous side-wheelers in the trade to New Orleans. Among their recent boats have been the J. M. White, the Ed. Richardson, the City of Baton Rouge, the City of New Orleans, City of Yazoo, Rainbow, and Jesse K. Bell. In the census year the product of this yard was eight steamboats, a two-wheeled propeller tug-boat, a barge, and a wharf-boat, besides considerable repair work. The barge was the Victor, of 168 tons, 115 feet long, 27 feet beam, and 7½ feet depth of hold. This boat was strongly built, and was sent to Galveston, where she was rigged as a two-masted schooner for shoal-water service, in which employment she has done very well. In waters where there is no current schooners of this class can successfully be employed. The model is in reality about the same as that of the Chesapeake bay bug-eyes, flat floored, sharp at both ends, with slightly hollow water-lines below; the broad beam fits it for a fore-and-aft rig. The tug-boat above referred to was the Wash. Gray, of 46 tons. She had a bow, deck plan, and house like an eastern harbor tug, but was modeled amidships and aft like a western boat, except that the floor was narrower. Her dimensions were: Length, 78 feet; beam, 18 feet; floor, 10 feet; hold, 6½ feet. This little boat, with her machinery, etc., weighs 110 net tons and floats at 7 feet draught. She is oak built with single frames, with short futtocks added at the bilge. The keelson is 7 by 12 inches square; side keelsons, 3½ by 9 inches. There are two fire-box boilers 64 inches in diameter and 14 feet long, and two double high-pressure engines 12 inches in diameter and 14-inch stroke. The screw wheels are 5½ feet in diameter, each weighing 3,300 pounds. This boat was well suited for harbor use, and was the first of her class seen on the Ohio, although it was not the first propeller. A few small propellers used here and there farther up the stream are supplied with wheels from Chillicothe, Ohio. At Saint Louis the propeller tug is a popular boat.

The oak for the Jeffersonville yards now comes from West Virginia, 550 miles away, as the local supply is very nearly exhausted. A little first-growth timber, large and fine, remains in the swamps of the river counties, and is sought for cylinder timbers; but the most of it stands so far away from the streams and railroads as to be practically inaccessible.

In Louisville little is done except occasional jobs of cabin building and the making of machinery and boilers, in which there is a flourishing business. One of the new boats from Jeffersonville lay alongshore in the fall of 1881 receiving her outfit, namely, the City of New Orleans, 300 feet long, 48 feet beam, 83 feet wide over the guards, and 9 feet hold. She was just one foot too wide to go through the canal, and the intention was to take her down the rapids, like many of her predecessors, when the water should be deep enough. Her draught with machinery, coal, and water aboard was 42 inches aft and 30 inches forward. Her scantling were: Frames, single, 9 by 4 inches, spaced 15 inches; main keelson, 21 by 9 inches; eight floor keelsons, 9 by 4 inches; four wing keelsons, 7 by 12 inches, to receive the heels of stanchions and hog-chain braces; bilge keelson, 6 by 12 inches; planking, 4 inches on the bottom, 4, 3½, and 3 inches on the sides. Beams, 4 by 6 inches, spaced 21 inches; heavy beams, 12 by 12 inches at the end of the boiler deck. Stanchions, every other beam, 6 inches square, there being seven rows of them fore and aft, with about 30 extra oak stanchions, 10 by 3½ inches, under the cylinder timbers and paddle-wheel shaft. There were three stringers on the top timbers, each side, 9 by 2½ inches. Clamps, 13 by 3½ inches, and 12 by 3. As in all western boats, the boilers, five in number, were on the deck of the hull forward, each 30 feet long, 44 inches in diameter, with four flues, and were made of steel. Engines, one on each side, amidships, 26 inches in diameter, 10 feet stroke; wheels, 35 feet in diameter, with 15-foot paddles. While the hull sat low in the water, the cabins towered aloft to a height of 38 feet to the roof of the main cabin and 67½ feet to the top of the pilot-house. The halls of the main cabin were 220 feet long, 17 feet wide, and 13 feet high. The state-rooms, forty-five in number, were each 12 feet long by 10 feet wide, and were furnished in hotel style. This boat was intended for the passenger and cotton trade of the Mississippi. Her capacity was 250 passengers and 2,300 tons of freight on about 9 feet draught. Builders say that the greatest trouble they have in producing this class of boat is to hold up the sterns, bows, bilges, and guards, as well as to give proper support to the hull when it feels the weight of the boilers, and an elaborate system of hog-chains and braces is required. The fore-and-aft arrangement of the City of New Orleans was as follows (Fig. 60):

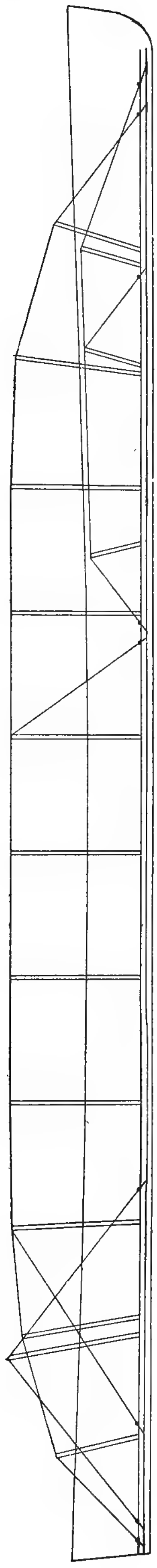


Fig. 60.—HOG-CHAINS OF THE CITY OF NEW ORLEANS.

Main chain, 2½-inch bar iron, sustained on pine braces 9 inches square, rising about 14 feet above the deck, or to just under the beams of the cabin deck. Center chain, 1¾-inch bar iron, the forward end descending to the main keelson just under the after end of the boilers, the chain running back over the main braces and descending to the keelson again, about 15 feet from the stern-post. Stern chain, 1½-inch iron, sustained by one brace. Boiler deck and bow chain, 1½-inch iron, the braces rising to just under the deck beams.

Forward of the wheel-houses there are thirteen cross-chains of 1½-inch iron, with braces 6 inches square heeling on the plank-sheer, as in the illustration on page 193 (Fig. 61), supporting the guard. The wheel-houses are supported by two chains of 2-inch iron at each end, running across the boat; braces, 9½ inches square. Aft of the houses are five cross-chains of 1¼-inch iron to support the guards, braces heeling on the plank-sheer.

There are also seven cross-chains of 1½-inch iron on the engine deck, sustained by seven of the main braces, with struts as in the illustration, the chains giving lateral support to the bilge of the boat. Under the boiler deck and forward are located nine other cross-chains of 1½-inch iron, performing the same service. The total weight of wrought-iron consumed in this light and admirable system of chains was 48,000 pounds. By means of this system the guards were enabled to carry all the cotton bales that could be stowed upon them, the hull was kept from sagging or breaking down in any direction, and it was possible to give the whole boat the light scantling peculiar to the West. Were the same strength gained by heavier timbers, the boat would have weighed two or three hundred tons more. The New Orleans and the Baton Rouge have proved to be fast boats, the latter having run from New Orleans to Saint Louis, loaded, in 4 days 14 hours and 25 minutes, making fourteen stops.

New Albany, below the rapids, has a large yard, owned by a Saint Louis firm, and one other, at which several model barges were built in the census year; but since the completion of the canal to its full width the active business of New Albany has been transferred to the yards above the falls.

Evansville, Indiana, enjoys the advantage of abundant oak timber, and the finished lumber is said to cost no more here than the squared logs do at Jeffersonville and points above. Oak grows plentifully in this part of Indiana, but is cut close to the railroads and the main streams. Back in the country the growth is heavy and large, and a great deal of it is now cut for shipment by car and boat to other points. The builders can also draw on the rivers of Kentucky for ample supplies. Oak is cheaper at Evansville than white pine, and as a consequence many coal barges and flats are either built wholly of oak or bottomed with oak and finished with white pine, the pine timber having latterly been brought from Chicago by rail. While there are no regular boat-yards at Evansville, there are several master carpenters who build small steamboats, coal barges, and flats, as they are required, going down to the foot of the river bank and constructing their vessels there. A coal firm has a small set of ways on which repairing is done, and there is work enough to keep 15 or 20 men pretty busy; but nearly all have other trades to fall back upon when boat work is dull. A saw-mill boat was being finished in 1881 when the place was visited, and there were several barges on the bank. The saw-mill boat had a flat-boat hull, square on deck at both ends, with raking bow and stern. Her dimensions were: Length, 114 feet; width of hull, 22 feet; width on deck, 32 feet; depth of hold, 4 feet. A roof or upper deck was built over the deck of the hull, supported by light stanchions, the sides below being entirely open. On the upper deck were small cabins for the crew and a pilot-house. There were two boilers under the forward end of the sheltering roof 45 inches in diameter and 14 feet long, carrying 80 pounds of steam, and having about 40-horse power. There was a light engine aft to drive the paddle-wheel at the stern. The rest of the deck was taken up with saw-mill machinery, so arranged that logs could be hauled up over the bow of the boat, run aft, sawed, and discharged over the side amidships upon barges, each carrying from 150,000 to 200,000 feet of lumber. There were eight or nine of this class of boats in the South. They go about in the rivers and bayous and saw for the New Orleans and other markets, and their cost complete is from $8,000 to $11,000 each. A number of traveling flat-boats, housed over for blacksmith and other shop work, lay in the river at Evansville. These boats were all fitted out with four or five long sweeps, and displayed hen-coops, clothes-lines, and all the paraphernalia of the simple housekeeping of the occupants.

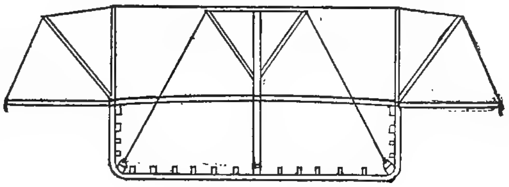


Fig. 61.—Cross-chains on the City of New Orleans.

At Evansville there are registered every year a number of small vessels built on the streams of Indiana, Illinois, and Kentucky. These vessels are not the product of regular ship-yards, but are made by men who are employed by the owner for the special job, just as a carpenter is employed to build a house. These boats are intended for local service, generally for river ferries, and do not require much knowledge of ship-building, and their construction is a small incident in the industries of their several localities. The places where boats have been latterly built at odd times are Pageville, Frankfort, and Caseyville, Kentucky; Shoals, La Fayette, Vevay, and Bridgeport, Indiana; Peoria, Grafton, Washington, and Newburg, Illinois.

Metropolis and Mound City, Illinois, on the Ohio, each has a ship-yard where barges and steamboats are built. At the latter place there are large marine ways. At Cairo there is always a large amount of tonnage loading and unloading, but only one small yard, which is devoted to the repair work of the Cairo City Coal Company. At Paducah, Kentucky, there are large and flourishing marine railways.

The western marine railways are unique. They have to be wide enough to take out vessels sideways, and are furnished with a sufficient number of tracks and cradles running on them to support the vessels at every point in their length. The Mound City ways, for instance, have 8 sets of tracks, each about 8 feet wide and 30 feet apart, so as to make the entire width of the railway about 275 feet; the pitch down the bank is nearly 2 inches to the foot. Each track carries a low car, or cradle. A broad, flat platform is built at the top of the bank, and an array of eight powerful iron windlasses, worked by a line of shafting laid along the surface of the ground, is set up under the fore edge of the platform. The slope to the river is 160 feet long in low water. The cradles, each held by two 1¾-inch chains, are allowed to run down the ways into deep water until they are under the boat which is to be hauled out, the windlasses are set in motion, the chains coil around the drums, and the cradles come up the bank slowly, the boat settling down upon them gradually. The windlasses each consist of a horizontal iron drum 30 inches in diameter, with a large cogged wheel at each end 7 feet in diameter. Power is communicated from the 6-inch main driving shaft to each end of the windlass by a cogged wheel on the shaft 3 feet in diameter, which gears into another of the same size, set on a small horizontal shaft at right angles to the main, planted on proper journals near the ground. Nearly under the windlass this small shaft carries a strong screw, which gears into a cogged-wheel, again 3 feet in diameter, mounted on a perpendicular iron shaft. On this latter shaft there is another strong screw, which slowly turns the large wheel of the windlass. All the iron work of this machinery, and all the wooden framing which carries it, are heavy and substantial. Ways of this size being necessarily expensive, costing usually about $100,000, few men have the capital to own them, and therefore the repair work of steamboats is necessarily concentrated at a few points.

The lower stretch of the Ohio, on account of deep water and the abundance of white oak, is well adapted both for repair work and for the building of large vessels. Alongshore, on both sides of the river, trees of large size can be had, and away up in the interior of Kentucky, accessible from the rivers, there is so much tall and fine timber that barge gunwales, keelson pieces, and plank can be got from 60 to 75 feet in length. Oak can be delivered in rafts at the several building points on this part of the Ohio for $10 to $13 per thousand in the round log, counting what can be squared from the log; for squared lumber the price was $16 and $18 per thousand in 1881. Other kinds of valuable timber exist in large supply, and poplar logs of 6 feet diameter are often rafted to Mound City, Metropolis, Paducah, and Cairo from the rivers in Kentucky. Black gum and cypress grow profusely, and an eastern sewing-machine factory has recently established a branch at Cairo to utilize the former for the cases of the machines. These great advantages for building have not yet been utilized; but when the oak disappears from the upper Ohio, and it certainly is going fast, the lower Ohio can be made the center of a great and prosperous industry. Cairo is one of the best places in the West to study the character of western tonnage. As the water is deep and the current swift and there is a large trade, this town is a busy shipping point the year round. There has been for some time a grain elevator here, and the Illinois Central railroad has lately erected another of large size. When the Mississippi above Cairo is closed by ice, therefore, the grain trade of Saint Louis is directed by rail to Cairo, and barges are loaded there with the shipments to New Orleans. The town has also a coal trade, the railroads giving access to the great Illinois coal-fields. Cairo is a port of call for all the steamers of the two rivers, and vessels of every class float by its doors and lie up at its wharf-boats. There have been 70 and 80 steamers in port at Cairo at one time, together with large fleets of model and coal barges. From 25 to 30 model barges lay near the elevator at the time the town was visited in 1881, hundreds of empty coal barges were moored below the town waiting for a rise of water to go up the Ohio, and many traveling shop-boats were pulled up on the bank. A number of propeller tugs built on the lakes, having been brought down to Cairo by the Illinois canal route, are owned at this place.

On the Mississippi river there is very little ship work of any class done except at Stillwater, Minnesota, Dubuque, Iowa, Saint Louis, and New Orleans, and at those places it is chiefly repairing. At the first two places facilities exist for work on river steamers and barges, and from time to time there is some building done. At Saint Louis there are six yards, and the work is almost wholly in the way of alterations and repairs. The 250,000 tons of vessel property owned in that city, with insignificant exceptions, have been built on the Ohio. Four of the six yards in the city do no building at all. Two of them have floating dry-docks, one a large marine railway, and at the fourth, which is owned by a steamboat company, there are machine-shops and floats solely for keeping the boats of the company in good order. The sectional docks can take out of the water vessels 300 feet long and 84 feet wide over the guards; that is to say, steamers of the largest size now employed in the trade of Saint Louis; but at the other dry-dock vessels of the smaller class are handled.

The marine railway is owned by the Sectional Docks Company, and is located in the southern suburbs of the city. It was started by Primus Emerson and his associates in 1856 or 1857. The original railway was made in seven sections of two rails each, each section carrying a cradle, the rails being 340 feet long from the gearing above to the lower ends in the river. A pitch of 1⅞ inches to the foot was given to the ways, and heavy chains of 1¾-inch iron ran from the cradles to a long line of shafting placed under a rough shed on top of the bank. Emerson found that in hauling out long vessels an unequal strain was imparted to the several chains, as the cradles directly under the boilers and engines took the most weight, and that one chain often broke and it was impossible to equalize the pull. To remedy this in part he conceived the idea of detaching the chains from the front corners of the cradles and of carrying each set down through and around the cradles over friction sheaves, so that each cradle lay in the bight of the chain. The original railway cost $120,000; but it was afterward enlarged, by the addition of two more sections, so as to be able to take out 360-foot vessels, and its value was then rated at $250,000, its capacity being such that five steamboats and barges have been out at once on the bank undergoing alteration and repair. In the East, where vessels are pulled up endways on the bank, only one hauling machine or set of gearing is required; but here there are nine machines located on the top of the bank, arranged in a long row under the shed, each machine placed opposite a section of the railway. Power is communicated to the several sets of gearing by a main driving-shaft 390 feet long and 7½ inches in diameter. This shaft runs out from the boiler and engine house along the surface of the ground at the top of the bank parallel to the river, and rests on journals strongly secured to wooden logs and piles. Opposite each set of gearing there is a strong cog-wheel on the shaft 50 inches in diameter, with cogs 2 inches thick, 2½ inches high, and 6 inches from center to center, which drives that set of hauling machinery, and as the machines are driven by a common shaft they work in unison. The machines are strong, but simple in their arrangement. There is, first, near the ground, and resting on heavy oak logs, a shaft 10 feet long and 9 inches diameter at right angles to the main shaft, with a cog-wheel at one end gearing into the one first mentioned and a screw about the middle of its length gearing into a large wheel hung above it on another shaft parallel to the main one. The cog-wheel is 64 inches in diameter. The screw has four threads, and is 23 inches long and 30 inches in diameter. As before stated, the cog-wheel slowly turns a large wheel (hung above it on a shaft 20 feet long, just the width of one section of the railway) 12 feet in diameter, with a rim 3 inches thick, carrying 60 cogs 3 inches high. The shaft on which it is mounted is 15 inches in diameter at the wheel, but tapers to 10 inches at the ends, and hangs about 8 feet from the ground, being supported at the ends by a heavy framing of oak timber, which is a continuation of the wooden ways of that section of the railway. Close by the journals of this shaft are the strong little toothed wheels around which pass the cradle chains. Each set of hauling machinery can be worked independently, as on the main shaft there is a clutch which throws the cog-wheel in and out of gear at pleasure. By this means steamers can be taken up on any part of the railway. On top of the eighteen wooden ways running down into the water there are iron rails, on which the cradles run. About 300 tons of iron were consumed in this railway, exclusive of the engines and boilers.

There are two yards at Saint Louis devoted to new vessels, both started within five years. One is managed by United States engineers, who employ a few men in making flats, lodging-boats, snag-scows, etc., for the Mississippi river improvements; the other makes iron tug-boats, launches, snag-boats, and steamers, and has done something in the way of altering various iron gun-boats of the late war into merchant steamers. This yard will be referred to more fully under the title of iron vessels.

The tonnage of Saint Louis consists of about 170 steamboats (including a few propeller tugs), registering 61,000 tons; 250 model barges, registering 181,000 tons; about 25 flats, 2,600 tons; and from 16 to 20 wharf-boats. Her fleet includes few coal barges, and all her tonnage is of the finest class. Several companies here have been engaged in the shipment of grain to New Orleans, and by a recent consolidation and the giving out of new contracts they have created a fleet of 23 tow-boats and about 150 model barges, by means of which 9,000,000

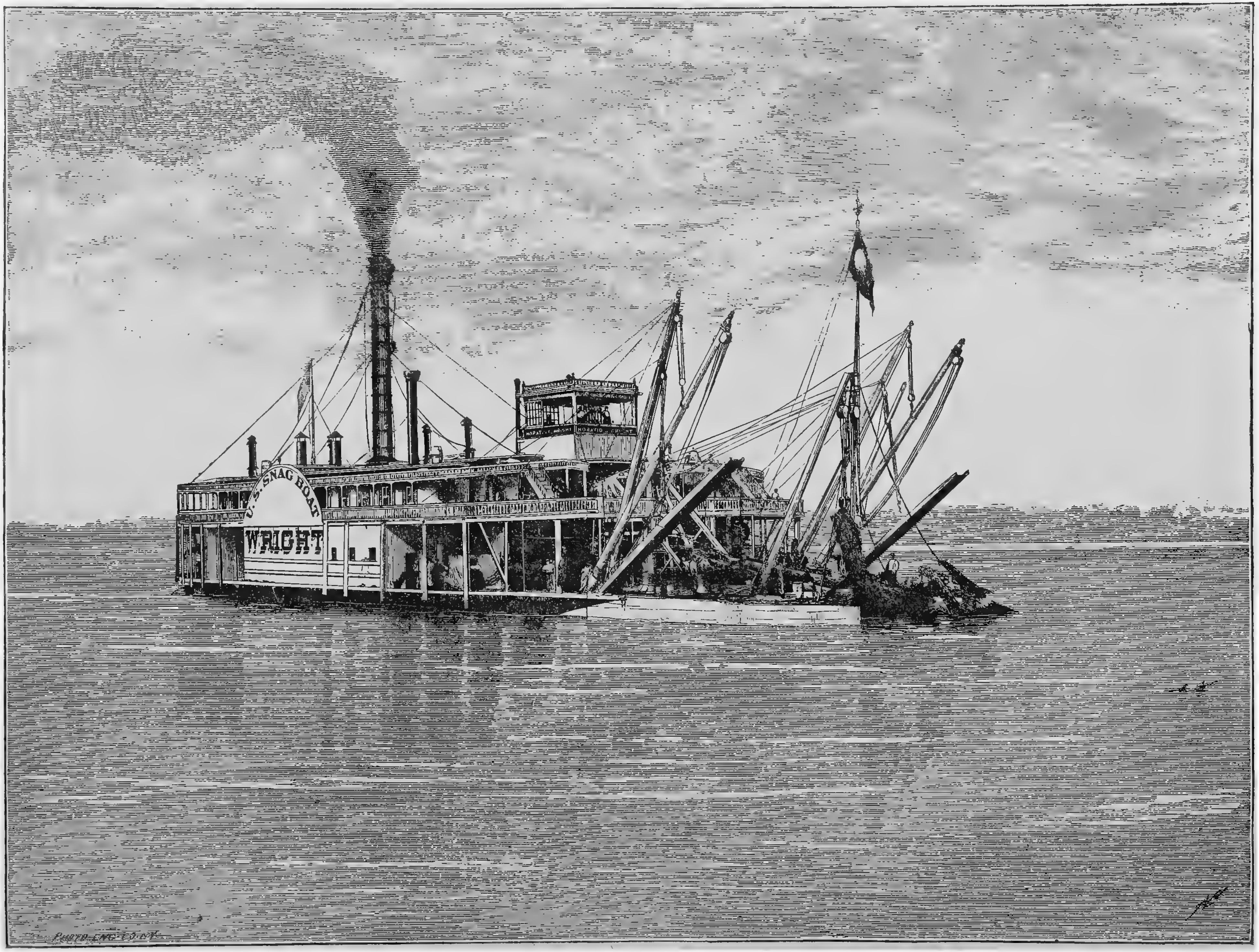


Fig. 62.—United States iron snag-boat Horatio G. Wright.

bushels of grain can be shipped on a single trip. The present fleet of Saint Louis, of all classes, will wear itself out in six years, requiring the building of 40,000 tons of vessel property yearly to maintain it up to the present capacity, and there is a yearly increase in the grain trade. At present the ship-building talent, the skill, and the capital of western boat-building are mainly on the Ohio. On the other rivers, especially those westward of the Mississippi, there is at this time for the most part only the raw material; but this exists so abundantly, and is so cheap and good, that it would seem to afford a valuable opportunity to the people of Kentucky, Missouri, and Arkansas, the three states named being full of valuable oak, poplar, cypress, and black gum. The price of oak now ranges from $12 to $15 per thousand in the round log, delivered in the rivers. In other parts of the country suitable lumber is rapidly disappearing. There is water all the way from New Orleans deep enough to float out merchant sailing vessels and wooden propellers of any size now required in the coasting and the transoceanic trade, and the weather would permit work to go on twelve months in every year, whereas three months are lost on the Ohio on account of snow and ice.

There is some work at points below and west of Saint Louis. This work consists usually of the construction of small craft for local use, generally as ferry-boats or for short river routes. There are few or no regular yards, and the work is generally performed by house carpenters or amateur mechanics under the supervision of some competent shipwright. The points where small vessels are thus constructed from time to time are Lisbon, Glasgow, Missouri City, Kansas City, Leavenworth, Saint Joseph, Plattsmouth, Little Rock, Fort Smith, Poplar Bluff, and perhaps other places. At Memphis only repairing is done, but New Orleans occasionally builds small river steamers.

There is no building of vessels on speculation in the West, as there has been on the sea-coasts, nor do owners practice building for themselves. Keeping the management of their tonnage in the hands of their families is entirely unknown, the only thing approximating the latter feature of the Atlantic coast being the construction of their own flats and barges by a few of the Pennsylvania and West Virginia coal companies. Steamboat building is done entirely by contract with professional shipwrights, and barges are generally built in the same way. The rule for payments on contracts varies somewhat in different localities. The old rule before the war was half cash during the progress of the work, a payment being made at the beginning of the work and other payments at intervals; the other half of the stipulated price was paid in 4 and 8 months, or 3, 6, and 9 months after completion, security being required where the responsibility of the owners was not clear. On account of the credit system Ohio river men lost a good deal of money when the war of 1861 broke out. Since the war an effort has been made to bring the business nearer to a cash basis, but the custom still prevails of reserving one-third or one-half of the contract price until the completion of the boat. Builders buy their materials in about the same way, partly on time.

SNAGS.—While the danger of wreck from running against snags is now the chief peril to which boats are exposed builders have made little or no attempt to fortify their vessels against it, and there appears to be no way of doing it except by adding excessively to the weight of the hulls. The scantling of all boats is indeed made a trifle heavier forward, and the frames there are put in nearer together; but this is as much for helping the boat when it runs against the bank or upon a sand bar as for any other reason, and the light hulls are virtually left unprotected against snags. The lower part of the Mississippi below Cairo has always been dangerous on account of these destructive obstacles to free navigation. Wherever a bank washes away, full-grown trees fall into the water and float down stream until their roots become lodged on the bottom. The current swings the top of the trees down stream, and in time the action of ice and floating *débris* wears away the branches and even sharpens the points of the trunks. About one-half of all the losses of steamers are due to running against these formidable stationary rams, and the only way to remove the danger is to take out the snags. Organized work to that end goes on yearly under the supervision of the United States government, and boats are built especially for this service. They are stern-wheelers, with houses large enough to shelter the machinery and provide accommodations for the working force. The bow is broad, square across the boat, and plated with iron. The snag is felt for and caught with an iron chain hanging in a loop from the bow. It is then raised with a powerful derrick and windlass worked by steam, and is either dragged upon the deck of the steamer itself or hoisted out upon a flat-boat lashed alongside. The trunks are often 5 feet through and 60 feet long, and their average weight 17 tons, from which it will be seen how powerful is the machinery required to dislodge them from their anchorage in the soft bottom of the river and to lift them out upon the boats. Major Suter, of Saint Louis, has supplied the following memorandum of the operations of the snag-boat H. G. Wright (Fig. 62) in the one year of 1881 during eight months of work: Total number of snags destroyed, 1,909; number of trees cut on banks liable to cave into the rivers, 5,005; number of drift piles removed, 15. The following is a statement of the work done on the Mississippi, Missouri, and Arkansas rivers from March 28, 1868, to June 30, 1881, also supplied by Major Suter:

| Rivers. | No. of snags pulled. | No. of trees cut. | No. of drift piles removed. |
|---|---|---|---|
| Mississippi | 14,582 | 54,605 | 107 |
| Missouri | 13,309 | 47,042 | 335 |
| Arkansas | 5,083 | 8,059 | 76 |
| Total | 32,974 | 109,706 | 518 |

The removal of these trunks has probably saved a loss of from $500,000 to $750,000 of vessel property a year.

## CHAPTER V.—IRON VESSELS.

Not more than eighty years have elapsed since iron was first employed in place of wood in the frames and outer planking of vessels. There are some men still living in England who remember the very first boat of this material, which was a little canal-boat with a wooden frame and bottom and sides of boiler iron. The lightness and buoyancy of the hull were the points that attracted attention at the time and led to the construction of other boats of the same class. It was at first supposed that iron hulls, on account of their light draught, would be best adapted for canals and rivers, and all the first vessels were intended for use on one or the other of those two classes of water routes. The first steamboat, a small affair, was manufactured at Horsley in 1821, put together in London, and then sent to France. A boat for the river Seine was shortly afterward exported in pieces from England and put together at Charenton, and in the course of the ten years following 1821 quite a number of small river steamboats were built for companies in England and on the Continent. There then followed a few packets for use on the coast. Finally, in 1838, sailing vessels of from 200 to 300 tons register were built at Liverpool and elsewhere for voyages to foreign lands. After 1840 the building of iron vessels for all trades became a permanent and prosperous industry. What tended to bring them into favor first was their lighter weight and longer life; a decisive victory was won for them when, in 1840, it was finally determined that for all large tonnage it was cheaper to build of iron than of wood. Timber had grown scarce and dear in England; on the other hand, iron and coal were cheap. As soon as builders had acquired sufficient confidence to make iron vessels a specialty it was found that they could build at a considerable saving on the first cost of a wooden ship, as when they learned to distribute materials properly they decreased the weight of the iron ships, built them at a lower cost, and saved from $10 to $20 per ton on the cost of a wooden vessel. This was an important point, and the result was seen in the rapid development of the industry in localities favorably situated with respect to the iron and coal mines. After 1840 a great deal of capital was invested in iron tonnage in England, and the production of wooden tonnage steadily declined year by year until, in 1882, it has virtually come to an end.

In America timber has always been cheap and abundant. The wooden ship has always been the cheap ship, and it remains so to-day. A strong motive for the production of iron tonnage never came to our people until after they had been for some time employing long and large steam vessels in the deep-sea trades. It is true that several small revenue-cutters, tugs, and steamboats had been built of iron in this country prior to 1840, and the subject of iron hulls for large-class tonnage had received a great deal of attention in the principal commercial cities. The superior buoyancy and durability of iron hulls were recognized, but their cost was a serious disadvantage; and Americans saw no reason for abandoning oak and pine for iron until experience had taught them that for large steamers strength and rigidity of structure were considerations of far greater importance than first cost. They then took up the question of the new material seriously, and the result was that after 1850 there began a movement which has finally led to the almost entire disappearance of wooden hulls in American steamers in the deep-sea trades and the universal adoption of iron hulls. For sailing vessels oak and pine retained their popularity; and although it is nearly 60 years since the first iron vessel was launched in America, not more than a dozen sailing vessels and half that number of barges are known to have been built in this country of any material except timber. The iron ship lasts longer; but the wooden ship is far cheaper, is practically as good a carrier, and, all things considered, is about as profitable. There is not much inducement for making sailing tonnage of iron, and there apparently will not be until the first cost of the two is more nearly equal than it is now. On the other hand, at least 590 iron steamers in all have been constructed, and the production has now reached a total of from 20 to 40 a year, and is steadily growing.

There is no record of the building of an iron vessel in the United States until 1825, when the little light-draught steamboat Codorus was launched in Pennsylvania for service on the Susquehanna river. This was four years only after the advent of the first iron steamboat in England. The Codorus may possibly have been one of several which were exported from England in pieces to America and put together here during that early period, but on that point nothing can be definitely stated. The boat was employed on the Susquehanna for a while, and was then sent south for river service there. In 1835 there were five iron steamers already on the Savannah river which appear to have been built in the north. New York was foremost in the matter of iron steamboat building in that early time. In 1836 a steam vessel of 600 tons was launched, originally with a view to trading to Europe. She was put into the mail service to New Orleans first, however, but subsequently abandoned the transatlantic branch of her career. In 1838 a pioneer iron steamboat was built in the West at Pittsburgh. There was next, in 1841, a revenue-cutter built at Boston. As early as 1842 Philadelphia had produced a line of small iron steamboats to trade to Hartford, Connecticut. That year was, relatively, a favorable one for the rise of an iron ship-building industry in the United States, for iron had just touched the lowest prices ever known on this side of the Atlantic. Pig metal had been as high as $55 per gross ton after the war of 1812, and again as high as $52 50 just before the panic of 1837, while the average price had been $35, and it had never fallen as low as $27 50 until 1842. Anthracite iron went as low as $25 per gross ton in that year, and in 1844 it dropped to $24. Nothing like it had been known. The drop had a favorable effect on iron-vessel building, but only for a short time, because railroad building caused a rise in value of $8 per ton within a very few years. While iron ranged low a number of boats, all of moderate size, were built in New York and Philadelphia, and a now famous yard was started at Wilmington, Delaware; the most work appears to have been done in New York, the industry being fostered in that city by the great marine-engine shops, four iron revenue-cutters being built there in 1843, and a number of small merchant steamers about the same time. Then came the rise in iron. In 1850 iron had dropped again, pig metal going to $20 per ton, and a new yard was started in Boston. At New York there was some production, but again iron rose in value; and in 1854 prices had gone to $38 per ton, almost double what they were four years before. Few vessels were built, therefore, and these chiefly on foreign account, until 1858, when the general dullness in trade had brought the price of pig metal down again to $21 50. There was then every prospect of a prosperous growth in the industry. Materials and labor were both low, as they generally are at the same time in iron-ship building, for the raw materials of this industry are in reality the highly finished products of skilled labor, and the cost of materials is directly dependent upon the current rates of wages. American builders were learning to handle iron, and their workmen were becoming trained in the routine of the ship-yard. In addition to these things was the fact that the superiority of American iron had been discovered; an important matter, because it enabled American builders to construct hulls as light and strong as any in the world with a smaller quantity of material than would be put into similar vessels in England.

After the war of 1861 had broken out the value of every form of cast and rolled iron sprang up in a remarkable manner. In 1864 pig metal had touched $73 50 per ton, the highest figure in the history of the United States, and the average of that extraordinary year was $59 25, something entirely unprecedented. Wages also rose to the highest point perhaps ever known, for the army drew off an immense number of workmen. Other circumstances remaining as they were before the war, these events would have closed the gates of every iron-ship yard in America; but the period was exceptional, and those four years were, in fact, years of intense activity in all the yards. It was necessary to construct a large number of iron-clad war vessels immediately, and in the emergency the reliance of the government was almost wholly upon private ship-yards. Foreseeing that this would be the case, the proprietors in Boston, New York, Philadelphia, and Wilmington fitted up their yards in anticipation, putting in expensive machinery for the bending of iron frames and plates, the punching of rivet holes, and the forging and handling of iron bars and shafts. The contracts which they afterward received enabled them to go on and improve their plant, and several firms invested from $250,000 to $1,000,000 each in shops and machinery of the most massive description. The liberal expenditures for armored vessels during the war gave the iron-ship building interest the most powerful impetus it has ever received. The government was compelled from necessity to do that which had been done in England in times of peace from public policy, and was obliged to supply private ship-yards with so large a volume of business that they were thereby placed upon a solid basis of large capital and improved plant. This result has since proved of immense value to that part of the commercial community which is compelled to own and employ steam vessels in deep-sea trade, and has firmly established the art in the United States, improved the quality, and decreased the cost of American iron-built ships. The yards were dull immediately after the war, that is to say, from 1864 to 1870, because the government orders ceased, and there was an era of high prices, during which iron and labor were costly; but after 1870 iron went down rapidly, reaching $16 50 per ton in 1878, the lowest point in American history, and the price has ever since remained at a moderate figure. Steamer building became active in 1870 for the coasting trade, for companies in South America, and to a limited extent for our own foreign trade, and it has ever since gone on steadily and profitably. New yards were opened after 1870 on the coast, on the northern lakes, and on the western rivers.

No official separate record was kept of the iron-ship building of the United States until about 1868. In order to show the full extent of what has been done an attempt has been made to prepare a table of the production for this report; (*a*) but the only statement that can be made is one prepared by the Register of the Treasury, which, however, does not include about 100 vessels built on foreign orders and a number of coast survey, revenue marine, and other government vessels. It is as follows:

| Year. | No. | Tonnage. | Year. | No. | Tonnage. |
|---|---|---|---|---|---|
| 1868 | ........ | 2,801 | 1875 | 20 | 21,632 |
| 1869 | ........ | 4,584 | 1876 | 25 | 21,346 |
| 1870 | ........ | 8,281 | 1877 | 7 | 5,927 |
| 1871 | ........ | 15,479 | 1878 | 32 | 26,960 |
| 1872 | 20 | 12,766 | 1879 | 24 | 22,008 |
| 1873 | 26 | 26,548 | 1880 | 31 | 25,582 |
| 1874 | 23 | 33,097 | 1881 | 42 | 28,536 |

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*a* Data have been gathered showing that almost exactly 600 iron vessels (not including war ships) have been constructed in the United States down to the year 1883; but the years when the ships were built and their register tonnage cannot be accurately tabulated without first incurring an amount of labor entirely out of proportion to the value of the figures when obtained.

Iron ships are constructed on the same general principle as wooden ones. They have a strong backbone or keelson of vertical iron plates, and at right angles thereto ribs or frames, running from the keelson to the gunwale of the vessel and giving to the hull its shape. The frames are strengthened across the floor of the vessel by having riveted to them vertical floor-plates extending from bilge to bilge. There is no ceiling in an iron ship other than a light plank flooring in the bottom of the hold and narrow strips or battens up the sides to keep the cargo from the iron work; but the lack of a heavy ceiling, such as is put into a wooden ship, is made up by greater thickness of outside plating. The outside of the frames is covered with strong iron plates, 6 to 8 frame spaces long and about 2 wide; the edges of each strake lap, and are fastened by a double row of rivets; the butts of the plates are fastened to each other by a strap inside, riveted to each plate by a triple row of rivets. The laps and butts are tightly sealed and made water-tight with hammer and chisel, and the plating makes a perfectly rigid outside shell, which gives the principal strength to the ship. The decks are supported by beams of iron, put in the same as the beams of a wooden ship and kneed to the sides of the vessel with iron knees, which, in this case, however, are part and parcel of the beams themselves. In its whole design the iron ship follows closely the structure of its wooden prototype, the only variations in construction being those which spring from assembling bars and plates in the one case and beams and planks in the other to produce a finished vessel. It is a much simpler process to build an iron ship than it is to build a wooden one. For instance, a frame, while composed of two angle-irons riveted back to back, extends in one length from the keel to the plank-sheer, whereas in the wooden hull the frame is made up of a large number of short pieces, which must be arranged with much care and ingenuity and be properly fastened together before the frame can fulfill the object of its existence. The plating of an iron vessel is also a simpler and easier affair than the planking of a wooden hull. The same simplicity prevails throughout the whole structure. It is only required that the work of the ship shall be done accurately. If frames are a little out of the true curvature they cannot be dubbed off with an adze after they are in position; they must be bent to exactly the right curvature in the first place. A bad seam cannot be closed with oakum, nor will iron, like wood, swell in water and close up the seams. In the iron ship all the parts must be made of the true shape before they are fitted into the vessel, and must match each other exactly, perfect accuracy being the requirement. Under the circumstances the iron-ship builder is put to one expense which the man who works in timber does not incur. He is compelled to employ fine engineering talent in his draughting room and mold-loft; with a good man in charge of that department of his business there is no trouble in building the ship. The value set upon accuracy is shown by the fact that good draughtsmen get $10 a day in the iron-ship yards, while the best mechanics receive no more than $3.

The art of building iron vessels is now well understood in the United States, and, whatever the class of vessel desired, it can be strongly and satisfactorily built, whether it be a river steamboat, a tug, a mud-scow, a steam-yacht, a sailing-yacht, a great paddle-wheel vessel for Long Island sound, a railroad car ferry, a coasting propeller, a steamship for the foreign trade, a large sailing ship, or an iron-clad man-of-war. American builders seem to have learned their art by intuition. The workmen are recruited principally from the machine and boiler shops, but a number have also been obtained from the old wooden-ship yards. A ship-carpenter makes as good a man for the iron-ship yard as does the boiler-maker, and with the aid of a very few machinists any wooden-ship builder could transfer his whole working force from wood to iron and in six months' time have as competent a set of men as he would require.

As the material for an iron ship is ordered in exactly the lengths and sizes required, angle-irons for the frames, beams, keelson pieces, stringers, etc., seldom have to be trimmed, as their lengths can be accurately ascertained from the draughts of the vessel and the mold-loft floor. The stem- and stern-posts are forged in accordance with measurements furnished, aided by a flat wooden mold. The outside plating is ordered from a wooden model of the vessel, which is made for the purpose, on whose surface the strakes of plates are accurately drawn with a lead-pencil. A small fraction of an inch is allowed in the length, so that they will not be too short, and the surplus is taken off by shearing and planing the edges; and while there is some other shearing, planing, and trimming of iron in the various parts of the vessel, the waste of material is so small as to form no appreciable item in the cost—a fact in striking contrast to the situation in a wooden-ship yard, where not less than one-fourth and often fully one-half of the timber is wasted in making the vessel. As the weight of iron is definitely known, great accuracy of estimate is possible in calculating the quantity and cost of materials. In ordering plating, for instance, the convenient rule is followed that a square foot of rolled iron one inch thick weighs 40 pounds. The real average weight is 40.28 pounds; but the rule of 40 pounds to the square foot is so close, that in buying the plating for a large vessel the weight may be previously known to within about one-fiftieth of the whole amount. The total weight of the angle-irons is closely calculated from the sizes, and can be approximated at any rate to within about one-fiftieth; the rule of ordering by width of flanges, so many pounds to the foot, allows of a perfectly accurate calculation, and this is the method preferred. The following are the sizes and weights of angle-iron rolled by the Phœnix Iron Company at Phœnixville, Pennsylvania:

| Width of flanges and thickness of the iron. | Range of weight per running foot. | Width of flanges and thickness of the iron. | Range of weight per running foot. |
|---|---|---|---|
| *Inches.* | *Pounds.* | *Inches.* | *Pounds.* |
| 1 x 1 x ⅛ | 0.83 to 1.13 | 3½ x 3½ x 5/16 | 8⅓ to 12 |
| 1¼ x 1¼ x ⅛ | 1 to 1⅓ | 3½ x 4 x ⅜ | 9 to 13 |
| 1¼ x 1½ x 3/16 | 1½ to 2⅓ | 3 x 4½ x ⅜ | 9 to 13 |
| 1½ x 1½ x 3/16 | 2 | 3 x 5 x 7/16 | 10 to 14 |
| 1¾ x 1¾ x 5/32 | 2 to 3½ | 3½ x 5 x ⅜ | 11⅔ to 15 |
| 2 x 2 x ¼ | 3 to 4 | 3½ x 6 x ⅜ | 11⅓ to 16⅔ |
| 2 x 3 x ¼ | 4 to 5 | 4 x 4 x 7/16 | 11 to 15⅓ |
| 2¼ x 2¼ x ¼ | 4⅓ to 5⅔ | 4 x 5 x ⅜ | 12⅓ to 17 |
| 2½ x 2½ x 7/32 | 5 to 7 | 4 x 6 x ⅜ | 14 to 17⅓ |
| 2½ x 3 x 5/16 | 5⅓ to 8⅓ | 4 x 6½ x ⅜ | 14⅔ to 20⅔ |
| 2¾ x 2¾ x ¼ | 6⅓ to 8⅓ | 4½ x 4½ x ½ | 14⅓ to 18⅓ |
| 3 x 3 x 11/32 | 7⅓ to 9⅔ | 5 x 5 x ½ | 16 to 20 |
| 3 x 3½ x ⅜ | 7⅔ to 11 | 6 x 6 x ½ | 19⅓ to 25 |

BULB T-IRON BEAMS.

| Width clear across the upper flange, depth of vertical flange, thickness of the same, and diameter of bulb. | Weight per running foot. | Width clear across the upper flange, depth of vertical flange, thickness of the same, and diameter of bulb. | Weight per running foot. |
|---|---|---|---|
| *Inches.* | *Pounds.* | *Inches.* | *Pounds.* |
| 3 x 5 x ⅜ x 1 5/16 | 12 to 33⅓ | 4½ x 8 x 7/16 x 1⅝ | 22 to 27 |
| 3½ x 6 x ⅜ x 1⅜ | 14 to 16 | 4⅜ x 9 x 7/16 x 1½ | 23 to 27 |
| 4 x 7 x 7/16 x 1⅜ | 17 to 21 | 5 x 10 x 7/16 x 1⅝ | 28 to 35 |
| 5 x 7 x 7/16 x 1¾ | 21 to 24 | 5 x 11½ x 7/16 x 1⅝ | 32 to 37 |

The raw material for iron-ship building is the finished product of the skilled labor of a rolling-mill, and this explains why the materials entering into an iron ship make about 60 per cent. of its cost; the labor bill is about 40 per cent. In a 1,200-ton sailing ship about 650 tons of finished iron would be used, in one of 2,000 tons about 850 tons, while in large ocean steamers of from 3,000 to 5,000 tons register from 1,300 to 2,000 tons of iron would be required for the hull and from 300 to 400 tons for machinery. In addition to iron, considerable coal and a certain amount of timber are consumed in the ship-yard. When a sailing vessel is built, the top gear is exactly the same as that of a wooden ship, except that hollow iron masts and yards are sometimes used. Allowing for all exceptions, even in sailing vessels the weight of iron used still constitutes almost the whole cost of the raw materials of the ship. It is difficult to state with exactness the price at which ship iron was sold to the builders in the census year. The supply came principally from the different rolling-mills in Pennsylvania, and the varying charges for freight to destinations in different states and the changing price of pig-iron affected the prices at which the several builders bought. Perhaps as fair an average as any are the following figures: Deck beams, curved to the crown of the deck, in 1880, 3.15 cents per pound; 1881, 3.1 cents per pound. Angle-iron, cut to length, 1880, 2.65 cents per pound; 1881, 2.55 cents. Plate iron, 1880 and 1881, average price 2.95 cents per pound.

Iron-ship building differs from the sister industry in the important respect that larger capital is required to carry it on. In the wooden-ship yard nearly all the workmen, to begin with, supply their own hand tools, and after the outfit of broad-axes, adzes, saws, bevels, chisels, calking-irons, mallets, rules, etc., is thus provided, little remains for the builder to purchase except a bolt-cutter, a few planking screws, a few large augers for boring bolt and treenail holes, a derrick, and a large cross-cut saw. Even if he supplies the yard with steam-power, a bevel saw, and a planer, it is hard for him to spend more than $15,000 or $20,000 on his plant, and he can build the largest wooden ships without them. There are plenty of builders of large wooden vessels in the country whose outfit of tools does not exceed $500 in value. On the other hand, an iron-ship yard cannot be established for a smaller investment than about $60,000, and for a large business the investment is anywhere from $200,000 to $1,000,000. The following is a careful estimate of the plant required for a yard having a capacity of one ship of from 2,000 to 2,500 tons a year:

| | | | |
|---|---|---|---|
| One pair of rolls | $4,000 | Hand tools | $2,500 |
| Three punching machines | 3,000 | Engine, boiler, pumps, etc | 4,000 |
| One pair of shears | 1,200 | Shafting and pulleys | 5,000 |
| One planer | 2,000 | Blacksmith-shop and fittings | 3,000 |
| Two countersinks | 1,500 | Cranes and railways | 3,000 |
| One drill | 800 | Buildings, wood | 10,000 |
| One lathe | 700 | Foundations | 4,000 |
| One furnace | 2,500 | Sundries | 5,000 |
| One frame-bending slab | 1,500 | | |
| Small tools | 2,500 | Total | 57,200 |
| Steam hammer | 1,000 | | |

This circumstance of the greater cost of plant limits the number of iron-ship yards which can exist in a country.

With reference to model, it should be stated that the change from wood to iron produces the effect of narrowing the beam of ships. The one weak place of the iron hull is the flat of the floor, which, on account of the thinness of the material, tends to buckle and collapse. This is offset to some extent by the use of vertical plates from 15 to 30 inches deep, according to the tonnage of the vessel, extending across the floor on each frame from bilge to bilge. These floor plates are strongly riveted to the upper edge of the frame angle-iron; the reverse angle-iron, which is riveted to the back of each frame, leaves the frame at the bilge and runs across the upper edge of the floor plate, being strongly riveted thereto. The floor plate, the angle-iron, and the reverse angle-iron united constitute the frame, which, while of narrow molding on the sides of the vessel, is thus of considerable depth across the floor. But even this is not enough. It has been considered safer by all builders of iron vessels, especially of sailing craft, to make the floor sharper, so as to give it a little more vertical stiffness, and then to narrow the beam a few feet. In order to gain the same register tonnage the hull is made longer. This narrowing of the beam makes the vessel swifter, both in the case of sailers and of propellers, which is an advantage, and its only drawback is that in sailing vessels it makes the ship crank. The center of gravity of an iron hull is always higher than in a wooden one, and the model aggravates the evil. The beam of an iron sailing ship is from 2 to 5 feet narrower than in a wooden one. The following comparison between average craft of the same tonnage will show the difference:

| IRON SAILING SHIPS (ENGLISH). | | | | WOODEN SAILING SHIPS (AMERICAN). | | |
|---|---|---|---|---|---|---|
| Tonnage. | Length on deck. | Broadest beam. | Depth of hold. | Length on deck. | Broadest beam. | Depth of hold. |
| | *Feet.* | *Feet.* | *Feet.* | *Feet.* | *Feet.* | *Feet.* |
| 1,000 | 220 | 34 | 21 | 177 | 36 | 23 |
| 1,200 | 229 | 35½ | 21 | 186 | 37 | 23 |
| 1,300 | 230 | 36½ | 23 | 194 | 38 | 24 |
| 1,400 | 245 | 37 | 22 | 200 | 39 | 24 |
| 1,500 | 248 | 37⅔ | 23 | 215 | 40 | 24 |
| 1,600 | 253 | 38 | 23 | 220 | 40½ | 24 |
| 2,000 | 270 | 38 | 32 | 235 | 43 | 27 |

A description will now be given of the various localities in the United States where iron-ship building is or has been carried on and of the classes of vessels built. Any extended reference to the war ships built from 1861 to 1865 will, however, be omitted, as foreign to the purposes of this report.

North of Massachusetts, on the Atlantic coast, no production of iron merchant vessels has yet been reported.

An iron vessel was built in Boston as early as 1841. Jabez Coney, an iron manufacturer, paid some attention to ship-building, and obtained a contract for the revenue-cutter Saranac. It is believed that this was the first iron vessel in New England. Probably others were constructed in the following ten years, but none of large size. In 1853 the Atlantic works were incorporated by a special charter, and shops were established in East Boston with all the facilities required for engine- and ship-building. In their early history these works built almost entirely on foreign orders. They made engines for the Russian corvette Mandjoor, Le Voyageur de la Mer, a steamer for the Pacha of Egypt, and the Paraguayan steamer Argentina, and also built several steamers complete for the Russians and Chinese, one for the Sandwich Islands, and for American owners the composite steamer Niphon and the iron steamer Pembroke, the latter being afterward sold to go to the East Indies. In 1861 the works devoted their whole attention to United States government business, and built the iron-turret monitors Nantucket and Casco, the turrets for the Monadnock, Agamenticus, Passaconaway, and Shackamaxon, and the engines for five naval steamers. Since the war these works have built much machinery on government orders, two iron revenue-cutters complete, the Richard Rush and the Samuel Dexter, and the noted United States dredge-boat Essayons, which did service at the mouth of the Mississippi river. One of their vessels was the steamer William Lawrence, of 1,049 tons, for the trade between Boston and Baltimore, in which she is still running. An iron sailing vessel, the brig Novelty, was also built by them after the war for the transportation of molasses in bulk; the hold of the little vessel was completely lined with cement for the purpose. The works occupy four acres of ground, and the equipment is complete. Iron vessels could be undertaken at any time; but of late years little has been done except the construction of machinery for ferry-boats, yachts, excursion boats, etc., and the repair of iron vessels, and it must be said that, so far as the latter branch of the work is concerned, the port of Boston now supplies the yard with very little to do. Iron steamers throng the port, but they are all of foreign build and ownership, and display an indisposition to having work of any kind done on this side of the ocean that can possibly be avoided.

Le Voyageur de la Mer was built under a contract with George A. Stone, a young man who had been for several years a resident of Syria as a representative of a Boston commercial house. He was something of an engineer, and in an interview with the Pacha of Egypt he obtained a contract from him to build a ship. The steamer was 216 feet long, 37 feet on the beam, and 22 feet deep in the hold, and registered 1,300 tons. The plates and frames were rolled in Norristown and Philadelphia, Pennsylvania, machinery being put up in Boston for cutting, punching, and molding them. The hull required 3,000 plates and 300,000 rivets, a total weight of 881,000 pounds of iron. The steamer had an inner wooden frame of great solidity ceiled with pitch-pine, two flush decks, and five water-tight iron bulkheads, two extending to the upper deck. The boilers were four in number, and oscillating engines of 800 horse-power were put in, which were 54 inches in diameter, with 3 feet stroke. The propeller shaft was 13 inches in diameter, and carried a 15½-foot wheel. This was one of the very first large iron boats in the United States.

In South Boston there is a yard in which 850 men can be employed, and there is a rolling-mill in the immediate vicinity. There are two large ship houses on the grounds, a machine-shop of granite 300 feet long, various other buildings, and a derrick which will handle a weight of 60 tons. About $200,000 are invested in the property. The yard was established in 1857 by Harrison Loring, a young man who had had experience in making stationary and marine engines and industrial machinery, and who in 1841 had worked in the ship-yard of Jabez Coney on the iron revenue-cutter Saranac. Mr. Loring's first boat was the Sestos, for the East Indies, a small steamer, the plans for which were prepared in England. The owners were pleased, and Mr. Loring built for them a sister boat. In 1860 he built two iron steamers of 1,150 tons each for the trade between Boston and New Orleans, but they were afterward sold to the government for employment in the blockading fleet. The iron propellers Mississippi and Merrimac, each of about 2,000 tons, were built in 1861, and afterward the monitor Nahant, the ram Canonicus, and the side-wheeler Winnipee, of 1,500 tons. Since the war the works have been devoted to machinery for sugar and paper factories. All the facilities exist for the construction of vessels. Mr. Loring regards American iron as the best for ship-building, on account of its superior tensile strength, and has repaired English-built vessels whose plates were so weak as not to have over one-half the tenacity of common cast iron. He states that Mr. Martell, the surveyor for Lloyds at Liverpool, admitted to him the necessity in England for something better than their rolled iron for plates, and the consequent adoption by them of steel for ship-building. The South Boston yard labored under the disadvantage of city rates of wages.

In a city like New York iron-ship building naturally began early. An immense amount of every kind of tonnage was built and owned there, and everything which related in any way to ships was eagerly studied by both builders and owners. Builders were enterprising, and watched with especial interest what was going on in England. After iron vessels began to be built in Liverpool and Glasgow the subject was considered in New York. In the years from 1830 to 1850 quite a number of iron steamboats, revenue-cutters, and tugs were constructed, and builders became familiarized with the idea of iron frames and iron shells for ships. In 1839, as already noted, the little iron propeller New Jersey, 70 feet long, 10 broad, and 6¾ feet deep in the water, arrived from England, on Commodore Stockton's order, to go on the Delaware and Raritan canal and the rivers Delaware and Schuylkill as a tug.

In 1858 there was quite a movement toward building iron vessels. The steamer Suchil, a side-wheeler, was launched from Bell's yard, on the East river, with 200 people on board. She was 140 feet long, 35 feet beam, and 5½ feet deep in the hold, with three bulkheads and two 120 horse-power engines, and was launched in 43 days from the laying out of the iron plates for the keel on the building-ways. There were 250 tons of iron in her hull. She drew 12 inches light after launching and 16 inches with everything on board, and was ordered by the Tehuantepec Company to run on the California route from New Orleans via the Coatzacoalcos river. Her hull was modeled at the ends for a speed of from 10 to 12 miles per hour. In the same year the Novelty iron works built a steamboat 168 feet long and 30 feet on the beam, while the Morgan iron works began on a contract for four iron propellers to go to Siam. It was in this period that New York was building so many large and handsome wooden steamers for the coasting and California trades. The cost of iron vessels of that size was estimated with a view to competing for the orders of the companies, but the excessive expense and the lack of large plant defeated all efforts to introduce them.

In 1861 William H. Webb built the iron-clad propeller frigates Re d'Italia and Re Don Luigi de Portugallo for the Italian government. The contract for them had been entered into before 1861, and some trouble was experienced in completing them, but the work was finally accomplished, and the ships were sent across the ocean and delivered. The Re d'Italia was 282¼ feet long on the upper deck from the after side of the rudder-post to the forward edge of the hawse-pipes. The breadth of beam on the load-line was 54 feet, and the total depth of hold 33½ feet. The Re Don Luigi de Portugallo was 3 feet shorter. The armor of these vessels was mounted on a frame of oak and locust of the most massive description, and the weight of each ship with everything on board, including armament, was 6,150 tons. Each was capable of a speed of from 15 to 17 knots per hour. The Re d'Italia made 14 knots on her first trip with steam up in only four of her six boilers.

A monster iron-clad was soon afterward built by Webb and sold to the French government. Originally ordered by Secretary Welles for the United States service, she was not completed until the war was over. Her builder then obtained permission to sell her abroad, and she was sold to France. This ship was called the Dunderberg, but was rechristened the Rochambeau after her sale. She was a long and powerful ram, lying low in the water, but with a high shot-proof casemate amidships for the working of the guns. The extreme length was 380 feet, the beam of the hull on the plank-sheer 59½ feet, the beam over all above 72⅚ feet, and the depth of hold amidships 22⅚ feet, with a casemate 7¾ feet high inside, superimposed. The portion of the bow which formed the ram was 50 feet in length. Mr. Webb gave this ship an almost perfectly flat floor, so as to gain the largest possible displacement. The dead rise was only 4 inches. The hull was massively built of wood, with armor above of $4\frac{1}{2}$-inch iron. The frames were spaced 3 feet, and molded over the keel 17 inches, at the floor-heads 14 inches, above the bilge 13 inches, and at the plank-sheer 9 inches. The sides of the casemate were 3 feet thick, and were set at a slope of 35°, to compel the glancing of shot. A thousand tons of iron were used in the armor, and the displacement was about 6,900 tons. This weight was carried on 21 feet draught. The ship's engines (two in number) were built by John Roach & Son, and developed 5,000 horse-power, giving a speed of $15\frac{3}{4}$ miles per hour. This ship registered 5,090 tons, and was the fastest armed steamer in the world at that time.

Since the war it has not been practicable to carry on iron-ship building in New York city. There are four large engine-shops which are devoted almost entirely to marine work, one of them, the Morgan iron works, belonging to Messrs. John Roach & Son, who build at Chester, Pennsylvania; but the building of hulls in New York has ceased, prices, wages, and taxes being too high for that class of work.

The only place on the Hudson which has an iron-ship yard is Newburgh, where Ward, Stanton & Co. have lately added the construction of iron vessels to their old business of building and repairing wooden river boats. In the census year the river propeller ferry-boat City of Catskill, of 414 tons, and a tug of 115 tons were built. Another ferry-boat, the Hoboken, about 190 feet long and 40 feet beam, a double-ender with side-wheels, and a screw yacht for James Gordon Bennett, 246 feet long over all, 225 feet on the keel, 26 feet beam, and 18 feet deep, were in process of construction. The cost of tugs at this yard is about $200 per ton.

At Camden, New Jersey, on the Delaware river, there is one well equipped yard devoted to the construction of tugs and pilot-boats with compound engines and vertical keels. This yard has been established for many years, and has had its ups and downs; but it has now proved the superior excellence of iron hulls for tugs, and builds four or five of that class of boat every year, there being usually two or three under way at once. Two of the boats built here were the Brazil, of 120 tons, 105 feet long, 20 feet beam, and 11 feet deep in the hold, with compound engines having 18- and 30-inch cylinders and 22-inch stroke, and the Juno, of 84 tons, 85 feet long, 18 feet beam, and 9 feet hold, with compound engines 15 and 26 inches in diameter and 20-inch stroke. These boats were sent to Brazil and encountered rough weather on the passage, but behaved so well as to prove their fitness for any ocean voyage. The Inca, another of their tugs, was also a seaworthy boat. The first iron pilot-boat in the United States was built here for service at New Orleans. She was named the Jennie Wilson, and registered 77 tons. In 1880 another of the same class was ordered, also for New Orleans, and was sent to her destination the next winter. The second boat was the Underwriter, of 170 tons, $120\frac{2}{3}$ feet long, 22 feet beam, and 12 feet deep, sharp on the floor, keen in the bow, with a good deal of sheer, and handsome in her whole bearing. The engines were compound, with 20- and 36-inch cylinders and 28-inch stroke, driven by a boiler 11 feet long and 11 feet in diameter, and the wheel was 9 feet in diameter, weighing 3,847 pounds. In an ordinary tug the only house that is needed is one amidships to shelter the boiler and engines and make room for the stowage of spare cables, etc. There must also be a little pilot-house either atop or forward. In the pilot-boat, however, more cabin space is necessary. The arrangement on the Underwriter was as follows: Forward there was a pilot's cabin; next aft was the engine-room, large and airy; then a dining-room, with kitchen and pantry adjoining; and finally, farthest aft, the lodgings of the pilots, having 16 berths. The forward hold was fitted up with 10 bunks for the crew. The plating was of $\frac{7}{16}$-inch iron. Weight of boat, with all on board except coal and water, about 175 tons. In the census year this yard built four iron tugs—the Inca, 103 tons; the Phœnix, 95 tons; the Kate Jones (Fig. 63), 123 tons; and the Nellie, 61 tons—consuming 385 tons of iron in the four hulls and machinery. They were completed at a cost of $76,000, about $200 per register ton, or not much more than the cost of the same class of vessel well built of oak and pine. Wages in the yard were $10 and $12 per week for all the iron-work hands and $15 for carpenters. A tug 120 feet long was building, at the time the yard was visited, with plating of $\frac{6}{16}$-inch iron, rolled 10 feet long, 3 and $3\frac{1}{2}$ feet wide; frames, $3\frac{1}{2}$- by $3\frac{1}{2}$- by $\frac{3}{8}$-inch angle-iron, spaced 20 inches; beams, angle-iron; and rudder- and stern-posts of $2\frac{1}{2}$- by 6-inch iron. An average of 50 men find employment in the yard, but it could employ 200.

Philadelphia, from its nearness to the iron and coal mines and from the remarkable development of the iron-manufacturing industry in the towns lying back of and around her, has always enjoyed a great advantage in iron-ship building. The city has a large number of engine-building works, and is exceptional in the cheapness of her iron and coal. It was natural that she should take a lead in iron-ship building the moment the industry had reached a point where the price of materials and convenience of access to rolling-mills near by should begin to tell. It has already been noted that the first iron vessel in America was a light-draught river boat which was launched in 1825 for use upon the Susquehanna. One of the earliest iron boats of which there is any record in Philadelphia was a small barge, which was built by Jesse Starr four squares from the river and was hauled down to the water by horses. In the thirty years following 1825 quite a number of small iron vessels were built in the city—steamboats, revenue-cutters, etc.—I. P. Morris, James T. Sutton & Co., and Neafie & Levy building from time to time, the hulls being designed and laid down on the mold-loft floor by practical ship-carpenters. It does not appear, however, that the product of the industry was so large and important as that at New York until after the beginning of the war of 1861. The outbreak of hostilities being a signal for preparations in Philadelphia for large ships, William Cramp fitted up at once his wooden-ship yard (where since 1830 he had built 106 vessels of different kinds)

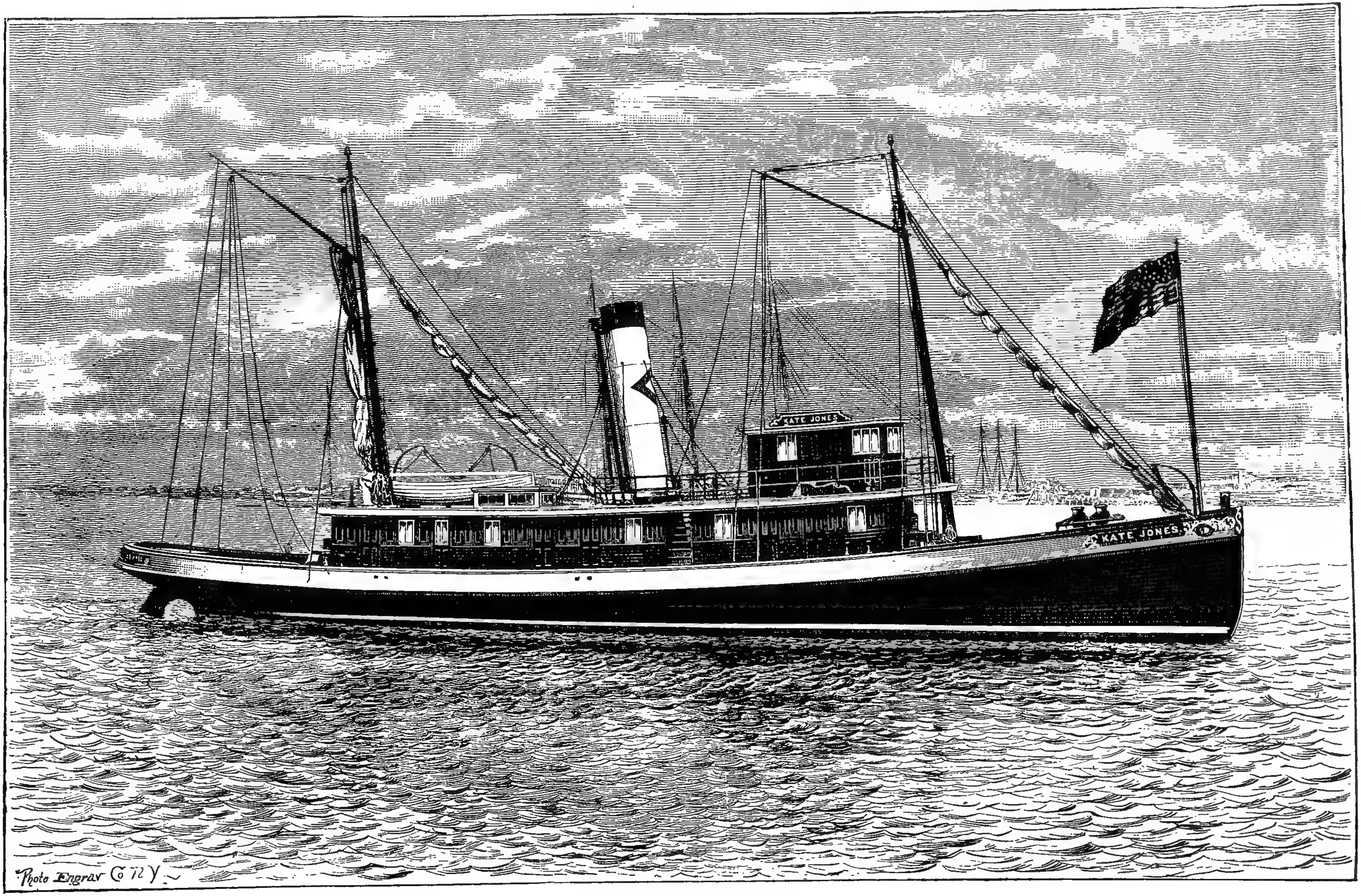

Fig. 63.—Tug Kate Jones.

Large cylinder, 30 inches; small cylinder, 18 inches; length, 109 feet; breadth, 20 feet; depth, 10 feet.

with machinery for the handling of iron plates and frames. His first vessel was the United States man-of-war New Ironsides, of 3,250 tons, 230 feet long and 56 feet beam, which was a strong wooden ship iron-clad above the water. She was built before the yard had been fully fitted up with machinery, and the armor plates were purchased from another concern. When the contract was made the timber for her frame was still growing in the woods; yet in six months' time she was launched and on her way to Charleston. Mr. Cramp afterward built the monitor Yazoo, the steamer Chattanooga, and a number of transports, and did a large amount of other government work. Meanwhile he was steadily improving the plant of the yard, and after the war it became one of the great iron-ship building concerns of the United States. When the building of war vessels ceased attention was turned to the subject of merchant steamers. Philadelphia had lines of coasting steamers to every port on the Atlantic and Gulf seaboard. They were old wooden boats, with a capacity seldom, if ever, exceeding 1,000 register tons, and were in part side-wheelers; as fast as they wore out they could be replaced by iron vessels, provided good ones could be built at not too great an increase of cost. The needs of the coasting trade were carefully considered, and a number of small iron steamers and tugs were built at the yard. Two propellers were built for the Clyde lines, and then, in 1872, Mr. Cramp obtained the contract to build four steamers for the new American line to Liverpool of 3,016 tons each, at a total cost of $2,400,000. These boats made the reputation of the yard, and there being then no American steamers in the trade from the United States to Europe (and indeed there have been none since) it was deemed important to construct them in good style as specimens of American workmanship. They were modeled long and narrow, with fine bows and runs and slightly hollow water-lines. The dimensions of each were: Length over all, 355 feet; breadth of beam, 43 feet; depth of hold, 35 feet. Decks, 3 in number; 2 masts. Each ship was supplied with two compound 1,800 horse-power engines, with 57- and 90-inch cylinders, having 4 feet stroke, and a 16-foot wheel. The ships were completed in 1873, and proved fast, smart, and strong vessels; their speed was 13 miles an hour. They have now been running nine years, and are insured by English companies at the most favorable rates given to any iron vessels afloat. As passenger boats they fully answered all expectations; their average time from cape Henlopen to Queenstown is 9½ days, and on the return 10 days 2 hours. Each carries 100 cabin and 800 steerage passengers, 1,740 tons of cargo, and 720 tons of coal on 20½ feet draught of water. The export trade to Europe now requires steamers which can carry 3,000 tons of cargo, but in the day when they were built the American boats did all that was demanded of them.

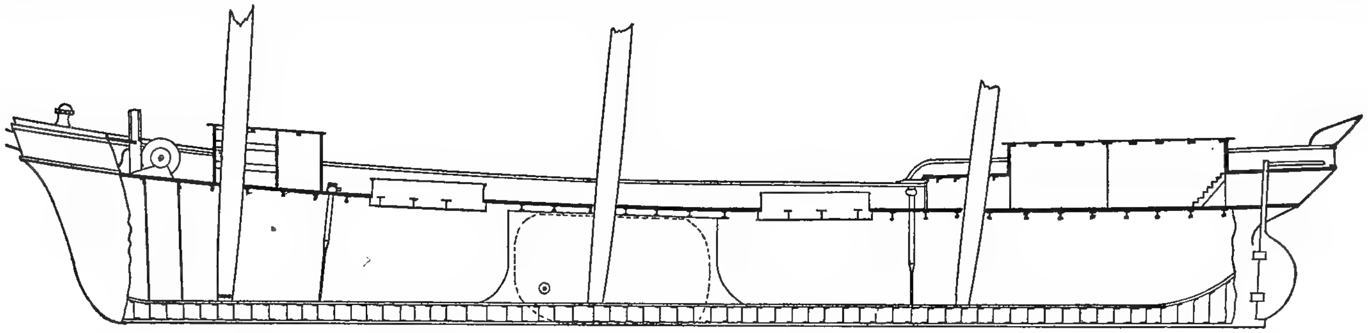

Fig. 64.—LONGITUDINAL SECTION OF THE THREE-MASTED SCHOONER JOSEPHINE.

Built by William Cramp & Sons, Philadelphia. Length on deck, 132 feet 3 inches; length on load water-line, 126 feet; breadth, molded, 34 feet; depth, molded, 12 feet; depth of hold in the clear, 9 feet 10 inches.

After the American line was built this yard gave its attention wholly to the production of iron tonnage. Down to the present year the yard has constructed in all more than 50 vessels (the majority of them for the coasting trade), including a few yachts and the conversion of four fast steamers into men-of-war for the Russian navy. When the Russian contracts were being fulfilled the yard was so busy that it was compelled to employ a number of shops outside to aid in the work. The propellers made by the Cramps are characterized by long, keen, wedge-like bows, rising floors, good speed, and strong workmanship. The yachts Corsair and Stranger, which were finished in 1880, were sisters, 165 feet long, 23 feet beam, and 13 feet deep in the hold, and weighed complete, with all on board except coal and water, about 270 tons each. One of the vessels finished in 1880 was the coaster Chalmette, for the New Orleans trade, 338 feet long, 42 feet beam, and 31 feet hold, and of 2,983 tons register—a fast and handsome vessel. Three steamers were on the stocks in 1880, and there were contracts for others. The Cramps do a large business in repairing, a branch of work which is valued by all iron-ship builders as being the most profitable. In new vessels the proportion of labor to materials is as 40 to 60 per cent., whereas in repairing the proportion is as 65 to 35 per cent.

The Cramps have two establishments. At one of them, at the foot of Norris street, the ships are built. It is a large yard 600 feet wide by 700 deep, with a number of shops for the bending, shearing, and punching of frames and plates, the forging of bars and shafts, and the making of boilers and engines, and with five building ways and ample wharf and dock room. Plates and frames are ordered from rolling-mills at Johnstown and Phœnixville, Pennsylvania. The other establishment is at the foot of Palmer street, fronting 230 feet on the river, and extending back 620 feet. It has a machine- and blacksmith-shop for repair work and a basin dry-dock 462 feet long, 111 feet wide on top, and 23 feet draught of water. In making this dock 4,200 piles were driven. The pumps are centrifugal, four in number, with a joint capacity of 30,000 gallons per minute, and empty the dock in 45 minutes. The regular force of the company is 1,200 men, but in busy years 3,000 men can be employed. The working force of 20 wooden-ship yards is concentrated in these two establishments.

Only one iron sailing vessel has ever been built by the Cramps. This was the center-board schooner Josephine (Figs. 64 and 65), of 365 tons, 126 feet long on the load-line, 132¼ feet over all, 34 feet beam, and 12 feet molded depth, the hold being 9⅚ feet deep in the clear. This vessel was the idea of a number of shipwrights and maritime people in Philadelphia, the most of them owners in other craft. John Main had had a small iron steamboat built by the Cramps, and thought that if a sailing vessel could be built with a hull something like that it would be a success. He enlisted the interest of several associates; the vessel was ordered, and was completed at a cost of $96 per register ton, or about $8,000 more than a wooden center-board schooner of the same capacity. She ranked as

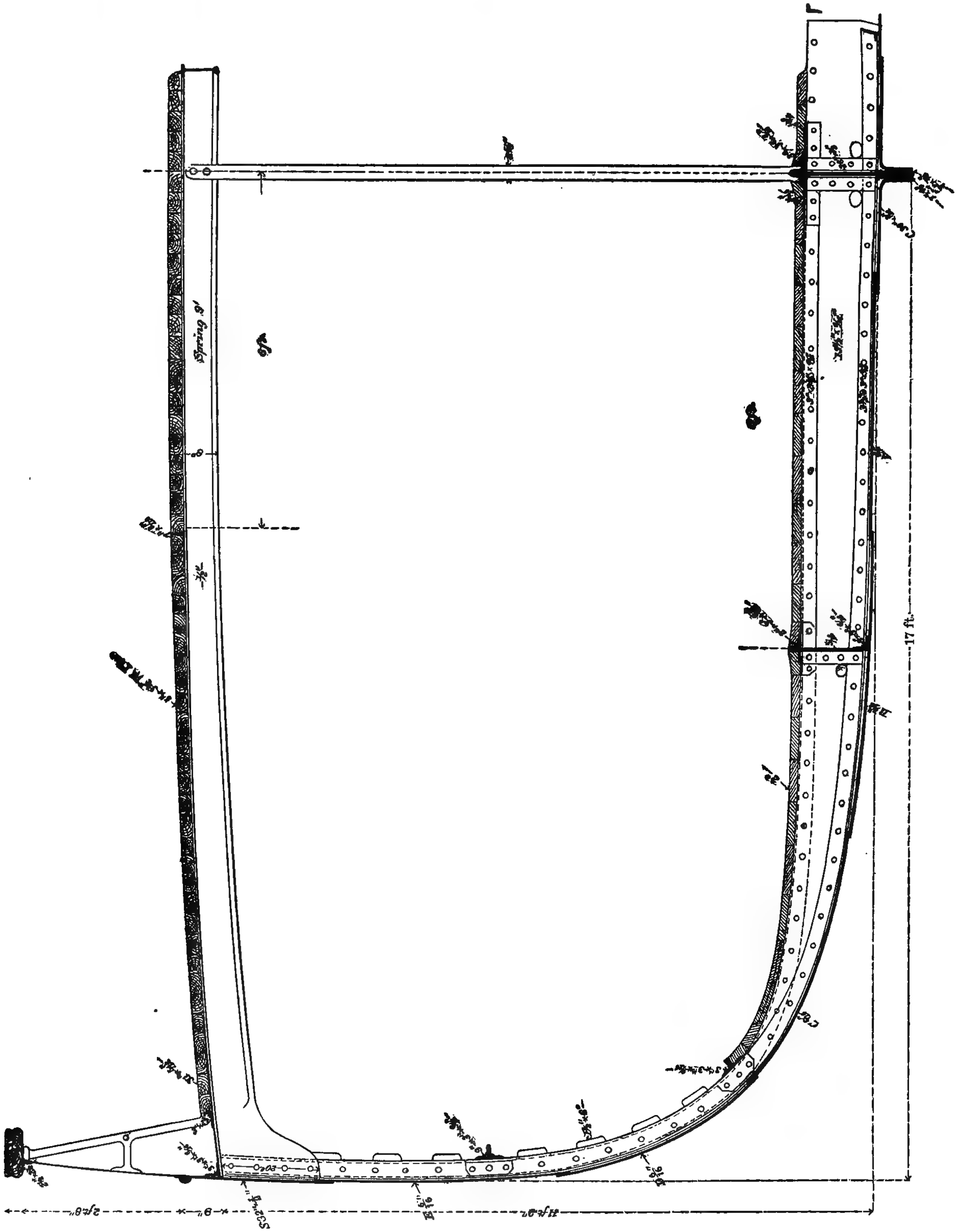

Fig. 65.—Cross-section of Iron Schooner Josephine.

A 1 for 16 years, however, and the owners expect to save that $8,000 more than once during her existence in escaping from the necessity of the continual calking and repair to which wooden vessels are subject. The scantling of the schooner is as follows: Keel, vertical center plate, 26 inches wide, $\frac{1}{2}$ inch thick; vertical side plates, below the frames, 7 inches wide, $\frac{5}{8}$ inch thick; frames, angle-iron, $3\frac{1}{2}$ by 3 inches by $\frac{6}{16}$ inch; reverse angle-iron frames, 3 by $2\frac{1}{2}$ inches, $\frac{5}{16}$ inch thick; spacing, 20 inches; floor plates, 15 inches deep over the keel, $\frac{1}{2}$ inch thick, extending from bilge to bilge, riveted to the vertical center plate by short angle-irons; on top of the frames, at each side of the center plate, there is riveted a continuous flat plate, fore and aft, 10 inches wide, $\frac{3}{8}$ inch thick, which is tied to the keel plate by continuous angle-irons, 3 by 3 inches by $\frac{6}{16}$-inch thick. This arrangement constitutes the main keelson. Eight feet each side of the main keelson is placed an intercostal side keelson, made of $\frac{5}{16}$-inch plates, rising 3 inches above the floors, and secured by fore-and-aft angle-irons, 3 by 3 inches and $\frac{3}{8}$ inch thick. There is a bilge keelson each side, composed of two angle-irons, same as the above, laid on the frames, and riveted back to back. Half way up the sides of the hold there is a stringer of two angle-irons, similarly arranged, and of the same size. Beams of bulb T-iron, 7 inches wide on top, 8 inches deep, and $\frac{1}{2}$ inch thick, spaced every other frame. A stringer plate over the ends of the beams is 31 inches wide and $\frac{3}{8}$ inch thick. The tie plate is 7 inches by $\frac{3}{8}$ inch thick. There are 7 streaks of outer plating. The garboards lap 7 inches on the keel, are riveted clear through, and are of $\frac{7}{16}$-inch iron. The next strake is $\frac{6}{16}$ iron; the next, $\frac{7}{16}$; and all the rest $\frac{6}{16}$, except that the sheer strake is $\frac{1}{2}$ inch. The bulwark plating is $\frac{1}{4}$ inch. The hold is floored with 2-inch yellow pine, the deck with $3\frac{1}{2}$-inch white pine, and there is one bulkhead in the bow. The total weight of metal in the hull was 225 tons. On the whole, the scantling of this schooner would be considered a little light, but this is due to the superior quality of American iron. On deck the arrangement was the one which is customary in schooners. Forward there is a house $6\frac{1}{4}$ feet high and 11 feet long, through which rises the foremast. There is also a small top-gallant forecastle for the windlass. Aft there is a poop-deck, on which there is a house 23 feet long, with quarters for the officers. The schooner spreads 3,150 running yards of canvas. She is a good carrier, taking 550 tons of cargo at a trip, and is regarded as a successful vessel. She would be followed by others of the same class except for the first cost. (*a*)

The firm of Neafie & Levy, in Philadelphia, has been engaged in the construction of iron vessels of small size since 1844. This firm came into existence in 1838, and built its first vessels in 1844. The product of this establishment has been principally engines and propeller wheels. Up to the fall of 1882 it had built and put into vessels no less than 737 engines. Its propeller wheel is a specialty, the manufacture of which has grown into a large business. About 350 per year are now produced, varying from $2\frac{1}{2}$ to 15 feet in diameter, and are sent out all over the country. The firm takes contracts for both wooden and iron hulls. The latter are built upon its own grounds, but the wooden craft are generally constructed by a subcontractor. The following is the list of iron vessels built by this firm:

| Name. | Year. | Length. | | Breadth. | | Depth. | | Name. | Year. | Length. | | Breadth. | | Depth. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *Ft.* | *In.* | *Ft.* | *In.* | *Ft.* | *In.* | | | *Ft.* | *In.* | *Ft.* | *In.* | *Ft.* | *In.* |
| Conestoga | 1844 | 80 | 0 | 16 | 0 | 6 | 0 | General Scott | 1860 | 225 | 0 | 32 | 0 | 10 | 0 |
| Barclay | 1844 | 125 | 0 | 20 | 0 | 6 | 0 | Union | 1860 | 225 | 0 | 32 | 0 | 10 | 0 |
| Tecumseh | 1844 | 35 | 0 | 8 | 0 | 3 | 6 | Russia | 1860 | 75 | 0 | 15 | 6 | 7 | 0 |
| Apure | 1844 | 160 | 0 | 23 | 6 | 6 | 0 | Siberia | 1860 | 75 | 0 | 15 | 6 | 7 | 0 |
| San Juan | 1844 | 110 | 0 | 14 | 0 | 3 | 6 | Amoor | 1860 | 75 | 0 | 15 | 6 | 7 | 0 |
| Rancocas | 1844 | 125 | 0 | 16 | 6 | 6 | 6 | Van Vliet | 1862 | 75 | 0 | 15 | 6 | 6 | 6 |
| Montezuma | 1852 | 60 | 0 | 10 | 6 | 3 | 6 | Joseph Thompson | 1862 | 158 | 0 | 23 | 0 | 8 | 6 |
| Gov. Moorhead | 1852 | 100 | 0 | 17 | 6 | 3 | 0 | General Meigs | 1862 | 158 | 0 | 23 | 0 | 9 | 6 |
| Orinoco | 1852 | 115 | 0 | 23 | 0 | 8 | 0 | Pocahontas | 1862 | 160 | 0 | 30 | 0 | [illegible] | 0 |
| Decatur | 1855 | 65 | 0 | 15 | 0 | 5 | 6 | Charles Pearson | 1863 | 130 | 0 | 26 | 0 | 14 | 0 |
| Bordman, No. 1 | 1855 | 125 | 0 | 19 | 6 | 7 | 0 | Havana | 1863 | 230 | 0 | 34 | 0 | 24 | 0 |
| Bordman, No. 2 | 1855 | 100 | 0 | 19 | 0 | 6 | 0 | Dashing Wave | 1863 | 60 | 0 | 18 | 0 | 4 | 3 |
| Jacob G. Neafie | 1856 | 80 | 0 | 19 | 6 | 7 | 0 | Julia Saint Clair | 1866 | 129 | 0 | 37 | 0 | 4 | 0 |
| Major Brewerton | 1856 | 91 | 0 | 19 | 6 | 7 | 6 | Bandy Moore | 1866 | 129 | 0 | 37 | 0 | 4 | 0 |
| Fanny Cadwallader | 1856 | 158 | 0 | 23 | 8 | 8 | 0 | Ida | 1870 | 65 | 0 | 15 | 0 | 6 | 0 |
| Elizabeth | 1856 | 158 | 0 | 23 | 8 | 8 | 0 | Seminole | 1871 | 80 | 0 | 18 | 0 | 8 | 0 |
| James Gray | 1857 | 85 | 0 | 18 | 0 | 8 | 0 | Cynthia | 1871 | 95 | 0 | 18 | 0 | 8 | 0 |
| Sagua | 1859 | 120 | 0 | 24 | 0 | 6 | 0 | Mary Louisa | 1871 | 86 | 3 | 18 | 0 | 8 | 0 |
| Octarara | 1859 | 158 | 0 | 23 | 8 | 8 | 0 | W. E. Gladwish | 1873 | 118 | 0 | 24 | 0 | 9 | 0 |
| Philadelphia | 1859 | 200 | 0 | 29 | 0 | 9 | 0 | Sallie | 1872 | 60 | 0 | 13 | 0 | 6 | 0 |
| Pacific | 1859 | 75 | 0 | 15 | 3 | 6 | 6 | Tisdale | 1872 | 98 | 0 | 18 | 0 | 8 | 0 |
| William Woodward | 1860 | 158 | 0 | 23 | 8 | 8 | 0 | Alfred and Edwin | 1872 | 100 | 0 | 21 | 0 | 7 | 0 |
| Ounalaska | 1860 | 75 | 0 | 15 | 6 | 7 | 0 | J. G. Witterbee | 1872 | 108 | 0 | 20 | 0 | 9 | 0 |
| Arasapha | 1860 | 120 | 0 | 25 | 0 | 8 | 6 | Ethel | 1872 | 60 | 0 | 14 | 0 | 6 | 0 |
| Oriental | 1860 | 210 | 0 | 32 | 0 | 20 | 8 | Convoy | 1873 | 85 | 0 | 19 | 0 | 9 | 3 |

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*a* During the winter of 1882–'83 there has been established in Philadelphia one new yard. Some repair shops in the northern part of the city, owned by the Reading railroad and originally intended for iron-ship building, but never used for that purpose, have been bought by a company of New York men. They are to be placed under the management of Lieutenant Gorringe, late of the United States navy, and a contract has been taken for a sailing ship, which it is at present proposed to construct during 1883.

| Name. | Year. | Length. | | Breadth. | | Depth. | | Name. | Year. | Length. | | Breadth. | | Depth. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *Ft.* | *In.* | *Ft.* | *In.* | *Ft.* | *In.* | | | *Ft.* | *In.* | *Ft.* | *In.* | *Ft.* | *In.* |
| Dahlia | 1874 | 141 | 6 | 25 | 0 | 10 | 6 | Conoho | 1881 | 170 | 0 | 23 | 6 | 9 | 0 |
| William S. Stokeley | 1874 | 100 | 0 | 18 | 0 | 8 | 6 | W. M. Wood | 1881 | 80 | 0 | 17 | 0 | 8 | 0 |
| Ivanhoe | 1874 | 67 | 6 | 14 | 6 | 6 | 6 | William T. Hart | 1881 | 294 | 6 | 42 | 0 | 13 | 0 |
| Startle | 1876 | 60 | 0 | 14 | 0 | 6 | 6 | Battler | 1881 | 110 | 0 | 22 | 0 | 11 | 0 |
| Transfer, No. 1 | 1877 | 100 | 0 | 21 | 0 | 10 | 0 | William A. Marburg | 1881 | 105 | 0 | 21 | 0 | 9 | 6 |
| Cuba | 1878 | 211 | 0 | 32 | 6 | 21 | 6 | Nat Wales | 1881 | 85 | 0 | 18 | 6 | 9 | 0 |
| Ella Andrews | 1878 | 80 | 0 | 17 | 0 | 8 | 0 | Storm King | 1882 | 118 | 0 | 21 | 0 | 13 | 0 |
| John E. Tygert | 1879 | 115 | 0 | 22 | 0 | 6 | 0 | City of Philadelphia | 1882 | 100 | 0 | 19 | 6 | 11 | 0 |
| Neptune | 1879 | 115 | 0 | 20 | 0 | 6 | 0 | Leo | 1882 | 90 | 0 | 19 | 0 | 9 | 0 |
| Rattler | 1879 | 110 | 0 | 22 | 0 | 11 | 0 | City of Alma | 1882 | 110 | 0 | 20 | 0 | 5 | 0 |
| Atlantic | 1879 | 159 | 3 | 30 | 0 | 11 | 9 | Rushing | 1882 | 100 | 0 | 19 | 6 | 10 | 6 |
| Transfer, No. 2 | 1880 | 100 | 0 | 21 | 0 | 10 | 0 | Tyson | 1882 | 176 | 0 | 23 | 6 | 10 | 0 |
| George H. Watrous | 1880 | 100 | 0 | 21 | 0 | 10 | 0 | | | | | | | | |

At Chester, Pennsylvania, there is one large yard, the property of John Roach & Son, of New York. In 1868 the founder of this business, after a long experience as a boiler and machine builder in New York, had bought the Morgan iron works of that city, a large establishment at the foot of Ninth street, on the East river, in which most of his machinery has since been built. In 1872 Mr. Roach bought a large property at Chester and developed there a great iron-ship yard, his first vessel being launched in 1873. It has always been a busy yard, producing regularly not less than four and sometimes as many as ten large class steamers a year. The largest American steamships afloat came from these works. The yard itself is the most important one in the United States.

The plant at Chester is elaborate, complete, and of the very first order, and represents an investment of about $1,000,000. The works cover about seventy acres of ground, and have a front of 2,500 feet on the Delaware river. The river is over a mile wide at this point, with depth enough to float the largest steamer of the present day. Building slips have been substantially constructed on heavy piling, making accommodations for the building of ten large vessels at once, and the docks and wharves have been furnished with shears and hoisting engines for masting vessels and putting aboard the boilers and machinery. A short distance below the ship-yard proper, and located on the river bank, are the Chester rolling and steel mills and a blast furnace, the latter with a capacity of 700 tons per week. The furnace alone cost $250,000. These works are owned by the proprietors of the ship-yard, cover about thirty acres, and employ 800 men; and it is not too much to say that they constitute the best plant in the United States for making plates and armor of iron and steel and steel castings. It is an interesting fact that at these two establishments, owned by one firm, iron and steel ships can be created, beginning with the ore itself and ending with the finished steamer, completely equipped for sea. Every part of the work is done by the one firm, and it is believed that this is the only establishment in the world possessing such complete facilities.

In the ten years from 1873 to 1882, both inclusive, the total tonnage built by John Roach & Son aggregated about 148,000 tons, the average being 14,800 tons per year; the largest product in any one year 28,190 tons. The following are some of the details concerning the vessels built:

| Names. | Year when built. | Side-wheel or screw. | Length. | | Breadth. | | Depth. | | Tonnage. | BOILERS. | | | | | ENGINE. | Wheel diameter. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Number. | Diameter. | | Length. | | Diameter and stroke. | | |
| | | | *Ft.* | *In.* | *Ft.* | *In.* | *Ft.* | *In.* | | | *Ft.* | *In.* | *Ft.* | *In.* | | *Ft.* | *In.* |
| City of Waco | 1873 | Screw | 244 | 0 | 36 | 0 | 19 | 9 | 1,549 | 4 | 10 | 0 | 9 | 6 | 30 and 56 x 54 | 13 | 0 |
| Erie | 1873 | Side-wheel | 192 | 0 | 36 | 0 | 14 | 0 | 750 | 1 | 10 | 0 | 30 | 0 | 46 x 11 | 22 | 0 |
| Colima | 1873 | Screw | 312 | 0 | 40 | 0 | 29 | 3 | 2,906 | 4 | 13 | 0 | 9 | 9 | 51 and 88 x 42 | 16 | 3 |
| Colon | 1873 | ....do | 300 | 0 | 40 | 0 | 29 | 3 | 2,714 | 4 | 13 | 0 | 9 | 9 | 51 and 88 x 42 | 16 | 8 |
| Garden City | 1873 | Side-wheel | 184 | 10 | 33 | 6 | 14 | 0 | 840 | 1 | 10 | 10 | 34 | 0 | 48 x 120 | 23 | 0 |
| City of San Antonio | 1873 | Screw | 232 | 8 | 36 | 0 | 22 | 0 | 1,450 | 2 | 14<br>13 | 9<br>9 | 10 | 6 | 48 x 48 | 13 | 0 |
| George W. Elder | 1874 | ....do | 258 | 0 | 38 | 0 | 21 | 4 | 1,569 | 4 | 10 | 0 | 9 | 6 | 30 and 56 x 54 | 13 | 0 |
| City of Guatemala | 1874 | ....do | 258 | 0 | 36 | 0 | 20 | 1 | 1,490 | 4 | 13 | 0 | 9 | 6 | 30 and 56 x 54 | 13 | 0 |
| City of Panama | 1874 | ....do | 258 | 0 | 36 | 0 | 20 | 1 | 1,490 | 4 | 13 | 0 | 9 | 6 | 30 and 56 x 54 | 13 | 0 |
| State of Texas | 1874 | ....do | 248 | 0 | 36 | 0 | 19 | 9 | 1,549 | 4 | 13 | 0 | 9 | 6 | 30 and 56 x 54 | 13 | 0 |
| Berks | 1874 | ....do | 196 | 6 | 28 | 6 | 12 | 9 | 553 | 1 | 12<br>10 | 0<br>0 | 8 | 9 | 20 and 34 x 30 | .......... | |
| Perkiomen | 1874 | Screw | 219 | 5 | 37 | 0 | 15 | 9 | 1,035 | 2 | 10<br>11 | 3<br>2½ | 8 | 8 | 27 and 45 x 36 | 11 | 0 |
| City of Peking | 1874 | ....do | 419 | 0 | 47 | 4 | 36 | 1½ | 5,080 | 10 | 13 | 0 | 10 | 6 | 51 and 88 x 54 | 20 | 3 |
| City of Tokio | 1874 | ....do | 419 | 0 | 47 | 4 | 36 | 1½ | 5,080 | 10 | 13 | 0 | 10 | 6 | 51 and 88 x 54 | 20 | 3 |
| City of Chester | 1875 | ....do | 206 | 6 | 33 | 6 | 15 | 10½ | 1,106 | 2 | 9<br>12 | 0<br>6 | 11 | 6 | 24 and 44 x 45 | 10 | 0 |
| City of Sidney | 1875 | ....do | 352 | 0 | 40 | 0 | 29 | 0 | 3,017 | 6 | 13 | 2 | 10 | 6 | 51 and 88 x 60 | 20 | 0 |
| City of San Francisco | 1875 | ....do | 352 | 0 | 40 | 0 | 29 | 0 | 3,019 | 6 | 13 | 2 | 10 | 6 | 51 and 88 x 60 | 20 | 0 |
| City of New York | 1875 | ....do | 352 | 0 | 40 | 0 | 29 | 0 | 3,019 | 6 | 13 | 2 | 10 | 6 | 51 and 88 x 60 | 20 | 0 |

| Names. | Year when built. | Side-wheel or screw. | Length. | | Breadth. | | Depth. | | Tonnage. | BOILERS. | | | | | ENGINE. | Wheel diameter | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Number. | Diameter. | | Length. | | Diameter and stroke. | | |
| | | | *Ft.* | *In.* | *Ft.* | *In.* | *Ft.* | *In.* | | | *Ft.* | *In.* | *Ft.* | *In.* | | *Ft.* | *In.* |
| Rio Grande | 1876 | Screw | 308 | 0 | 39 | 0 | 21 | 0 | 2,566 | 4 | 11 | 10 | 10 | 0 | 34 and 60 x 54 | 14 | 0 |
| Newbern | 1876 | ....do | 162 | 9 | 24 | 3½ | 9 | 0 | 846 | ...... | ...... | | ...... | | 24 and 36 | 8 | 0 |
| Alert | 1876 | ....do | 190 | 9 | 32 | 0 | 15 | 0 | 1,246 | 5 | 8 | 0 | 8 | 1 | 28 and 42 x 42 | 12 | 0 |
| Alliance | 1876 | ....do | 190 | 9 | 32 | 0 | 15 | 0 | 1,246 | 5 | 8 | 0 | 8 | 1 | 28 and 42 x 42 | 12 | 0 |
| City of Savannah | 1877 | ....do | 272 | 0 | 38 | 6 | 24 | 6 | 2,029 | 4 | 12 | 8 | 10 | 6 | 38 and 68 x 54 | 15 | 0 |
| City of Macon | 1877 | ....do | 272 | 0 | 38 | 6 | 24 | 6 | 2,093 | 4 | 12 | 8 | 10 | 6 | 38 and 68 x 54 | 15 | 0 |
| City of Washington | 1877 | ....do | 320 | 0 | 38 | 0 | 27 | 7 | 2,618 | ...... | 18<br>20 | 0<br>7 | 18 | 0 | 40 and 74 x 72 | 16 | 0 |
| Western Texas | 1877 | ....do | 239 | 7 | 34 | 0 | 16 | 0 | 1,121 | 2 | 10<br>8 | 3<br>6 | 10 | 0 | 24 and 44 x 44 | 11 | 6 |
| Panama Railroad Tug. | 1877 | ....do | 98 | 3 | 18 | 1½ | 6 | 0 | 75 | 1 | 10<br>8 | 3<br>6 | 9 | 11 | 20 x 24 | 6 | 9 |
| Niagara | 1877 | ....do | 292 | 0 | 38 | 1 | 23 | 6 | 2,265 | 4 | 11 | 10 | 10 | 0 | 34 and 60 x 54 | 14 | 3 |
| Saratoga | 1877 | ....do | 292 | 0 | 38 | 1 | 23 | 6 | 2,265 | 4 | 11 | 10 | 10 | 0 | 34 and 60 x 54 | 14 | 3 |
| Gate City | 1878 | ....do | 272 | 0 | 38 | 6 | 24 | 6 | 1,997 | 4 | 12 | 8 | 10 | 6 | 38 and 68 x 54 | 15 | 0 |
| City of Columbus | 1878 | ....do | 272 | 0 | 38 | 6 | 24 | 6 | 1,992 | 4 | 12 | 8 | 10 | 6 | 38 and 68 x 54 | 15 | 0 |
| Saratoga | 1878 | ....do | 318 | 6 | 38 | 1 | 21 | 3½ | 2,426 | 4 | 13 | 6 | 10 | 6 | 40 and 74 x 54 | 15 | 6 |
| City of Para | 1878 | ....do | 368 | 6 | 38 | 4¾ | 28 | 7½ | 3,532 | 6 | 13 | 0 | 10 | 6 | 42½ and 74⅜ x 60 | 16 | 0 |
| City of Rio de Janeiro | 1878 | ....do | 368 | 6 | 38 | 4¾ | 28 | 7½ | 3,548 | 6 | 13 | 0 | 10 | 6 | 42½ and 74⅜ x 60 | 16 | 0 |
| Oregon | 1878 | ....do | 300 | 0 | 38 | 1 | 23 | 6 | 2,335 | 4 | 12 | 8 | 10 | 6 | 36 and 60 x 54 | 15 | 0 |
| Manhattan | 1879 | ....do | 246 | 9 | 35 | 3½ | 20 | 0 | 1,575 | 2 | 11<br>10 | 6<br>5 | 22 | 0 | 28 and 53 x 48 | 13 | 0 |
| City of Alexandria | 1879 | ....do | 332 | 6 | 38 | 6 | 24 | 7 | 2,480 | 4 | 14 | 6 | 11 | 0 | 42½ and 78 x 54 | 16 | 0 |
| Elias | 1879 | Side-wheel | 173 | 4 | 27 | 3 | 8 | 2 | 240 | 2 | 7<br>9 | 4<br>0 | 13 | 2 | 26 x 72 | 19SW | |
| Santiago | 1879 | Screw | 290 | 9 | 38 | 10½ | 22 | 0 | 2,359 | 4 | 13 | 3 | 11 | 0 | 38 and 68 x 54 | 15 | 0 |
| Colorado | 1879 | ....do | 329 | 1 | 39 | 1½ | 21 | 0 | 2,765 | 4 | 13 | 3 | 11 | 0 | 38 and 68 x 54 | 15 | 0 |
| Juan Mir | 1879 | Side-wheel | 165 | 0 | 28 | 1¾ | 11 | 0 | 425 | 1 | 10<br>9 | 6<br>2 | 11 | 0 | 28 x 36 | 9 | 9 |
| City of Augusta | 1880 | Screw | ...... | | ...... | | ...... | | 2,870 | ...... | ...... | | ...... | | 42½ and 82 x 54 | ...... | |
| Yosemite | 1880 | ... do | 182 | 0 | 23 | 6 | 18 | 7 | 450 | 2 | ...... | | ...... | | 28½ and 40 x 33 | ...... | |
| Breakwater | 1880 | ....do | 225 | 0 | 35 | 0 | 20 | 0 | 1,045 | ...... | ...... | | ...... | | 38 and x 48 | ...... | |
| Newport | 1880 | ....do | 325 | 0 | 38 | 6 | 23 | 0 | 2,735 | ...... | ...... | | ...... | | 48 and 90 x 54 | ...... | |
| Columbia | 1880 | ....do | 310 | 0 | 38 | 0 | 23 | 0 | 2,722 | 6 | ...... | | ...... | | 42½ and 82 x 54 | 16½ | |
| Louisiana | 1880 | ....do | 348 | 0 | 39 | 0 | 28 | 5 | 2,840 | (*a*) | (*a*) | | (*a*) | | 28 and 56 x 72 | (*a*) | |
| Guadalupe | 1881 | ....do | 317 | 8 | 39 | 5 | 21 | 4 | 2,839 | | | | | | 38 and 70 x 54 | | |
| Cygnus | 1881 | Side-wheel | 212 | 6 | 31 | 4 | 11 | 3 | 857 | | | | | | 53 x 144 | | |
| Cepheus | 1881 | ....do | 213 | 6 | 32 | 4 | 11 | 5 | 857 | | | | | | 53 x 144 | | |
| Sirius | 1881 | ....do | 229 | 0 | 32 | 5 | 11 | 1 | 993 | | | | | | 53 x 144 | | |
| Walla Walla | 1881 | Screw | 310 | 0 | 40 | 6 | 22 | 2 | 2,131 | | | | | | 40 and 74 x 54 | | |
| Umatilla | 1881 | ... do | 310 | 0 | 40 | 6 | 22 | 3 | 2,131 | | | | | | 40 and 74 x 54 | | |
| Willamette | 1881 | ....do | 335 | 9 | 39 | 1 | 24 | 0 | 2,264 | | | | | | 38 and 70 x 54 | | |
| San Marcos | 1882 | ... do | 317 | 8 | 39 | 5 | 21 | 4 | 2,839 | | | | | | 38 and 70 x 54 | | |
| Wyandotte | 1882 | ....do | 267 | 0 | 40 | 5 | 24 | 4 | 2,140 | | | | | | 38 and 74 x 54 | | |
| Roanoke | 1882 | ....do | 265 | 0 | 40 | 0 | 26 | 9 | 2,140 | | | | | | 38 and 74 x 54 | | |
| San Jose | 1882 | ....do | 283 | 0 | 37 | 0 | 21 | 0 | 2,010 | | | | | | 34 and 62 x 54 | | |
| San Juan | 1882 | ....do | 283 | 0 | 36 | 4 | 22 | 3 | 2,010 | | | | | | 34 and 62 x 54 | | |
| San Blas | 1882 | ....do | 283 | 0 | 37 | 0 | 21 | 0 | 2,010 | | | | | | 34 and 62 x 54 | | |
| Tallahassee | 1882 | ....do | 280 | 0 | 40 | 7 | 24 | 1 | 2,700 | | | | | | 38 and 74 x 54 | | |
| Chattahoochee | 1882 | ....do | 280 | 0 | 40 | 7 | 24 | 1 | 2,700 | | | | | | 38 and 74 x 54 | | |
| Nacoochee | 1882 | ....do | 280 | 0 | 40 | 7 | 24 | 1 | 2,700 | | | | | | 38 and 74 x 54 | | |
| Pilgrim | 1882 | Side-wheel | 378 | 0 | 50 | 0 | 17 | 6 | 3,500 | | | | | | 110 x 168 | | |
| Finance | ...... | Screw | 300 | 0 | 38 | 0 | 22 | 0 | 2,000 | | | | | | 36 and 66 x 54 | | |
| Advance | ...... | ....do | 300 | 0 | 38 | 0 | 22 | 0 | 2,000 | | | | | | 36 and 66 x 54 | | |
| Reliance | ...... | ....do | 300 | 0 | 38 | 0 | 22 | 0 | 2,000 | | | | | | 36 and 66 x 54 | | |

*a* Figures correspond to those of steamers of the same size above.

The success of this yard has been due to qualities on the part of its founder which have characterized the leading ship-builders of America in a marked degree—energy, a fertile mind, and remarkable ingenuity in adapting vessels to the trade in which they were to be employed. A special study would be made of the kinds of cargoes carried by the vessels in a particular coasting route, and an idea would be formed of a ship which would carry more of the given varieties of goods on a lighter draught of water and at a faster rate of speed than the vessels already in the trade. This idea would be worked out in a ship, in which the builder would take perhaps a quarter interest, in order to show his confidence in it. His operations have been in the main successful, and the two establishments have at times been employed to their full capacity. Fifteen hundred men can be employed in the works at New York, and about 3,000 at Chester. It is one feature of the operations of the firm that measures are taken to secure willing work from the men. They are encouraged to be inventive and faithful by a system of rewards and promotion. Furthermore, the *personnel* of the ship-yard is kept at a high grade of character by the constant recruiting of young men of mechanical education who are fresh from school and are given a chance to go into the yard and rise.

The vessels built at Chester include many of note. The City of Peking and the City of Tokio ran for a long time from San Francisco to China, and were large carriers of cargo and small burners of coal. The Para and the Rio de Janeiro were the builder's own venture in the way of a line of steamships to Brazil, in which trade they ran for three years, being then withdrawn and sold to the Pacific Mail Company. All of the coasting steamers have long, sharp, wedge-like bows, good runs, and easy lines, and have been remarkable for their speed, light draught, and cargo-carrying power. The City of Washington, built in 1877, made in 1879 the run from Havana to New York, 1,230 miles, in 75 hours 21 minutes, the fastest ocean time then recorded for a consecutive period of 75 hours. Her average speed was 16¾ nautical miles per hour. The steamer Newport, built afterward by this firm, made the same run in 72 hours 15 minutes. Mr. Roach is now building a sailing vessel of about 2,040 tons, besides many steamers.

A yard was established in 1880 at Marcus Hook, Pennsylvania, for the building of vessels, engines, and boilers, under the title of the Pioneer iron works. A foundery, machine-shop, and blacksmith-shop were put up and fitted with machinery, at a total cost of about $75,000, and eight or ten vessels were built in that and the next two years, consisting of tugs, yachts, and small passenger and freight boats; but the concern did not prosper, and has since gone out of existence.

At Wilmington, on the Delaware, besides the two yards devoted to the construction of wooden vessels, there are two large yards engaged in iron- and steel-ship building. The industry was established here at an early date. The city is practically as near to cheap coal and iron as though it were planted upon the Schuylkill, and the same freight rates govern deliveries there from all parts of the country as at Philadelphia; in fact, iron-ship yards can be located advantageously anywhere upon the western bank of the Delaware for a distance of 90 miles so far as cheap materials are concerned. The two yards in Wilmington devoted to this industry are those of The Harlan & Hollingsworth Company and The Pusey & Jones Company. Both concerns build railway cars, but both have extensive ship-building plant, and rank among the four leading establishments in the United States devoted to the industry now under consideration.

The Harlan & Hollingsworth Company began business in 1836 and built the first iron coasting steamer constructed in the United States. In 1843 they turned their attention to the needs of the merchant marine, and after having turned out two small iron vessels began the construction of the steamer Bangor, which was completed and launched in the following spring, and was, as stated, the pioneer of the great fleet of American-built iron steamers that has sprung into existence in the last forty years to take the place of the old-time heavy wooden coasting craft. The success of the Bangor brought Wilmington at once into active competition with New York as well as with the eastern wooden-ship yards in the construction of the large number of iron steamers which the coasting and inland trades began to demand. Wilmington had skilled labor and cheap materials, and a low scale of wages prevailed, because operatives could afford to accept them on account of cheap rents and moderate living expenses. In the early years of the struggle to establish an American iron-ship building industry The Harlan & Hollingsworth Company stood practically alone, for there were then few, if any, concerns in the country sufficiently well equipped to execute contracts regularly for the large class of iron vessels. The success of their yard was due to the fact that each vessel produced was built with as much care in design and construction as though it were being made by an owner for himself, and the behavior of the vessels afterward was, in consequence, a standing advertisement of the good qualities both of iron ships and American work. The yard received many orders, and it has been busily engaged from the first in building iron vessels of every description, its product being the most varied of that of any American establishment. The concern covers 43 acres of ground, on which there are about fifty different shops and buildings. Those employed in ship work are supplied with machinery modern in type and massive in build. The plant includes, among other things, shears for trimming heavy plates, planers, rolls for bending plates to the proper curvature on the sides of the ship, machines for punching rivet holes in frames and plates, hydraulic riveting apparatus, by means of which rivets can be clinched solidly with one thrust by steam-power, frame-heating furnaces, bed-plates for bending the angle-iron frames to the proper outline, steam-hammers, mold-lofts and pattern shops, and the proper apparatus for constructing engines and boilers. On the wharf there is a set of masting shears that can handle a weight of 100 tons, and engines and boilers are lifted almost bodily into the air and deposited gently in their places in the hulls floating alongside. The secret of the success of iron-ship building in America is, in large part, the use of labor-saving machinery of this description. The water-front is 1,350 feet long, and the yard has a large dry-dock. About 3,000 men can be employed by this establishment. As in the case of the other iron-ship yards with large plant, this constitutes a valuable resource of public importance to the United States; and it is safe to say that if the four large yards on the Delaware did not exist the government would be compelled to maintain several establishments of similar magnitude for naval purposes, with their consequent great expense for the repairs necessary to keep them in order.

The Harlan & Hollingsworth Company is now building vessels of steel in response to the demand for the employment of that material. One iron sailing vessel, the bark Iron Age, built at this yard, was finished in 1869, and had the following dimensions: Length, 142 feet; beam, 30 feet; depth, 18½ feet. During the war there were constructed the following vessels for the government: The iron-clad double-turreted monitor Amphitrite, the iron sloop-of-war Ranger, and the iron-clad monitors Patapsco, Saugus, and Napa. Charles Morgan, of New York, was one of the first merchants to understand the advantage of iron hulls in the coasting trade, and up to 1882 this yard had built for his coasting lines no fewer than 31 iron steamers. Propellers of the largest and finest class have been the favorite product of the yard, but orders have also been taken for steam craft of almost every description, and during late years a study has been made of side-wheel bay and river steamboats. The following is a list of the vessels built at this yard:

VESSELS BUILT BY THE HARLAN & HOLLINGSWORTH COMPANY, WILMINGTON, DELAWARE.

| Class. | Name. | For whom. | Tonnage. | Kind. | Type. | Year built. | Remarks. |
|---|---|---|---|---|---|---|---|
| Steam propeller | Bangor | Parties in Maine | 450 | Iron | Propeller | 1844 | Twin-screw engines. Burned at sea; repaired and sold to United States government. |
| Do | Ashland | George W. Aspinwall | 300 | do | do | 1844 | Lost during the war. |
| Do | Ocean | do | 300 | do | do | 1844 | Do. |
| Do | W. Whilden | Anthony Reybold | 450 | do | do | 1845 | Altered into a propeller; running between Baltimore and Philadelphia. Engine, 28 inches diameter by 26 inches stroke. |
| Steam ferry-boat | Delaware | Winnissimmet Ferry Company | 270 | do | Side wheel | 1846 | Of Boston, Mass. |
| Steamship | Willamette | George W. Aspinwall | 450 | do | Propeller | 1849 | |
| Steam ferry-boat | Winnissimmet | Winnissimmet Ferry Company | 270 | do | do | 1850 | Of Boston, Mass. |
| Steamer | Victoria | Island of Trinidad | 750 | do | do | 1850 | For Freeman Rawdon. |
| Steam ferry-boat | Dido | Camden and Philadelphia Ferry Company. | 220 | do | do | 1850 | Inclined low-pressure engine, 31 inches diameter by 7 feet stroke. |
| Hull for dredge | | Delaware and Chesapeake Canal Company. | 100 | do | Propeller | 1851 | |
| Steamer | Clayton | Cornelius Vanderbilt | 150 | do | Stern wheel | 1851 | For service on Chagres river. High-pressure engine, 9½ inches diameter by 3 feet stroke. |
| Do | Bulwer | do | 150 | do | do | 1851 | For service on Chagres river. High-pressure engine, 9½ inches diameter by 3 feet stroke. |
| Steamboat | Richard Stockton | Camden and Amboy Railroad Company. | 700 | do | Side wheel | 1851 | Running on North river as an excursion boat. Vertical beam-engine, 48 inches diameter by 12 feet stroke. |
| Do | Wyoming | Philadelphia and Havre de Grace Steamboat Company. | 520 | do | do | 1851 | 2 low-pressure vertical condensing beam-engines, 29 inches diameter by 8 feet stroke. |
| | Zephyr | Joint account, Cape Fear River. | 150 | do | | 1851 | 2 inclined engines, 14 inches diameter by 4 feet stroke. |
| Steamboat | Major Reybold | Reybold Bros | 450 | do | do | 1852 | Running on Delaware river. Low-pressure vertical condensing beam-engine, 40 inches diameter by 12 feet stroke. |
| Steam ferry-boat | Maryland | Philadelphia, Wilmington and Baltimore Railroad Company. | 1,150 | do | do | 1852 | Still in use as a transfer steamer in service of New England Transfer Company between Jersey City and Harlem; thoroughly overhauled in 1883. Two horizontal low-pressure condensing engines, 40 inches diameter by 8 feet stroke. |
| Steamboat | Thomas A. Morgan | Rockhill, Burdon, Cone, and others. | 520 | do | do | 1853 | Low-pressure vertical condensing beam-engine, 44 inches diameter by 10 feet stroke. |
| Steam ferry-boat | Tri-Mountain | Winnissimmet Ferry Company | 280 | do | do | 1853 | Low-pressure vertical condensing beam-engine, 36 inches diameter by 8 feet stroke. |
| Steamboat | Ogden | Accessory Transit Company of Nicaragua. | 160 | do | Side wheel | 1853 | 2 inclined engines, 16 inches diameter by 5 feet stroke. |
| Do | Isaac C. Lea | do | 160 | do | do | 1853 | Do. |
| Steam propeller | Thomas Sparks | Philadelphia Steam Propeller Company. | 600 | do | Propeller | 1853 | High-pressure engine, 32 inches diameter by 28 inches stroke. |
| | San Carlos | Accessory Transit Company of Nicaragua. | 650 | do | | 1854 | Low-pressure engine, 44 inches diameter by 11 feet stroke. |
| Steam propeller | Richard Willing | Baltimore and Philadelphia Steamboat Company. | 450 | do | Propeller | 1854 | High-pressure engine, 28 inches diameter by 26 inches stroke. |
| Iron barge | Planet | Philadelphia Steam Propeller Company. | 390 | do | | 1854 | |
| Steam propeller | Sophia | do | 390 | do | | 1854 | |
| | | Delaware and Raritan Canal Company. | 100 | do | | 1855 | |
| Steam ferry-boat | W. W. Harllee | Wilmington and Raleigh and Wilmington and Manchester Railroad Company. | 220 | do | | 1855 | Low-pressure engine, 26 inches diameter by 6 feet stroke. |
| Bell beacon | | United States government | 40 | do | | 1855 | |
| Do | | do | 40 | do | | 1855 | |
| Do | | do | 40 | do | | 1855 | |
| Do | | do | 40 | do | | 1855 | |
| Do | | do | 40 | do | | 1855 | |
| Steam propeller | Kahukee | D. Clark, Scotland Neck, N. C. | 150 | do | Propeller | 1855 | Engine 24 inches diameter by 20 inches stroke. |
| Steamboat | Logan | W. Whilldon and others | 320 | do | Side wheel | 1855 | |
| Do | James A. Requa | New Granada Canal and Navigation Company of New York. | | do | do | 1855 | Two high-pressure engines, 24 inches diameter by 8 feet stroke. |
| Steam ferry-boat | Hunter Woodis | City of Norfolk | 750 | do | do | 1856 | |
| Steamboat | Curlew | Dr. Thomas Warren, Edenton, N. C. | 350 | do | do | 1856 | Low-pressure engine, 29 inches diameter by 9 feet stroke. |
| Do | Swan | John Richardson, Savannah | 220 | do | do | 1856 | 2 high-pressure engines, 14 inches diameter by 5 feet stroke. |
| | Amazon | John A. Moore, Augusta | 450 | do | Stern wheel | 1856 | 2 high-pressure engines, 22 inches diameter by 6 feet stroke. |
| | Saint Mary's | Claghorn and Cunningham, Augusta. | 450 | do | Side wheel | 1856 | 2 low-pressure engines, 30 inches diameter by 8 feet stroke. |
| | General Rusk | Harris, Morgan & Co., New Orleans, La. | 750 | do | do | 1856 | Low-pressure engine, 44 inches diameter by 11 feet stroke. |

VESSELS BUILT BY THE HARLAN & HOLLINGSWORTH COMPANY, WILMINGTON, DELAWARE—Continued.

| Class. | Name. | For whom. | Tonnage. | Kind. | Type. | Year built. | Remarks. |
|---|---|---|---|---|---|---|---|
| Steamboat | John A. Warner | J. Cone and others | 650 | Iron | Side wheel | 1856 | Low-pressure engine, 44 inches diameter by 11 feet stroke. |
| Do | Antioquia | Everett & Brown, New York | 600 | do | do | 1857 | 2 high-pressure engines, 24 inches diameter by 8 feet stroke. |
| Do | Cecile | Fenn, Peck, and others | 460 | do | do | 1857 | Low-pressure engine, 38 inches diameter by 10 feet stroke. |
| Steam propeller | J. S. Shriver | Baltimore and Philadelphia Steamboat Company. | 450 | do | Steam propeller. | 1857 | High-pressure engine, 28 inches diameter by 26 inches stroke. |
| Steamboat | Pilot Boy | Captain Whillden | 375 | do | Side wheel | 1857 | Machinery taken from the steamer Napoleon. |
| Barge | Faith | David Clark, N. C | 150 | do | | 1857 | |
| Do | Hope | do | 150 | do | | 1857 | |
| Steam propeller | Ellen S. Terry | O. G. Terry, Hartford, Conn | 400 | do | Propeller | 1857 | High-pressure engine, 28 inches diameter by 26 inches stroke. |
| Steamship | Matagorda | C. Vanderbilt | 1, 250 | do | Side wheel | 1858 | Running in the Gulf of Mexico. Beam engine, 44 inches diameter by 11 feet stroke. |
| Steamboat | Ariel | Philadelphia, Wilmington and Baltimore Railroad Company. | 360 | do | do | 1858 | Engines out of steamer W. Whillden, 28 inches diameter by 26 inches stroke. |
| Steam tug | Flamenco | Panama Railroad Company | 100 | do | Propeller | 1858 | Engine 18 inches diameter by 18 inches stroke. |
| Bungo | | R. A. Joy, S. A | 30 | do | | 1858 | |
| Steamship | Arizona | Charles Morgan | 1, 100 | do | Side wheel | 1858 | Running in the Gulf of Mexico. Beam engine, 44 inches diameter by 11 feet stroke. |
| Barge | Enterprise | J. H. Anthony | 160 | do | | 1858 | |
| Steamboat | Georgianna | G. R. H. Leffler | 750 | do | Side wheel | 1858 | Machinery taken from the steamer Gladiator. |
| Steamship | Champion | C. Vanderbilt | 2, 000 | do | do | 1858 | Lost at sea; 2 engines, 42 inches diameter by 10 feet stroke. |
| Steam propeller | Indianola | C. de Goicoarea | 450 | do | Propeller | 1858 | Engine 32 inches diameter by 10 feet stroke. |
| Steam tug | Indio | Fernando J. L. Calvo, Cuba | 100 | do | do | 1859 | Engine 26 inches diameter by 24 inches stroke. |
| Steamship | Benj. Deford | Merchants' and Miners' Transportation Company. | 1, 500 | do | Side wheel | 1859 | Low-pressure engine, 56 inches diameter by 11 feet stroke. Running now among the West India islands; name afterward changed to the San Jacinto. |
| Do | S. R. Spaulding | do | 1, 500 | do | do | 1859 | Lost at sea in a cyclone. Low-pressure engine, 56 inches diameter by 11 feet stroke; name changed afterward to San Salvador. |
| Do | Austin | Charles Morgan | 1, 150 | do | do | 1859 | Now in the Gulf of Mexico. Beam engine, 44 inches diameter by 11 feet stroke. |
| Steam tug | Adriatic | S. & J. M. Flanagan | 120 | do | Propeller | 1860 | High-pressure engine, 18 inches diameter by 18 inches stroke. |
| Do | Champion | do | 120 | do | do | 1860 | Do. |
| Steam propeller | F. W. Brune | New York and Baltimore Transportation Company. | 450 | do | do | 1860 | Engine 28 inches diameter by 26 inches stroke. |
| Do | Fairfield | D. D. Simmons & Bro | 190 | do | do | 1860 | Engine 18 inches diameter by 18 inches stroke. |
| Steamship | W. G. Hewes | Charles Morgan | 2, 250 | do | Side wheel | 1860 | Now in the Gulf of Mexico. |
| Steam propeller | Louisiana | S. & J. M. Flanagan | 750 | do | Propeller | 1860 | Engine 32 inches diameter by 28 inches stroke. |
| | Honduras | James Bishop & Co | 150 | do | Stern wheel | 1860 | Engine 9 inches diameter by 4 feet stroke. |
| Lighter | | Panama Railroad Company | 260 | do | | 1860 | |
| Steamboat | Virginia Dare | Albemarle Steam Packet Company. | 400 | do | Side wheel | 1861 | Sold to government and called Delaware. Engine 38 inches diameter by 10 feet stroke. |
| Steamship | Hatteras | Charles Morgan | 1, 450 | do | do | 1861 | Now in the Gulf of Mexico. Engine 50 inches diameter by 11 feet stroke. Called St. Mary when built. |
| Do | Salvador | Panama Railroad Company | 1, 600 | do | Propeller | 1861 | Burned and wrecked. Engine 48 inches diameter by 54 inches stroke. |
| Steamboat | Tequendama | United Magdalena Steamboat Company. | 250 | do | | 1861 | Two engines, 21 inches diameter by 6 feet stroke. |
| Steam propeller | General Burnside | R. F. Loper | 650 | do | Propeller | 1861 | Engine 30 inches diameter by 28 inches stroke. |
| Do | Martha Stevens | New York and Baltimore Transportation Company. | 460 | do | do | 1861 | High-pressure engine, 28 inches diameter by 26 inches stroke. |
| Steamship | Saint Mary's | Charles Morgan | 1, 400 | do | Side wheel | 1862 | Now in Gulf of Mexico. Engine 50 inches diameter by 11 feet stroke. |
| Steam tug | S. F. Du Pont | S. and J. M. Flanagan | 160 | do | Propeller | 1862 | Low-pressure engine, 26 inches diameter by 24 inches stroke. |
| Do | Rescue | Our own account | 160 | do | do | 1861 | Sold to United States government. Low-pressure engine, 26 inches diameter by 24 inches stroke. |
| Steamship | Crescent | Charles Morgan | 1, 400 | do | Side wheel | 1862 | Now in Gulf of Mexico. Engine 50 inches diameter by 11 feet stroke. |
| Iron-clad monitor | Patapsco | United States government | 1, 200 | do | Propeller | 1862 | Two Ericsson engines, 40 inches diameter by 22 inches stroke. |
| Steamship | Vineland | R. D. Wood & Co | 450 | do | do | 1862 | High-pressure engine, 24 inches diameter by 24 inches stroke. |
| Do | Alliance | J. B. Bloodgood | 650 | do | do | 1862 | Engine 34 inches diameter by 34 inches stroke. |
| Iron-clad monitor | Saugus. | United States government | 1, 500 | do | do | 1863 | Engine 48 inches diameter by 24 inches stroke. |
| Steamship | Clinton | Charles Morgan | 1, 450 | do | Side wheel | 1863 | Now in Gulf of Mexico. Engine 50 inches diameter by 11 feet stroke. |
| Iron-clad monitor | Napa | United States government | 850 | do | Propeller | 1863 | Low-pressure engine, 22 inches diameter by 30 inches stroke. |
| Steamer | Frances No. 1 | Charles Morgan | 850 | do | Side wheel | 1863 | In the West Indies. Engine 50 inches diameter by 11 feet stroke. |
| Do | Louise | do | 850 | do | do | 1863 | Running on Chesapeake bay. Engine 50 inches diameter by 11 feet stroke. |
| Lighter | | Panama Railroad Company | 220 | do | | 1863 | |

VESSELS BUILT BY THE HARLAN & HOLLINGSWORTH COMPANY, WILMINGTON, DELAWARE—Continued.

| Class. | Name. | For whom. | Tonnage. | Kind. | Type. | Year built. | Remarks. |
|---|---|---|---|---|---|---|---|
| | Vergoechea | United Magdalena Steamboat Company. | 300 | Iron | Side wheel | 1864 | Two engines (high-pressure), 21 inches diameter by 6 feet stroke. |
| Steam propeller | Wilmington | Williams & Guion | 750 | ..do | Propeller | 1864 | Engine 44 inches diameter by 6 feet stroke. |
| Steamer | Frances No. 2 | Charles Morgan | 850 | ..do | Side wheel | 1864 | Engine 50 inches diameter by 11 feet stroke. |
| Steamship | Morgan | ......do | 1, 450 | ..do | ....do | 1865 | Gulf of Mexico. Engine 50 inches diameter by 11 feet stroke. |
| Do | Harris | ......do | 1, 450 | ..do | ....do | 1865 | Do. |
| Do | Harlan | ......do | 1, 450 | ..do | ....do | 1865 | Do. |
| Steamboat | Lady of the Lake | ......do | 800 | ..do | ....do | 1865 | Washington and Norfolk. Engine 50 inches diameter by 11 feet stroke. |
| Do | Mary | ......do | 850 | ..do | ....do | 1865 | Gulf of Mexico. Engine 50 inches diameter by 11 feet stroke. |
| Steamer | City of Norfolk | ......do | 900 | ..do | ....do | 1866 | Do. |
| Do | City of Lawrence | Norwich and New York Transportation Company. | 1, 400 | ..do | ....do | 1866 | On Long Island sound. Engine 65 inches diameter by 11 feet stroke. |
| Steamboat | Laura | Charles Morgan | 850 | ..do | ....do | 1866 | On Long Island sound. Machinery from the steamer Magnolia. |
| Launch | | Panama Railroad Company | 220 | ..do | | 1867 | |
| Do | | ..... do | 220 | ..do | | 1867 | |
| Steamship | J. W. Garrett | New York and Baltimore Transportation Company. | 450 | ..do | Propeller | 1867 | |
| Do | Josephine | Charles Morgan | 1, 500 | ..do | Side wheel | 1867 | Lost at sea. Engine 50 inches diameter by 11 feet stroke. |
| | Sue | Our account | 600 | ..do | ....do | 1867 | Engine 32 inches diameter by 9 feet stroke. |
| | Carrie | P. L. Willingham and others | 250 | ..do | ....do | 1867 | Engine 16 inches diameter by 6 feet stroke. |
| Barge | Ianthe | New York and Baltimore Transportation Company. | 350 | ..do | ....do | 1868 | |
| | Twilight | Captain Crawford and others | 420 | ..do | ....do | 1868 | Engine 38 inches diameter by 10 feet stroke. |
| Steamship | Costa Rica | Panama Railroad Company | 600 | ..do | Propeller | 1868 | Running on the Pacific ocean. Engine 48 inches diameter by 66 inches stroke. |
| Barge | | ......do | 220 | ..do | | 1868 | |
| Do | | ......do | 220 | ..do | | 1868 | |
| Do | | ......do | 220 | ..do | | 1868 | |
| Do | | ......do | 220 | ..do | | 1868 | |
| Do | | ......do | 220 | ..do | | 1868 | |
| Do | | ......do | 220 | ..do | | 1868 | |
| Steam ferry-boat | Southampton | East River Ferry Company | 500 | ..do | Side wheel | 1868 | Engine 48 inches diameter by 10 feet stroke. |
| | Maggie | Eastern Shore Steamboat Company. | 375 | ..do | ....do | 1869 | Engine 32 inches diameter by 6 feet stroke. |
| Bark | Iron Age | Tupper & Beattie. | 650 | ..do | | 1869 | |
| Ice-boat | | Chesapeake and Delaware Canal Company. | 50 | ..do | | 1856 | |
| Do | | ..... do | 50 | ..do | | 1856 | |
| Steam collier | Leopard | Philadelphia and Reading Railroad Company. | 609 | ..do | Propeller | 1870 | Engine 40 inches diameter by 30 inches stroke. |
| Steamship | Wyanoke | Old Dominion Steamship Company. | 2, 067 | ..do | Side wheel | 1870 | New York to Richmond. Engine 70 inches diameter by 11 feet stroke. |
| Do | Hutchinson | Chas. Morgan | 1, 435 | ..do | ....do | 1870 | Gulf of Mexico. Engine taken from the steamer Mary Roberts. |
| Do | Whitney | ......do | 1, 338 | ..do | ....do | 1871 | Gulf of Mexico. Engine 56 inches diameter by 11 inches stroke. |
| Steam propellor | Roanoke | Baltimore Steam Packet Company. | 531 | ..do | Propeller | 1871 | Chesapeake bay. Engine 34 inches diameter by 34 inches stroke. |
| Steamship | William Crane | Merchants' and Miners' Transportation Company. | 1, 418 | ..do | ....do | 1871 | Baltimore to Boston. Engine 60 inches diameter by 44 inches stroke. |
| | Helen | Eastern Shore Steamboat Company. | 350 | ..do | Side wheel | 1871 | Engine 30 inches diameter by 6 feet stroke. |
| Steam tug | Transfer | Baltimore and Ohio Railroad Company. | 101 | ..do | Propeller | 1872 | Engine 28 inches diameter by 28 inches stroke. |
| Steamship | Old Dominion | Old Dominion Steamship Company. | 2, 223 | ..do | Side wheel | 1872 | New York to Richmond. Engine 75 inches diameter by 11 feet stroke. |
| Do | Acapulco | Pacific Mail Steamship Company. | 3, 000 | ..do | Propeller | 1872 | New York to Aspinwall. |
| Do | Granada | ..... do | 3, 000 | ..do | ....do | 1872 | San Francisco to China. |
| Steam ferry-boat | Peerless | Gloucester Ferry Company | 299 | ..do | Side wheel | 1872 | Engine 38 inches diameter by 8 feet stroke. |
| Steamer | Gussie | Charles Morgan | 998 | ..do | ....do | 1872 | Gulf of Mexico. Engine from steamship Matagorda. |
| Launch | | Panama Railroad Company | 260 | ..do | | 1873 | |
| Do | | .....do | 260 | ..do | | 1873 | |
| Steamship | General Whitney | Metropolitan Steamship Company. | 1, 849 | ..do | Propeller | 1873 | New York to Boston. Engine 36 inches diameter by 60 inches stroke. |
| Do | Johns Hopkins | Merchants' and Miners' Transportation Company. | 1, 471 | ..do | ....do | 1873 | Baltimore to Boston. Engine 60 inches diameter by 44 inches stroke. |
| Steam propeller | Westover | Baltimore Steam Packet Company. | 577 | ..do | ....do | 1873 | Chesapeake bay. Engine 34 inches diameter by 34 inches stroke. |
| Steam ferry-boat | Pennsylvania | Camden and Philadelphia Steam Ferry Company. | 220 | ..do | Side wheel | 1873 | Engine 38 inches diameter by 9 feet stroke. |
| | Richmond | Old Dominion Steamship Company. | 1, 438 | ..do | Propeller | 1873 | Engine 50 inches diameter by 60 inches strok |
| | Hampton | ....do | 624 | ..do | Side wheel | 1874 | Engine 38 inches diameter by 9 feet stro sold to Mexican waters, and name char to Tlacotalpan. Now running in G Mexico. |

VESSELS BUILT BY THE HARLAN & HOLLINGSWORTH COMPANY, WILMINGTON, DELAWARE—Continued.

| Class. | Name. | For whom. | Tonnage. | Kind. | Type. | Year built. | Remarks. |
|---|---|---|---|---|---|---|---|
| Steam ferry-boat | City of Chelsea | Winnissimmet Ferry Company | 273 | Iron | Side wheel | 1874 | Engine 38 inches diameter by 9 feet stroke. |
| Steam propeller | Shirly | Baltimore Steam Packet Company. | 576 | do | Propeller | 1874 | Chesapeake bay. Engine 34 inches diameter by 34 inches stroke. |
| Steam sloop | Ranger | United States government | 1, 100 | do | do | 1874 | In the United States service. Compound engines, 22 and 48½ inches diameter by 42 inches stroke. |
| Steam propeller | Seaboard | Baltimore Steam Packet Company. | 662 | do | do | 1874 | Chesapeake bay. Engine 34 inches diameter by 42 inches stroke. |
| | Chowan | Albemarle Steam Navigation Company. | 459 | do | Side wheel | 1875 | Machinery from the steamboat Ella. |
| | Tangier | Eastern Shore Steamboat Company. | 589 | do | do | 1875 | Engine 32 inches diameter by 9 feet stroke. |
| Steamship | Lone Star | Charles Morgan | 2, 255 | do | Propeller | 1875 | New York to New Orleans. Engine 50 inches diameter by 60 inches stroke. |
| Do. | New York | do | 2, 255 | do | do | 1875 | Do. |
| Steam ferry-boat | Dauntless | Gloucester Ferry Company | 801 | do | Side wheel | 1875 | Engine 38 inches diameter by 9 feet stroke. |
| Do. | Delaware | Camden and Philadelphia Steamboat Ferry Company. | 371 | do | do | 1875 | Machinery from the old steamer Delaware. |
| Fire-boat | Protector | New Harbor Protection Company. | 158 | do | Propeller | 1875 | Engine 26 inches diameter by 28 inches stroke. |
| Steamship | Algiers | Charles Morgan | 2, 270 | do | do | 1876 | New York to New Orleans. Engine 50 inches diameter by 60 inches stroke. |
| Do. | Morgan City | do | 2, 271 | do | do | 1876 | Do. |
| | Columbia | Delaware River Steamboat Company. | 664 | do | Side wheel | 1876 | Engine 50 inches diameter by 11 feet stroke. Now on the Delaware river. |
| Steam yacht | Meteor | Carson Lumber Company | 20 | do | Propeller | 1876 | Engine 10 inches diameter by 12 inches stroke. Now running on lake Tahoe, in the Rocky mountains. |
| Steam ferry-boat | Flushing | East River Ferry Company | 581 | do | Side wheel | 1876 | Engine 44 inches diameter by 9 feet stroke. |
| Steamboat | Carolina | Baltimore Steam Packet Company. | 984 | do | do | 1877 | Baltimore to Norfolk. Engine 60 inches diameter by 11 feet stroke. |
| Do. | B. S. Ford | Chester River Steamboat Company. | 379 | do | do | 1877 | Chesapeake bay. Engine 38 inches diameter by 9 feet stroke. |
| Steam ferry-boat | Columbia | West Jersey Ferry Company | 380 | do | do | 1877 | Engine 38 inches diameter by 10 feet stroke. |
| Steamship | Aransas | Charles Morgan | 1, 157 | do | Twin propeller. | 1877 | Gulf of Mexico. Twin screws; engine 30 inches diameter by 36 inches stroke. |
| Steam ferry-boat | Jas. M. Waterbury | Nassau Ferry Company | 413 | do | Side wheel | 1877 | Engine 38 inches diameter by 9 feet stroke. |
| Dredge | Hull | American Dredging Company | 69 | do | | 1877 | |
| Steamer | Republic | J. Cone and associates | 1, 285 | do | do | 1878 | Now running on the Delaware river. Engine 66 inches diameter by 12 feet stroke. |
| Steam tug | Jose Gonzales | Lyles & Gilson | 30 | do | Propeller | 1878 | Engine 14 inches diameter by 14 inches stroke. |
| | Mary Morgan | Charles Morgan | 370 | do | Side wheel | 1878 | Engine 38 inches diameter by 9 feet stroke. |
| Steamer | Saint John's | Commercial Navigation Company. | 1, 098 | do | do | 1878 | Engine 66 inches diameter by 12 feet stroke. Ran on the route between Charleston and Jacksonville. |
| Steam yacht | Victor | J. T. Gause | 14 | do | Propeller | 1878 | Engine 6 inches diameter by 8 inches stroke. |
| Steamer | Virginia | Baltimore Steam Packet Company. | 990 | do | Side wheel | 1879 | Baltimore to Norfolk. Engine 50 inches diameter by 11 feet stroke. |
| Steam yacht | Dione | E. A. Harvey | 7 | do | Propeller | 1879 | Engine 18 inches diameter by 10 inches stroke. |
| Steam ferry-boat | Cooper's Point | Camden and Atlantic Railroad Company. | 389 | do | Side wheel | 1879 | Engine 38 inches diameter by 10 feet stroke. |
| Do. | Rockaway | East River Ferry Company | 521 | do | do | 1879 | Engine 44 inches diameter by 9 feet stroke. |
| Do. | No name given | Oregon and California Railroad Company. | 440 | do | do | 1879 | Engine 20 inches diameter by 60 inches stroke. |
| Steamship | Decatur H. Miller | Merchants' and Miners' Transportation Company. | 2, 296 | do | Propeller | 1879 | Baltimore to Boston. Compound engine, 24 and 54 inches diameter by 48 inches stroke. |
| Steam ferry-boat | Newtown | Nassau Ferry Company | 450 | do | Side wheel | 1879 | Engine 38 inches diameter by 9 feet stroke. |
| Do. | Arctic | West Jersey Ferry Company | 394 | do | do | 1879 | Engine 40 inches diameter by 10 feet stroke. |
| Sailing yacht | Mischief | J. R. Busk | 111 | do | | 1879 | |
| Transfer boat | Canton | Philadelphia, Wilmington and Baltimore and Baltimore and Ohio Railroad Companies. | 1, 178 | do | Side wheel | 1880 | 2 independent engines, 36 inches diameter by 9 feet stroke. Transfer steamer in Baltimore harbor. |
| Steamer | Albany | A. Vansantvoord | 1, 380 | do | do | 1880 | On Hudson river. |
| Steam ferry-boat | Long Beach | East River Ferry Company | 520 | do | do | 1880 | Engine 44 inches diameter by 9 feet stroke. |
| Steamboat | Excelsior | Potomac Steamboat Company | 774 | Wood | do | 1880 | Engine 40 inches diameter by 9 feet stroke. |
| Steam yacht | Falcon | Norris Peters | 120 | Iron | Propeller | 1880 | Engine 16 inches diameter by 16 inches stroke. |
| Pilot boat | Pilot | Board of Maryland Pilots | 190 | do | do | 1880 | Compound engine, 22 and 36 inches diameter by 26 inches stroke. |
| Steamer | City of Worcester | Norwich and New York Transportation Company. | 2, 490 | do | Side wheel | 1881 | New York to New London. Engine 90 inches diameter by 12 feet stroke. |
| Steamboat | Ida | Maryland Steamboat Company | 589 | do | do | 1881 | Chesapeake bay. Engine 40 inches diameter by 10 feet stroke. |
| | Gaston | Baltimore Steam Packet Company. | 847 | do | Propeller | 1881 | Compound engine, 26 and 44 inches diameter by 36 inches stroke. |
| Steam ferry-boat | Baltic | West Jersey Ferry Company | 399 | do | Side wheel | 1881 | Engine 42 inches diameter by 10 feet stroke. |
| Do. | Wenonah | Camden and Philadelphia Steamboat Ferry Company. | 439 | do | do | 1881 | Engine 44 inches diameter by 10 feet stroke. |
| Do. | Beverly | do | 439 | do | do | 1881 | Do. |
| Do. | Jamaica | Nassau Ferry Company | 435 | do | do | 1881 | Engine (inclined) 38 inches diameter by 9 feet stroke. |
| Do. | Baltimore | Pennsylvania Railroad Company | 730 | do | do | 1882 | Engine 46 inches diameter by 11 feet stroke. |
| Do. | Chicago | do | 730 | do | do | 1882 | Do. |

VESSELS BUILT BY THE HARLAN & HOLLINGSWORTH COMPANY, WILMINGTON, DELAWARE—Continued.

| Class. | Name. | For whom. | Tonnage. | Kind. | Type. | Year built. | Remarks. |
|---|---|---|---|---|---|---|---|
| Steamboat | Avalon | Maryland Steamboat Company | 589 | Iron | Side wheel | 1882 | Chesapeake bay. Engine 40 inches diameter by 10 feet stroke. |
| | Corsica | Chester River Steamboat Company. | 368 | ..do | Propeller | 1882 | Engine 26 inches diameter by 24 inches stroke. |
| Steamship | Excelsior | Morgan's Louisiana and Texas Railroad and Steamship Company. | 3, 264 | ..do | ....do | 1882 | New York and New Orleans. Compound engine, 36 and 76 inches diameter by 54 inches stroke. |
| | City of Jacksonville. | De Bary Merchants' Line | 481 | ..do | Side wheel | 1882 | Two inclined engines, 30 inches diameter by 6 feet stroke. |
| Total tonnage | | | 132, 606 | | | | |

The Pusey & Jones Company has built about 100 iron vessels, 80 of them for foreign owners, chiefly in South America. A few of the above have been built of steel, on foreign account also. The yard has especially studied the requirements of the river trade of South America, and has made a large number of stern-wheel and side-wheel paddle boats.

One of the large vessels of this concern is the Hudson, built in 1874 for the Cromwell line to New Orleans with engines on a new principle. The steamer is a two-decker, with cabins on the upper deck, and is schooner rigged. Her dimensions are: Register, 1,872 tons; length on the load-line to the afterside of the stern-post, 280 feet; beam, molded, 34 feet; depth from upper deck to keel, 26 feet. Her scantling were as follows:

*Keel.*—Bar-iron, 10 by 2½ inches, scarfed 24 inches.

*Stem.*—Bar-iron, 10 by 2½ inches.

*Stern-posts.*—Forward or propeller post, 11 by 5 inches; rudder-post, 10 by 5 inches; bottom part, 7 by 7 inches, the foot extending forward 7 feet, so as to form that much of the keel.

*Frames.*—Angle-iron, 5 by 3 inches; ½ inch thick for 160 feet amidships; 5 by 3 by 7/16 inches forward and aft of that; spacing, 24 inches. The frames are double under the engines; the frame runs to the main deck, and the forward cants to the forecastle deck. Reverse angle-irons, 3½ by 3 by 7/16 inches for 180 feet amidships, then 3½ by 3 by 6/16, running to the main deck and lower deck on alternate frames.

*Floor plates.*—Over the keel, 22 inches deep, 9/16 inch thick for 170 feet amidships; forward and aft, ½ inch thick, and not less than 11 inches deep at the bilge—all carried to the upper part of the bilge. In the ends of the vessel the plates increase in depth, as is usual in all iron vessels, tying the sides together like partial bulkheads.

*Beams.*—Lower deck: Bulb, **T**-iron, 9 inches deep, ½ inch thick for 160 feet amidships; fore and aft, 8 inches deep by ½ inch thick. Main deck: Same kind of iron, 8 inches deep by ½ inch thick for 180 feet amidships, and then 7/16 inch thick. Angle-irons, 3½ by 3 by 6/16 inch, form the top of the **T** in both sets of beams. Fifteen orlop beams of double **T**-iron in the hold, 10 inches deep; top and bottom flanges 5 inches wide, 9/16 inch thick; forward of the forward bulkhead, angle-irons, 4½ by 4 by 7/16; forecastle beams, 5 inches deep, 7/16 thick.

*Stanchions.*—Lower hold, 3½ inches in diameter; between decks, 3 inches.

*Plating.*—Garboards: ⅝ inch thick amidships, 9/16 forward and aft. Bilge and bottom strakes, ⅝ inch, tapering to 9/16 at the bow and stern; from the bilge to the sheer strake, 9/16 inch for 175 feet amidships, tapering then to ½ inch. Sheer strake, 11/16 inch for 180 feet amidships; then for 22 feet, ⅝ inch; then, 9/16 inch. Forecastle bulwark plates, 6/16 inch. The sides are double riveted, except in the heavy plates and the butts, which are treble riveted, and in the plates which are not more than 8/16 thick, where the seams are single riveted.

*Keelsons.*—Main: intercostal, rising the full depth of the floor plates and 10 inches above them of 11/16-inch iron, each intercostal plate being secured to the floors by two angle-irons at each end 3½ by 3 by 7/16 inch. A plate 10 inches wide, ⅝ inch thick, is laid flat on top of the floors each side of the intercostal plates, and is secured to the latter by an angle-iron 5 by 4 by 9/16 inch. Two angle-irons of the same size, continuous fore and aft, are riveted to the upper edge of the intercostal plates, and on top of them again is a flat plate, 8 inches wide and 11/16 inch thick. This collection of plates and angles is riveted at every point. Side keelsons are put in half way to the bilge for about 200 feet amidships. They are intercostal, 9/16 inch thick, rising 5 inches above the floors, secured to the floors by angle-irons at the ends 3½ by 3 by 7/16 inch, and by a continuous angle-iron fore and aft, each side on top of the floors 5 by 4 by 9/16 inch. The bilge keelsons at the upper and lower turn of the bilge are composed of two angle-irons, each 5 by 4 by 7/16 inch, riveted back to back.

*Stringers.*—On the ends of the deck beams, all three tiers, around the ship. Lower deck, 30 inches wide and 9/16 inch thick for 140 feet, tapering to 20 by ½ inch at ends. Main deck, 46 by 9/16 inch amidships, tapering to 26 by ½ inch at the ends, riveted to the shell by pieces of angle-iron and to frames by a continuous angle-iron 5 by 4 by 9/16 inch thick. On hold beams, 8 by ⅝ inch, with angle-irons on top of and below the beam ends 4½ by 4 by 9/16 inch.

*Tie plates.*—Fore and aft on the beams, on each side of the hatches, on lower deck, 12 by ½ inch; on main deck, 18 by ½ inch.

*Bulkheads.*—Four transverse, ⅜ inch thick, stiffened with angle-irons 5 by 3 by ½ inch, spaced 2 feet apart. The bulkheads run to the main deck, and are water tight. There are bulkheads on each side of the engine and boiler rooms, forming, with the sides of the ship, bunkers for coal. Shaft tunnel of ⅜-inch iron.

*Rudder.*—Wrought iron, 7½ inches in diameter at the head, the frame all forged, and plated with ⅜-inch iron.

*Bulwarks.*—Height, 3¾ feet; light iron, with white oak rail, 7½ by 2½ inches.

*Wood work.*—Ceiling of the floor of the hold, 2½-inch pitch-pine; sides of the hold, 2-inch pine; decking, 4-inch yellow pine; foremast, 72 feet in height above the main deck, white pine, 22 inches in diameter; mainmast, 80 feet by 21 inches.

*Boilers.*—Four in number, return tubular, 9 feet in diameter, 14 feet long, of ½-inch iron, with 140 tubes, 3½ inches each; safety-valves set at 77 pounds; allowed to carry 75 pounds of steam; working pressure, 65 pounds.

*Engines.*—Vertical; surface-condensing poppet-valve. Cylinder, 48 inches in diameter, 6-foot stroke; steam cut-off at 7 inches from beginning of the stroke; revolutions, 65 per minute.

*Wheel.*—Screw; 15 feet in diameter; 22 feet pitch; gun-metal blades.

*Class.*—A 1 for 20 years.

The engines of the majority of propellers are of the compound surface-condensing type, in which steam is expanded at a low pressure. In the Hudson, however, the working pressure is 65 pounds. The ship has been driven at an average of 12½ knots on a consumption of 20 tons of coal per day, and her speed often averages 14 knots for the whole trip to New Orleans.

At Baltimore there was some iron-ship building before the war, in a fragmentary way, however. One of the vessels launched by Ross and Thomas Winans in 1858, designed to be a new type of express steamer and to carry only passengers and a small quantity of valuable freight, was 180 feet long, with 16 feet beam, without keel or cutwater, but was provided with four high-pressure engines. The hull was arched on deck in such way that no sea that came aboard could be retained, and the boat was large enough to accommodate about 20 passengers, the mails, and a limited amount of express matter. Baltimore is favorably situated for the construction of iron vessels. The war interrupted the growth of the business, but another beginning was made in 1872 by the construction of two composite vessels for the government by William E. Woodall & Co., the small sailing vessels Speedwell and Bibb. The following year the little schooners Palinurus and Research, each of 76 tons, were built by the the same firm, and in 1876 the Earnest of 80 tons, the Ready of 80 tons, and the Drift of 87 tons, all schooners, and, like the others, all for the coast survey. The timbers and deck frames of these boats were of angle-iron, all the rest oak and pine. Woodall & Co. also designed the composite single-deck propeller Thomas G. Gedney, of 133 tons, for the coast survey, which was built by Delamater, of New York, in 1875. This vessel was 130 feet long on deck, 24½ feet beam, molded, and 8 feet deep in the hold. The stem, apron, knight-heads, keel, stern-post, and deadwood were of oak and locust, and the planking yellow pine, 6 inches thick on the garboards, 4½ on the wales, and 3 on the bulwarks. Yellow pine, 12 by 5 inches, was used for the plank-sheer and rail, and white pine, 3¾ inches square, for the decking. The frames were of angle-iron, 3 by 2½ by ⅜ inches, spaced 18 inches; the reverse angles 2¼ by 2¼ by $\frac{5}{16}$, extended on alternate frames to 6 inches above the bilge keelson and to the deck. The floor plates were 12 inches deep over the keel, ⅜ inch thick, and diminished to a molding of 3 inches on the bilge. Although the vessel had a wooden keel 10 inches square, an iron keel plate was laid on top of it 18 inches wide and ⅜ inch thick, which ran clear fore and aft and lapped on the stem and the stern-post. The keelson was intercostal, of ⅜-inch iron, with flat plates on each side of it, same thickness and 18 inches wide, and with an angle-iron on each side, uniting the vertical to the flat plates, 2¼ by 2¼ by $\frac{5}{16}$ inches. A double angle-iron side keelson each side was composed of 5 by 3 by $\frac{7}{16}$-inch iron. Bilge keelsons, double, of angle-iron, 3 inches by 3½ by ⅜. The deck beams were 5 inch bulb T-iron. One narrow strip of ⅜-inch plating about 9 inches wide was riveted to the frames just below the floor head, and another 18 inches wide was riveted on the timbers as a sheer streak. There were 3 bulkheads of ¼-inch iron. The planking was put on with screw bolts, the heads countersunk, cemented, and plugged with wood, and five streaks on the bilge were edge-bolted amidships for 90 feet with ⅝-inch iron. This vessel was coppered over the planking. The hull thus made was light and strong, and the vessel did good service.

In 1876 a regular iron-ship yard was established in Baltimore on the point near the fort by the firm of Malster & Reaney. Shops were put up for the various operations of the ship-yard, including boiler and blacksmith, machine, joiner, and boat shops; also a foundery and mold-loft, with a wareroom 500 feet long, and office and store-room. A large basin dry-dock was also made on the grounds 450 feet long and 113 feet wide on top, measured inside the basin gates. A fair equipment of machinery was purchased, including a steam riveter. The work of the yard has been chiefly boiler building and repair work, but vessels have been built from time to time, and the business appears to be on a substantial foundation. The following was the production up to the census year:

| Description. | Name. | Kind of wheel. | When built. | Length between perpendiculars. | | Beam molded. | | Depth of hold. | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | *Ft.* | *In.* | *Ft.* | *In.* | *Ft.* | *In.* |
| Tug | Alexander Jones | Screw | 1876–'77 | 97 | 0 | 22 | 0 | 10 | 6½ |
| Do | Camilla | ...do | 1877–'78 | 62 | 0 | 16 | 0 | 7 | 0 |
| Ice-boat | F. C. Latrobe | Side wheel | 1877–'78 | 200 | 0 | 34 | 0 | 14 | 0 |
| Yacht | Chronometer | Screw | 1877–'78 | 42 | 6 | 6 | 9 | 4 | 10 |
| Steamer | Enoch Pratt | Side wheel | 1878 | 155 | 0 | 29 | 0 | 8 | 6 |
| Tug | Canton | Screw | 1879 | 70 | 0 | 16 | 6 | 7 | 9 |
| Ferry-boat | Robert Garrett | Side wheel | 1880–'81 | 125 | 0 | 25 | 0 | 11 | 0 |
| United States light-house tender | Holly | ...do | 1880–'81 | 146 | 3 | 23 | 8 | 9 | 6 |
| Do | Jessamine | ...do | 1880–'81 | 146 | 3 | 23 | 8 | 9 | 6 |

A beginning has been made in iron-ship building in San Francisco in spite of the high cost of iron and of labor in that city. The first appears to have been repair work on two large Pacific mail steamers, the City of Peking and the City of Tokio, by men sent out from the East; but in 1879 the iron propeller Bolivar, 13 years old, was taken out of water and enlarged by the Risdon iron works and the Dickie Brothers, wooden-ship builders. She was built in Hull, England, and sold here for $20,000. Registering 1,083 tons, she was cut in two, lengthened 68 feet, and enlarged to 1,462 tons register at an expense of $120,000.

The port of San Francisco is visited yearly by two or three hundred iron sailing vessels from England, and whenever an accident happens to any of them, impairing their seaworthiness, they must have their repairs made there. The Risdon iron works have had several large pieces of work to do on ships driven ashore and damaged. In the bottom of one 33 plates were put, in another almost an entire new bottom was necessary, and there have been a number of similar jobs. In 1879 the ship Jessie Osborne, of Dumbarton, Scotland, of 1,079 tons, only two years old, was wrecked a few miles north of the city, and had a large hole knocked through her hull. She was bought by San Francisco shipping men, raised by tightening the decks and forcing air into the hull under great pressure, towed into port, and there repaired, and when finished cost the new owner about $60,000. Another job of work was on an English iron ship, oil laden, which took fire off the coast of South America. She was towed to the Sandwich islands and then to San Francisco, when the beams which were warped by the heat were either straightened or replaced and the whole ship was repaired and made as good as new.

In the course of these operations the Risdon works and the Dickie Brothers have acquired a considerable acquaintance with iron vessels, and have lately built two small propellers, one for a local water boat, the other of 30 tons for owners in Ecuador. The water boat was finished in the winter of 1881–'82, and is 65 feet long, 13 feet beam, and 7 feet deep, modeled like a tug, weighing about 25 tons with everything aboard except water. The tank holds 10,000 gallons. She has two high-pressure engines, with 8 by 8 inch cylinders, and two boilers 6 by 6 feet, and with a pressure of 100 pounds of steam develops 35 horse-power. The plating is $\frac{1}{4}$ and $\frac{5}{16}$ inch thick; the deck is of corded iron plates $\frac{5}{16}$ inch thick. The rivets of the shell were driven cold.

While the skill has been acquired necessary for iron-ship building, the future of the industry in California is in doubt. Timber is too cheap to encourage a demand for iron sailing ships, and propellers can be built in the East at much lower prices than in San Francisco; but it is of great value to the maritime community to have on the Pacific coast the present means of repairing disabled iron vessels.

Iron boats were first introduced on a river in the South about 1830, the pioneer iron boat of the United States, the Codorus, having been sent to that part of the country about that year. Information in regard to the matter is not very definite, but it is known that the Savannah river had a number of iron boats at an early period. Five were running in 1835. They had all the experiences to which river boats are subject. One of them, built in 1834, was hauled out in 1843 for examination; her bottom had not been perceptibly worn in nine years' service, and there was no trace of her repeated encounters with snags, except an indentation here and there in the hull.

Iron boats were first introduced in the West in 1839. The experiments in Georgia had shown their desirability for service on shallow rivers. Light draught is a *sine qua non* in boats navigating streams where the water dwindles in dry months to 5 feet draught and less, and toughness and strength of hull are important where snags and sunken logs abound in the river bed. The experience of early navigators in the West taught them the value of strong, light, safe boats, and led them to a few attempts at the production of something better than wooden hulls. As before stated, the beginning was in the year 1839, at Pittsburgh; and although comparatively few boats have been built, yet the experience of late years has fully confirmed the lessons of the earlier time. Light hulls are just as desirable as ever; indeed, they become more desirable, now that trade has reached such large proportions and steamers must carry from 2,000 to 3,000 tons of cargo, instead of 400 and 500 tons, as in 1839; and strength and durability also continue to be qualities of the highest importance. About one-half the losses in the West are due to the snagging of wooden boats, their hulls being necessarily of such flimsy construction that the first strong thrust from a sunken tree sends them to the bottom of the river. Vessels that survive the danger of snags and the peril of fire perish, in any event, from natural decay alone in six or seven years. Ocean vessels, with their heavy frames and planking, live for fifteen and twenty years, often longer. In the West the whole tonnage of the rivers must be renewed every six or seven years. In a fleet so perishable the cost of maintenance is excessive. Natural depreciation goes on at the rate of 16 per cent. a year; insurance ranges from 8 to 12 per cent.; interest is not less than 6 per cent., and annual cost of painting and repair amounts to as much more. The cost of maintenance of tonnage in the West is therefore from 30 to 35 per cent., or twice that of the ocean fleet. Steamboat men, therefore, thoroughly understand the value of a safer and more durable class of tonnage than that which they now own, and nothing except the cost of iron boats has stood in the way of their universal adoption.

The pioneer iron boat at Pittsburgh was the Valley Forge, which was built at the iron works of Robinson, Minnis & Miller, on the south side of the Monongahela, a short distance above the bridge. She was 165 feet long, 25 feet beam, and $5\frac{1}{2}$ feet deep, and was a side-wheeler. This first experiment was regarded as the inauguration of a new and great industry. In 1841 the boat was lengthened 15 feet, making her 180 feet long, and over the paddle-wheel guards she was 50 feet wide. She was then as large as the locks at Louisville would admit. A cabin covered her whole deck, with accommodations for 200 passengers. The frames were of angle-iron, the beams of T-iron. The plating of the hull was $\frac{1}{4}$ inch thick, and the lower deck was laid with $\frac{3}{16}$-inch iron plates. Her keel was of flat plate iron, 12 inches wide, dished. The cylinder timbers and frames of the wheels were also of iron. Owing to the lightness of the hull she could carry 400 tons on about $4\frac{1}{2}$ feet draught. The Valley Forge cost, however, twice the amount for which a wooden steamer of the same size could have been built. She ran successfully on the Ohio, Cumberland, Tennessee, and Mississippi rivers until 1845, a part of the time as a packet between Nashville and New Orleans, and was sunk once in the Mississippi, but was raised, and did good service thereafter. In 1845 she was dismantled and broken up. Trade had increased in the West, and boats of twice her size were being built and run at small additional expense. Her machinery was transferred to another vessel, and the iron of the hull was sold to the government for $2\frac{1}{2}$ cents per pound and sent to Harper's Ferry, where most of it was used in the manufacture of musket barrels. Experience with this vessel taught the need of thicker plates on the bottom of the hull, and also threw some doubt for a time on the utility of iron boats on the upper Ohio, where the bed of the river is generally composed of rock and gravel and the stage of water is so scant that boats rub on the bars. Some of her bottom plates had been worn down to 1/16 inch in thickness. In 1845 the iron revenue-cutter George M. Bibb was built at the Fort Pitt works, on the Allegheny, at Pittsburgh, and was dispatched to the Gulf of Mexico. She was at first propelled by a screw, but the wheel did not work well, and it was taken out at Cincinnati and side paddle-wheels substituted. She was then sent on to the Gulf. Soon after two other iron revenue-cutters were built at Pittsburgh, the Lake Erie and the Lake Michigan, which were sent through to the lakes via the Lake Erie canal.

In 1847 the Allegheny was built at Pittsburgh, also for the government, and was a larger boat than her predecessors. Her dimensions were: Length on deck, 185 feet; on the keel, 171 feet; beam on deck, 33⅓ feet; beam at the wheels, 25 feet; depth of hold, 19 feet; mean draught, 13½ feet; register, 1,200 tons. The total weight of the hull was 425 net tons; her total displacement, 1,050 tons. The machinery, with coal-bunkers and chimney, weighed 573,000 pounds. Her engines cost $61,000; the whole boat $292,000. Captain Hunter, of the United States navy, under whose direction the Allegheny was built, supplied her with two wheels amidships 14⅔ feet in diameter, with paddles 3½ feet wide and 2⅙ feet long, the intention being to place them where they would be protected from cannon shot; but in service these wheels failed to give satisfaction, and were taken out and the boat provided with common paddle-wheels. An extended cruise was taken by the Allegheny, and from New Orleans she went to Norfolk, and thence to the Mediterranean. It was at first thought that she would answer for a war steamer, but she proved too light for the purpose, and was strengthened afterward by putting in new frames between the old ones. The Hunter, 100 feet long, was also built at Pittsburgh on the same principle as the last-named boat.

This was a good beginning in iron steamboat building in the West, but the high cost of the vessels deterred transportation companies from ordering the new class of tonnage. During the war several other government vessels were constructed at the iron works in Pittsburgh, among others the monitors Manayunk and Umpqua and the light-draught gunboats Sandusky and Marietta. The war having come to an end before any of these vessels were finished, they did not reach the lower waters, but with the exception of the Manayunk were detained at Cairo and sold. The hulls were broken up and a great deal of the iron found its way back to Pittsburgh, to be worked over into new forms. Since the war about 15 other iron boats, mostly of small size, have been built, all for private owners, a number of them tugs. Three light-draught boats were made by Hartupee & Co. on South American orders. They were sent to New York and shipped thence to their destination, and were, respectively, 135 feet long, 26 feet beam, 4½ feet hold, 85 feet long, 15 feet beam, and 3 feet hold, and 50 feet long, 12 feet beam, and 2½ feet hold. None of the seven or eight concerns which built iron boats at Pittsburgh had regular ship-yards, but they were all proprietors of iron works. The largest vessel of the period since the war is the steel dredge boat made by G. W. R. Bayley for use at the mouth of the Mississippi, 200 feet long, 32 7/12 feet broad, and 10 feet hold, with 28-foot paddle-wheels, and engines 21 inches in diameter by 7 feet stroke. The Bayley was admirably adapted to the purposes for which she was built, being light, strong, and serviceable.

At Pittsburgh coal is abundant and cheap. The whole region is full of excellent iron, and there has been no lack of fine engineering talent or of workmen of the highest skill. But in spite of all these advantages and the conceded utility of iron boats there has been one obstacle to overcome which the iron men have found insuperable. Oak has been as abundant as iron, and far cheaper. From the beginning down to the present day the wooden hull has cost only about one-half the expense of an iron hull, and it has been in vain to compete for orders from steamboat owners. At present there is only one yard building iron vessels in Pittsburgh, the property of James Rees & Sons, which is employed chiefly on foreign orders. The specialty of this firm was originally the construction of steamboat engines, but in 1878 they went into vessel building, the firm being then known as Rees & Thorn. The yard is on the Allegheny side of the city. Down to 1882 the following vessels had been built:

1878. Stern-wheel steamboat Francisco Montayer, 150 feet long, 28 feet beam, 4 feet hold, for South America.
1879. Stern-wheel steamboat Victoria, 155 feet long, 32½ feet beam, 5 feet hold, for South America.
1879. Stern-wheel steamboat Venezuela, 120 feet long, 24 feet beam, 3 feet hold, for South America.
1879. United States medical boat Benner, 118 feet long, 19 feet beam, 3½ feet hold.
1879. Steam catamaran for Saratoga lake, New York, each hull 146 feet long, 14 feet beam, 5 feet hold; the hulls of steel.
1880. Three small tugs for the government, 37 feet long, 7½ feet beam, 3½ feet hold; hull of steel.
1881. Stern-wheeler Roberto Carlistor, 112 feet long, 22 feet beam, 3 feet hold, for South America.
1881. Stern-wheeler De Castro, 112 feet long, 22 feet beam, 3 feet hold, for South America.
1881. Stern-wheeler Chattahoochee, 155 feet long, 31½ feet beam, 5 feet hold, for the Chattahoochee river, Alabama.

The Chattahoochee was building in the census year, and was of Siemens-Anderson steel throughout, very light and strong. She was perfectly flat on the bottom, the bilge quick, and the sides flaring 6 inches, as in other river steamers. The frames were 2 by 2 inches by ¼ inch, and every other one carried a reverse angle-iron; spacing 14 inches. The hull was provided with five transverse bulkheads and three running fore and aft, the latter being principally depended upon for strength, especially when in contact with snags. Plating, ¼, 3/16, and ⅛ inch steel, fastened with double rows of ⅜ and ⅝ inch rivets, driven cold. The deck frame was of steel, but planked with pine. The Chattahoochee was built for the cotton trade of the Chattahoochee river, and was expected to carry nearly 400 tons of freight.

Only a few iron boats have been built at Cincinnati. One was an excursion steamer, for use in the vicinity of New Orleans, 130 feet long, 36 feet beam, and 4 feet hold; but she was too shallow for the waters navigated, and by mismanagement was sunk in deep water. Another boat of larger size, built about ten years ago, is running yet. She is 200 feet long, and draws only 30 inches of water, light. The lack of demand for such expensive craft prevents the development of the industry in Cincinnati.

The work done at Dubuque has been of a fragmentary character, and nothing is doing now.

At Saint Louis, in the Carondelet suburbs, there is one large yard owned by the Western Iron Boat Building Company. It was established in 1874 by Charles P. Chouteau, one of a firm owning a large rolling-mill in that locality, under the superintendency of Theodore Allen, of New York, who, with a partner, A. H. Blaisdell, is the present owner.

This yard had produced the following boats down to the year 1882:

1874. Snag-boat O. G. Wagner, for the United States government.
1875. Stern-wheel tow-boat A. Humphries, 125 feet long, 24 feet beam, and 6 feet hold.
1876. Stern-wheel tow-boat W. J. Florence, 120 feet long, 20 feet beam, and 5 feet hold.
1877. Stern-wheel tow-boat Bessie, 120 feet long, 20 feet beam, and 4½ feet hold, for rafting.
1877. Stern-wheel freight-boat Charles P. Chouteau, of 1,304 tons (being the monitor Winnebago altered and lengthened 72 feet), 296 feet long, 54 feet beam, and 8 feet hold. This steamer carried 8,866 bales of cotton and 15,000 sacks of cottonseed into New Orleans on one trip in 1880.
1877. Twin-screw propeller Indianola, United States mail dispatch boat, 90 feet long, 15 feet beam, and 6 feet hold.
1878. Side-wheel United States survey-boats Iris, Doris, Clytie, and Thetis, each 54 feet long, 10 feet beam, and 4½ feet hold. The bows of these boats were peculiar, the stem being inclined backward; a style which did not prove desirable, and which was afterward altered.
1879. Side-wheel United States launch Hebe, 78 feet long over all, 75 feet on the water-line, 15 feet beam, 27 feet over all, 4 feet hold; two engines, 12 inches in diameter, 2 feet stroke; wheels 12 feet in diameter and 5 feet across.
1879. United States snag-boat Horatio G. Wright, side-wheeler, 187 feet long, 62 feet beam, 90 feet over all, 8 feet hold; weight of iron in the hull, 534 tons; total weight of boat, 885 tons; cost, $130,000.
1879. Propeller barge Electra, 66 feet long, 11 feet beam, 4½ feet hold; a tender to the snag-boat.
1879. Two side-wheel United States survey-boats, 82 feet long, 13 feet beam, and 4½ feet hold.
1879. Two stern-wheel United States snag-boats, John R. Meigs and Chauncey B. Reese, 170 feet long, 36 feet beam, and 6 feet hold.
1880. Stern-wheel freight-boat No. 19, 130 feet long, 26 feet beam, and 7½ feet hold.
1880. Screw-tug Susie Hazard, for Saint Louis owners, 95 feet long, 19 feet beam, 9 feet hold; draught of water, 8 feet.
1880. Stern-wheel snag-boat C. W. Howell, 145 feet long, 36 feet beam, and 6 feet hold.
1881. Side-wheel transfer steamer, for the Texas Pacific railroad, being the monitor Chickasaw altered; under construction.
1881. Two tow-boats for the Mississippi River Improvement Commission, under construction, 175 feet long, 32 feet beam, and 6 feet hold.

This company introduces into its new boats the longitudinal system of framing, and it would do the same if it were to construct model barges of iron. Up to the present time no orders have been received for model barges, as the cost of vessels of the new 225-foot size would not be less than $25,000, exclusive of the house on deck, which is more than twice the contract price of wooden barges complete. It is estimated that an iron boat would last from 30 to 40 years, and thus outlive five of the other kind, besides being 15 per cent. lighter, and not grow heavier with age, as do wooden boats. Nevertheless, excess of first cost proves a serious drawback to their introduction. It will illustrate the character of the new Saint Louis steamers to describe the scantling of the tow-boat built in 1881. The data are as follows:

*Model.*—175 feet long, 32 feet beam, 6 feet depth of hold; the bottom perfectly flat; bilge turned in the square body with 12 inches radius; bow modeled for 75 feet, with entrance long and fine for a western boat. Sheer forward, 5 feet; aft, 2 feet.

*Frames.*—Longitudinal, 3 feet apart, 2 by 2 inches, with a vertical floor plate 6 inches high, $\frac{3}{16}$ inch thick, with a 2-inch angle-iron along the upper edge. These floor frames draw together in the bow, and when 18 inches apart the outer ones stop short. Between the longitudinal frame irons 2- by 2-inch transverse irons are worked intercostally 3 feet apart. Every other transverse floor frame carries a vertical plate 8 inches high, $\frac{3}{16}$ inch thick, with a continuous angle-iron from bilge to bilge 2 by 2 by $\frac{5}{16}$ inches. The bow is framed on the transverse system with 2½-inch angle-iron. Side frames of the square body, 18 inches apart, 2 by 2 by $\frac{5}{16}$-inch angle-iron, running from the gunwale to the first longitudinal frame on the floor of the boat; every other side frame carries an 8-inch plate, with an angle-iron along the outer edge of it. The transverse floor plates deepen as the bow grows finer, the foremost one being 3 feet in depth.

*Bulkheads.*—Two longitudinal, 12 feet apart, running from away aft to about 30 feet from the bow, where they are 6 feet apart and end on a transverse bulkhead. They are of $\frac{3}{16}$-inch iron, secured to the skin with 2½ by 2½ by $\frac{5}{16}$ angle-irons; at top, two 2 by ⅜ angle-irons. Four transverse bulkheads, of $\frac{3}{16}$-inch iron, worked between the sides of the vessel and the other bulkheads, and made water-tight.

*Stem.*—A plate, with cheek pieces for the apron, and broad enough to land the outside plating on and hold it securely.

*Keelson.*—Depth 18 inches, of ⅜-inch plate, secured below to the skin with a 2 by 2½ by $\frac{5}{16}$ angle-iron on each side of the plate, stiffened with two similar irons at the upper edge. The keelson deepens to 36 inches at the stern of the boat.

*Stern.*—Framed transversely, and raking so as to allow the use of balance rudder; a floor plate on each frame. Fan-tail of $\frac{3}{16}$-inch plate iron.

*Beams.*—Spaced 18 inches, of 2½ by 2½ by $\frac{5}{16}$ angle-iron. Every other beam has gusset knees of $\frac{3}{16}$ iron, connecting it with the side frames and fore-and-aft bulkheads. In the center line of the boat and parallel to it, 8 feet each way, 3 by 3 by ⅜ angle-irons are fastened to the under side of the beams with clips, with stanchions of 2¼ angle-iron on each plate floor, except that on the main keelson they are of 2½-inch iron. There is a 12-inch girder on the keelson stanchions.

*Stringers.*—Three on the top timbers on each side of 2½ by 2½ by $\frac{5}{16}$ angle-iron, fastened to clips. They are continued to the stem with a 6-inch plate of ¼ iron, and when the inboard edges of the plate approach to within 2 feet the plate is made in one piece across the boat to form a breast-hook. Stringer plate on the beams 24 inches wide, $\frac{3}{8}$ inch thick, with butt straps treble riveted. Gunwale stringer plate 20 inches wide, with 8 inches worked outboard, $\frac{3}{8}$-inch iron. An angle-iron is riveted on this plate 2 inches from the inside edge to abut the planking of the deck against.

*Outside plating.*—All $\frac{3}{8}$, $\frac{5}{16}$, and $\frac{1}{4}$ inch thick, rivets $\frac{5}{8}$ inch, 4 diameters apart.

*Guards.*—Four feet wide amidships, broad at the bow, sustained by outriggers of $2\frac{1}{2}$-inch angle-iron 2 feet apart, turned down 8 inches on the plating and riveted. Over plank-sheer, 12 inches wide, $\frac{5}{8}$ inch thick; under plank-sheer, 12 inches wide, $\frac{1}{4}$ inch thick. Facing, 8-inch channel iron.

*Rudders.*—Three in number, one a balance rudder. The wing rudders hang on skegs of $\frac{3}{16}$ iron plate made independently and riveted on with angle-iron.

*Cylinder timbers.*—Iron, 46 inches deep at the transom.

*Machinery.*—Three steel boilers, made of $\frac{26}{100}$-inch plates; diameter, 42 inches; length, 28 feet, with five 10-inch flues. Two engines, 20 inches in diameter, 6 feet stroke.

*Houses.*—As usual on tow-boats.

*Weight of iron.*—Gross weight of iron purchased for hull, 394,640 pounds; waste about 6 per cent., leaving net weight of iron in hull 370,960 pounds.

It is the belief of those in the West most competent to judge that iron or steel is destined finally to take the place of wood in all the larger vessels used for transportation on the rivers. The experience already had on the deeper rivers proves conclusively the durability of iron boats and the small cost of their repairs. Bottom plates on recent boats after eight years' service have shown a reduction of only 2 per cent. in weight, and the framing and interior work have shown no perceptible deterioration. The business of the rivers is at present largely in the hands of persons with limited capital, who cannot afford the expense of iron or steel hulls, and there has therefore been no competition between rival lines of wooden and iron vessels to elicit information as to the commercial superiority of the latter. It is, however, well known that the river traffic of the West would be greatly promoted if freight rates could be lowered; but they cannot be materially lowered at present, owing to the high cost of maintenance and replacement of wooden tonnage. It is the opinion of many in the West that this state of affairs will continue to interest the more observing and intelligent men engaged in transportation until they realize that freight can be carried profitably at lower rates by employing more efficient and more durable hulls, and they will then build boats of either iron or steel, or with iron frames and wooden planking.

On the northern lakes iron ships are of recent introduction, but the new idea is making rapid progress. Since the war the trade of the lakes has grown to large proportions, the cargoes moved by the best paying class of lake vessels being not less than 1,500 tons in dead weight, and often ranging as high as 2,500 tons and more. The peculiarities of the channel between lakes Huron and Saint Clair and of the harbors of the principal cities, and the expectation that laden vessels will before long run direct from Chicago to Montreal through the Canadian canals and perhaps on to Europe, govern the forms of ships. The lake model is, and necessarily must be, long rather than narrow, and limited to about 14 feet draught. In order to give wooden vessels of this model proper strength the hulls must be built with heavy scantling, a great deal of extra fastening and strapping, and with a quantity of timber in the keelsons not seen in any other class of vessels. Wooden hulls are heavy, and there is need on that account alone of the lighter hulls of iron, even if no other considerations came into play. It will be remembered also that the machinery in lake steamers is placed far aft, and that the tendency of its vibration is to rack and strain the hull. Besides, the timber of the lakes is disappearing, and the cost of wooden ships is rising. These are all cogent reasons for building iron ships.

The rise of iron works and boiler and engine shops and the existence of large wooden-ship yards in Buffalo made that city the natural center for first attempting the construction of iron boats on the lakes. The proprietors of large shops turned their attention to iron hulls more than twenty years ago, and from time to time built tugs, yachts, and freight boats of small size until a familiarity with the principles of construction had been obtained. About 1870 an interest in iron propellers was awakened, and the Anchor line contracted for four new vessels of large size to go into their trade to the upper lakes. These propellers were completed in Buffalo in 1871. At various times from 1870 to 1873 there were also built in Buffalo for the various transportation companies five others, all by Gibson & Craig, as subcontractors under the King iron works. They were as follows:

| Year. | Name. | Length. | Beam. | Hold. | Tonnage. |
|---|---|---|---|---|---|
| | | *Feet.* | *Feet.* | *Feet.* | |
| 1871 | India | 210 | $32\frac{1}{2}$ | 14 | 1, 239 |
| | China | 210 | $32\frac{1}{2}$ | 14 | 1, 239 |
| | Japan | 210 | $32\frac{1}{2}$ | 14 | 1, 239 |
| | Alaska | $212\frac{1}{2}$ | 32 | $13\frac{3}{4}$ | 1, 288 |
| 1872 | Cuba | $231\frac{2}{3}$ | $35\frac{2}{3}$ | $13\frac{5}{12}$ | 1, 526 |
| | Russia | $231\frac{2}{3}$ | $35\frac{2}{3}$ | $13\frac{5}{12}$ | 1, 502 |
| | Java (since lost) | $231\frac{2}{3}$ | $35\frac{2}{3}$ | $13\frac{5}{12}$ | 1, 502 |
| 1873 | Scotia | $231\frac{2}{3}$ | $35\frac{2}{3}$ | $13\frac{5}{12}$ | 1, 502 |
| | Arabia | 224 | 34 | 15 | 1, 203 |

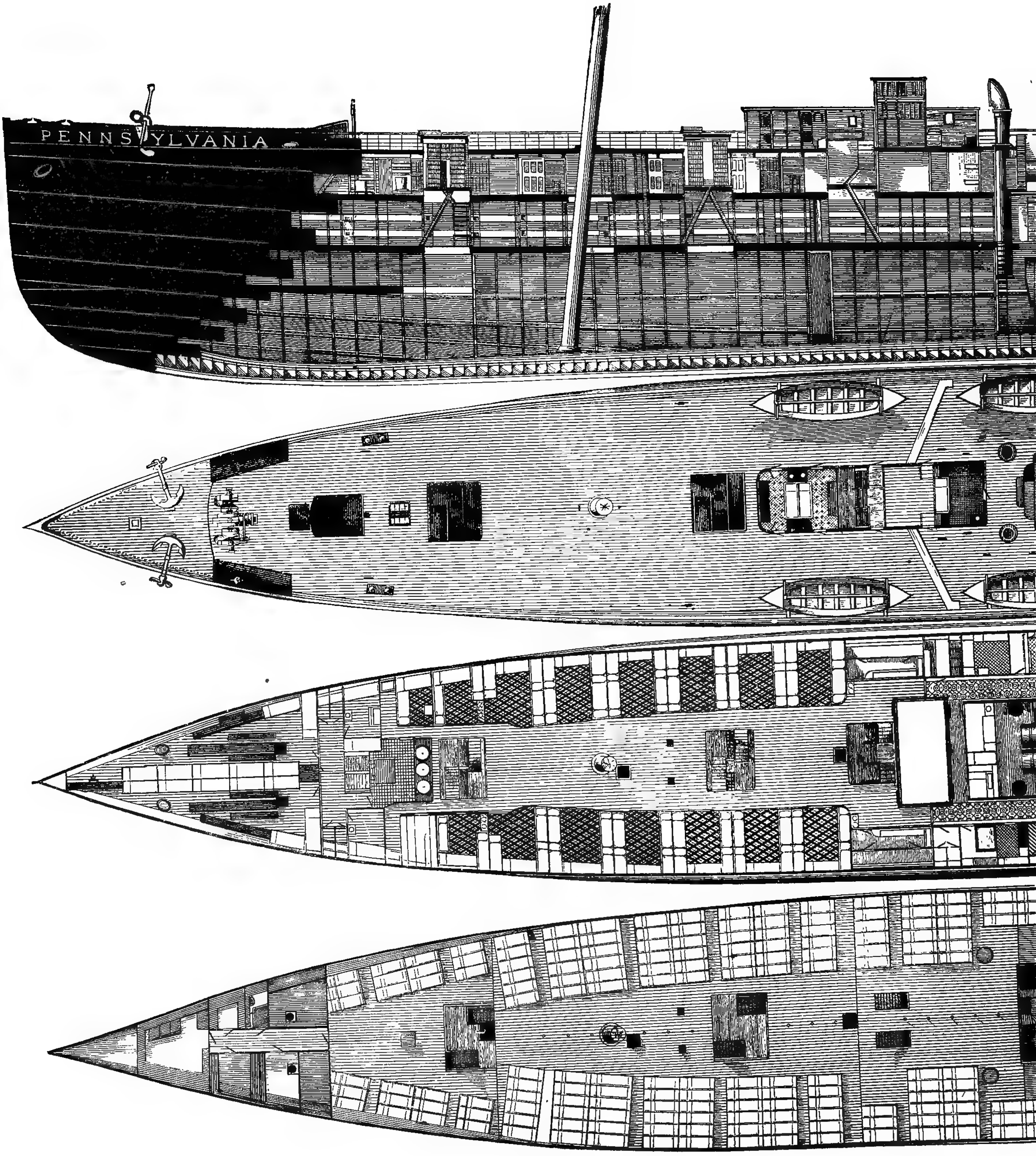
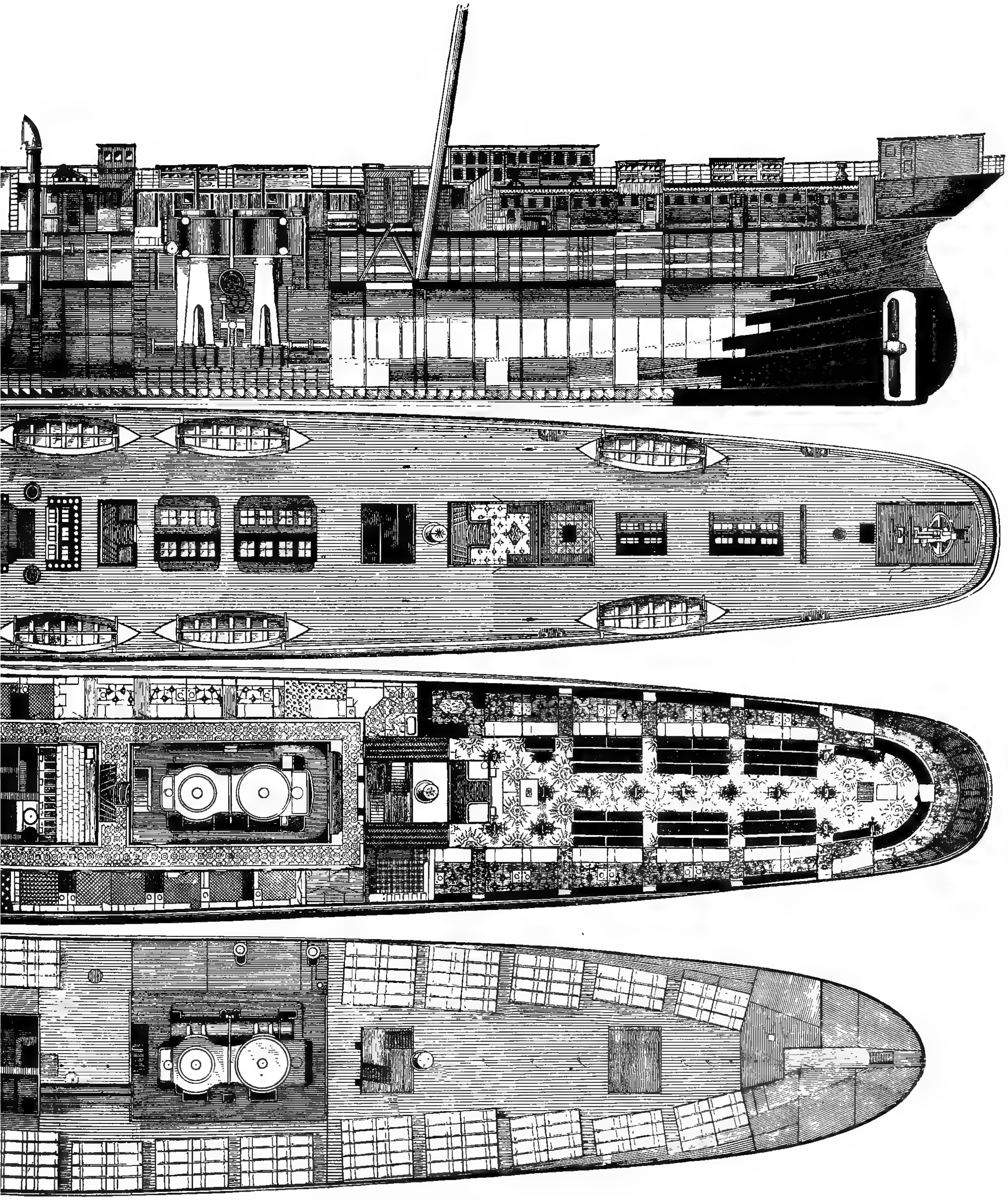


Fig. 66.—INTERIOR ARRANGEMENT AND PLANS OF THE DECKS OF THE ST



VANIA, OF THE AMERICAN LINE FROM PHILADELPHIA TO LIVERPOOL.

The only other man that ever built of iron in Buffalo (besides those now in the business) is believed to be George H. Notter, a tug- and canal-boat builder, who in 1875 constructed an iron steam yacht 100 feet long.

There are now two yards in the city, that of David Bell and the one belonging to the Union Dry Dock Company. Mr. Bell was originally a builder of boilers and engines, and machinery still constitutes the largest part of his yearly product. In 1861 he ventured to build the screw steamer Merchant, of 720 tons, 200 feet long, 29 feet beam, and 14 feet hold, and has since taken such contracts as could be secured for yachts, tugs, and small propellers. Three of his vessels, launched in 1871 and 1873, were the revenue-cutters Albert Gallatin, of 250 tons; Alexander Hamilton, of 250 tons; and G. S. Boutwell, of 198 tons—all propellers, and all afterward sent to stations on the Atlantic coast, where they have remained in service. Up to 1882, 26 iron vessels had been built at this yard, all steamers, and two yachts and a tug included in the number were being completed in the fall of 1881. Ten of the whole number were yachts, and some of these boats were plated with steel $\frac{3}{16}$, $\frac{1}{4}$, and $\frac{5}{16}$ inch thick, in order to lessen their weight, the cost of steel at Buffalo being only slightly in excess of iron. Mr. Bell has built of both wood and iron, and says that he has been able to construct tugs of the two materials which scarcely varied in cost. For instance, a wooden tug built in 1876, 70 feet long, 16 feet beam, and 8 feet hold, cost $12,500 to build and equip, whereas he was able to build one iron tug of 64 tons, 76 feet long, 16 feet beam, and 8 feet hold, at a cost of $13,000 only; and he believes that the development of the iron industry of the lakes will in time reduce the cost of materials for large vessels to a point where iron steamers can be built at so nearly the price of wooden ones as to supersede entirely the latter style of boats. He paid 4 cents a pound for angle-iron in 1875 and $2\frac{9}{10}$ cents in 1881; for plating he paid $3\frac{1}{2}$ cents in 1875 and $2\frac{7}{10}$ cents in 1881.

The tug on the stocks in the fall of 1881 was 90 feet long, 18 feet beam, and 10 feet deep in the hold, $11\frac{1}{2}$ feet molded, and was built with 37 tons of iron in the hull. Like all of his small boats, she has a bar-iron keel and stem $4\frac{1}{2}$ by $1\frac{1}{2}$ inches. The stern-post is 6 by 2 inches, tapered in the fan-tail to $1\frac{1}{2}$ inches. The frames are 3 by $2\frac{1}{2}$ by $\frac{3}{8}$ inch, spaced 18 inches; floor plates, $\frac{1}{4}$-inch iron. The deck beams are of white oak, 4 by 4 inches, the short ones near the boiler and engines being 3 by 4. The plating is all $\frac{3}{8}$-inch iron. Two iron bulkheads cross the boat of $\frac{3}{16}$-inch plate, stiffened with $2\frac{1}{2}$- by $2\frac{1}{2}$-inch angle-iron. The plank-sheer and bulwarks are of heavy white oak, while the deck and house are of white pine. There is only one boiler, 8 feet in diameter and 16 feet long, and one engine, with 24-inch cylinder and 26-inch stroke. Steam is used at high pressure, 120 pounds being allowed. An 8-foot screw wheel is fitted at the stern with 13 feet pitch, the shaft being of steel $6\frac{7}{8}$ inches in diameter. In model the tug was fuller than those used in Atlantic coast harbors, and cost complete about $19,000. In order to fit her for ice breaking in the harbor of Toledo the stem was not given the usual curvature, but, while perpendicular above the water, raked sharply below at an angle.

One of the new yachts was 106 feet long on deck, 17 feet beam, and 11 feet deep, frames spaced 18 inches, scantling light throughout, with white-pine beams resting on an iron shelf, wooden deck, and 4 transverse water-tight bulkheads.

The Union Dry Dock Company has long been a builder of wooden propellers of the largest class, but its managers in 1881 put into their large yard the plant for making iron vessels. The first boat, finished in 1882, was the propeller H. J. Jewett, a two-decker of 1,953 tons, 285 feet long over all, $265\frac{1}{2}$ feet on deck, $39\frac{8}{12}$ feet beam, and $25\frac{1}{2}$ feet hold, with houses on the upper deck. She was built of the ordinary lake model, and was given a double bottom, in order to carry water ballast when returning to the upper lakes light, and also in order to save the vessel from sinking in case she should strike a rock in making the Lime Kiln crossing above Detroit. Seven water-tight bulkheads were put in across the ship. She was furnished with two steel boilers and two compound engines of 1,000 horse-power, capable of driving her at a speed of 15 knots. Her carrying capacity is 2,400 tons. The iron plating of her bottom is $\frac{5}{8}$ and $\frac{9}{16}$ inch thick on her bottom, $\frac{1}{2}$ inch on the sides, and $\frac{6}{16}$ inch between decks. The frames are 3 by 4 inch angle-iron, spaced 21 inches; reverse bars, 3 by 3 inch. The floor plates are $\frac{7}{16}$ inch. The company has now on hand two iron vessels. The revenue-cutter Fessenden has been hauled out on the stocks, and an entirely new iron hull of substantially the same model is being constructed in place of the old wooden one. The boat is 188 feet long, 28 feet beam, and 12 feet hold. A new boiler will be put in, and the engine repaired. The other vessel is a new tug, 65 feet long, 15 feet beam, and 8 feet hold.

Cleveland is one of the most noted wooden-ship yard centers on the lakes; but here, as at Buffalo, attention has lately been turned strongly to the advantages of iron tonnage. The Globe iron works have been for many years making machinery and boilers for lake boats on a large scale, and in 1880 the owners prepared to extend their plant sufficiently to undertake the building of iron hulls. The main works are situated in the city, near the lake, close by Presley's dry-dock. Having bought a half interest in the dock, the company located a ship-yard in the western edge of the city and put in an outfit of shops, planers, punching machines, frame-bending apparatus, rolls, etc. In 1881 they raised the frames of their first vessel, a large lake propeller (Fig. 67). The ship was completed in the spring of 1882, and launched at the opening of navigation. The following are points of interest in her construction:

The vessel: screw propeller, $302\frac{1}{2}$ feet long on the spar deck, 288 feet between perpendiculars, 39 feet beam, 25 feet from spar deck to base line, with double bottom for water ballast. Fall home of the topsides at plank-sheer, 8 inches. Weight of vessel with all on board, 950 tons; cargo on 14 feet draught, 2,770 tons; coefficient of displacement, 80 per cent.

*Keel.*—Flat plate, 2 feet wide, $\frac{11}{16}$ inch thick.

*Frames.*—Angle-iron on the floor, 3 by 3½ by $\frac{6}{16}$ inches, weighing about 8 pounds to the foot; top timbers from the bilge upward, 3 by 4 by $\frac{6}{16}$, weighing about 9 pounds to the foot. Reverse angles, 3 by 3 by ⅜ inches. Floor plates of $\frac{5}{16}$ iron, 16 inches deep on the keel, 14 inches at the lower turn of the bilge, increasing to 20 inches in the molding near the upper turn of the bilge; the floor plate ends at a point 40 inches above the base line of the keel. Partial bulkhead plates are carried on a certain number of top timbers, 23 inches wide at the foot, 12 inches wide at the upper deck, and $\frac{7}{16}$ inch thick, with reverse angle riveted to the outer edge of the plate. The deck of the double bottom is stiffened by single 3 by 3½ inch angle-iron floor frames, which are connected to the top timbers and reverse angle-irons of the partial bulkhead by curved angle-iron futtocks.

*Keelsons.*—One main keelson of $\frac{10}{16}$-inch iron, 3¾ feet high, continuous fore and aft, cutting through all floor plates, riveted to the latter with 3 by 4 by $\frac{6}{16}$ angle-iron clips, and stayed to them on each side by channel-iron struts, riveted to the floor plate and the vertical clip. The foot of the main keelson is fastened to the keel and gutter plate by angle-irons 4 by 4 by $\frac{7}{16}$ inches; the upper edge is stiffened by reverse angle-irons 3 by 4 inches, riveted on each side, flat flanges uppermost. There are three side keelsons on each side of the main keelson, spaced 4½ feet apart, and corresponding in height to the main keelson. They support the deck of the double bottom, and allow of a crown of about 3 inches in the double bottom. Side keelsons of $\frac{6}{16}$-inch plate, fitted intercostally riveted to a vertical angle-iron 3 by 3 inches at each floor plate, the angle-iron reaching to the top of the keelson, and also to a continuous horizontal angle-iron, same size, which is laid upon and fastened to the top edges of the floor plates. One angle-iron, 3 by 3 inches, along the upper edges of the side keelsons.

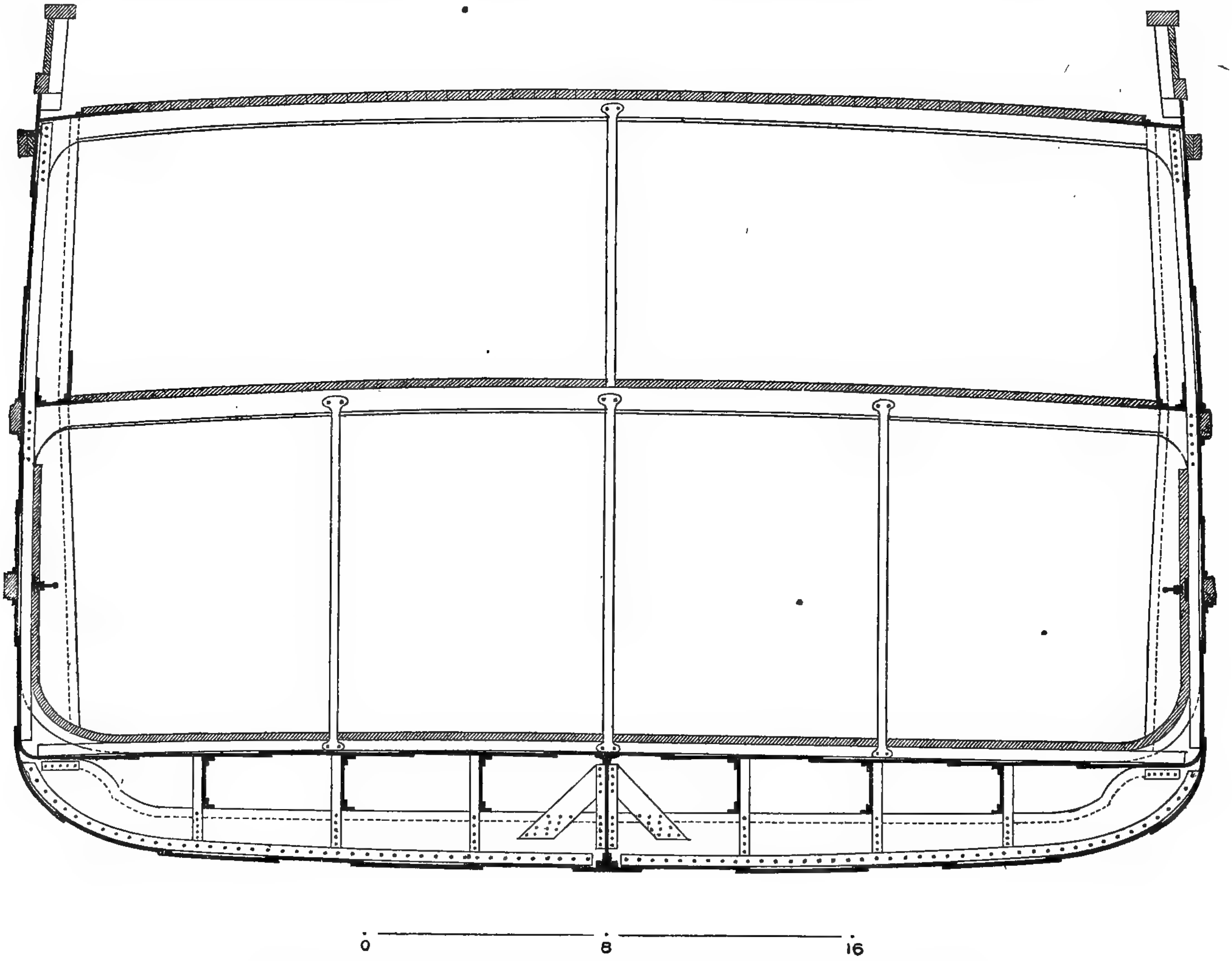


Fig. 67.—MIDSHIP SECTION OF AN IRON PROPELLER, NORTHERN LAKES.

Built by the Globe iron works at Cleveland, Ohio, in 1881-'82. Length over all, 302½ feet; breadth, 39 feet; molded depth, 25 feet; displacement on 14 feet draught, 3,714 tons.

*The double bottom*, or water-ballast deck, extends from the collision bulkhead to the engine bulkhead, with a capacity for 700 tons of water. It is divided into 6 compartments by transverse bulkheads. The deck of this bottom is of ¼-inch iron plates, 4½ feet wide, laid in fore-and-aft streaks, the center of each streak laid on one of the keelsons, and the edges riveted and water-tight. The edges of the plates next the sides of the vessel cut through the frames, curl upward, and lap 6 inches between the edges of two streaks of outer plating, the rivets of that seam going through the three thicknesses of plate. By this device and the angle-iron futtocks within the double bottom is firmly united to the rest of the ship. Angle-iron floor frames are laid across this deck of the double bottom, and upon them is laid a floor of 1-inch white pine, and on that a floor of 2-inch oak plank, breaking joints with the pine. The lower hold is ceiled on the sides also in this manner.

*Plating*—Out and in; $\frac{9}{16}$ of an inch from keel to the lower deck; then ½ inch; sheer streak, ⅝ inch, rising one foot above the upper deck beams.

*Beams.*—Lower deck, bulb **T**-iron, 10 inches deep, with angle-irons 3½ by 6 forming the flanges. Upper deck, bulb **T**-iron, 8 inches deep. Stanchions to lower deck, 3¼ inches in diameter; upper deck, 2¾ inches.

*Stringers.*—Hold stringer on frames half-way between bilge and deck beams, bulb T-iron, 10 inches deep, with angle-irons 3½ by 6 for the upper flanges. Flat stringer plate on ends of lower deck beams, 18 inches wide, $\frac{7}{16}$ inch thick; vertical plate 12 inches wide, ⅝ thick on frames, the two plates united with 3 by 3 iron in the angle. Broad stringer plate of ⅝-inch iron on the upper deck beam ends. Tie plates on lower deck beams, $\frac{7}{16}$ by 12 inches.

*Decking.*—White pine, 4 by 6 inches on the lower deck, 3½ by 6 on the upper.

*Fenders.*—Three in number, one at the 9-foot water line, oak, 5 by 8 inches square, held between 3- by 3-inch angle-irons, one opposite the lower deck, oak, 5 by 8 inches, held between 3- by 4-inch angle-irons, and one, 8 by 10 inches, at the upper deck, fastened to the sheer streak.

*Boilers.*—Two, 8⅔ feet in diameter, 18 feet long, tested to carry 100 pounds of steam.

*Engines.*—Compound, with 30- and 56-inch cylinders and 4 feet stroke, acting on cranks at right angles to each other, placed away aft. Two double hoisting engines on the spar deck to handle freight. Duplex steam-pump for water ballast, double-cylinder steam steering apparatus, and steam windlass.

*Miscellaneous.*—Transverse bulkheads, iron coal bunkers, iron house on deck over the boilers. A wooden cabin aft for crew, and another cabin in the bow for the captain and mates, with pilot-house above. Three masts.

From 150 to 175 tons weight are added to the vessel by the double bottom.

In Chicago there has never been much of anything done in the way of iron-ship building, or, indeed, in any other branch of the general industry, except repairing. In 1881, however, an iron tug was constructed at the yard of the Dredging and Dock Company, the first in the city. A Norwegian who had had some experience in iron-ship yards in his own country was employed to superintend, and a few mechanics were brought from Norway to do the work. The boat was 77 feet long on the keel, 88 feet over all, 18 feet beam, and 11 feet deep, and the model was that of the ordinary keel tug-boat. The ship-yard plant was very simple, and comprised only a rough shed, a furnace or two, a steam-engine, a frame-bending plate, and a few drills. The lack of a punching machine was supplied by hand-work and a steam reamer and drill. This handy tool, not yet generally used in American yards, was worked by a light wire rope running out from the shed, and was taken from place to place in the tug wherever rivet holes had to be bored and countersunk. The tug cost complete about $22,000. While the dredging company built the boat for its own use, the intention is to develop a business in iron-vessel building when the times warrant an effort in that direction.

The principal iron-ship yard of the lakes is at Wyandotte, Michigan, a short distance below Detroit. This yard was established in 1870 by Frank E. Kirby, C. E., formerly of the Allaire works, in New York city, for Captain E. B. Ward, who had been making Bessemer steel at Wyandotte ten or twelve years before, and who had on hand a lot of the old steel ingots when the yard was started. Three vessels were built, and the business was then interrupted by the panic of 1873. In 1877 the yard passed into the ownership of the Detroit Dry Dock Company, and it has ever since been actively engaged in the production of iron tonnage under Mr. Kirby's superintendency, 13 vessels having been built down to 1882, all steamers. The following is a list of the boats built:

1871. Propeller E. B. Ward, jr., iron, of 388 tons, 150 feet long, 26 feet beam, and 14 feet deep; now owned at New Orleans and employed for towing.

1873. Tug Sport, steel, of 45 tons, 65 feet long, 14 feet beam, 9½ feet deep, molded; worth $10,000, and owned at Grand Haven, Michigan.

1873. Side-wheel steamboat Queen of the Lakes, iron, now owned on some inland lake.

1878. Side-wheel steamer City of Detroit, composite, of 1,094 tons and 600 nominal horse-power, 240 feet long, 36 feet beam, 14 feet deep-molded; worth $145,000, and owned at Detroit.

1879. Side-wheeler Idlewild, iron, of 312 tons, 140 feet long, 26 feet beam, 10 feet deep, molded; worth $40,000.

1880. Propeller City of Cleveland, iron, of 1,221 tons and 1,800 horse-power, 225 feet long, 32 feet beam, 14 feet deep, molded; worth $155,000, owned in Detroit.

1880. Side-wheel car-ferry Transport, iron, of 1,595 tons and 2,000 nominal horse-power, 265 feet long, 46 feet beam, 79 feet wide over all 17 feet deep, molded, with three railroad tracks on deck. About 120 feet of the boat amidships had a straight body. Boat worth $180,000. Experience with a previous wooden transfer boat, 280 feet long, that cost $230,000, led the Michigan Central Railroad Company to decide in favor of iron for future boats. The Transport was plated with ¾-inch iron all over.

1880. Propeller Boston, iron, of 1,829 tons and 750 nominal horse-power, 280 feet long over all, 265 feet long molded, 36 feet beam, and 17 feet deep, molded; worth $170,000.

1880. Propeller Lehigh, of the Anchor Line, iron, of 1,704 tons, 255 feet long over all, 36 feet beam, 17 feet deep, molded; worth $155,000.

1880. Propeller Brunswick, iron, of 1,120 tons, 5 feet shorter than the Lehigh.

1881. Propeller Clarion, iron, of 1,712 tons, 255 feet long over all, 36 feet beam, 17 feet deep, molded; worth $155,000.

1881. Propeller City of Milwaukee, iron, of 1,148 tons; worth $150,000.

1881–'82. Propellers Michigan and Wisconsin, iron, with double bottoms 3 feet deep (the first of their class at this yard), 230 feet long over all, 34 feet beam, and 14 feet deep, molded, and housed on the upper deck the whole length of the vessel.

A representative laker is the Boston, a fine steamer, carrying 83,000 bushels of wheat or about 2,600 tons of cargo on 15 feet draught of water at a speed of 12 miles per hour. The principal data of her scantling are:

*Keel.*—Flat plate, 33 inches wide, ¾ inch thick for 200 feet amidships, tapering to ½ inch at the ends.

*Stem.*—Hammered scrap iron in one length, size at top 2½ by 6 inches, increasing to 2½ by 8 at the load water-line, and tapering thence away to 2½ by 4.

*Frames.*—Angle-iron 3 by 4 inches, 9 pounds to the foot, spaced 20 inches. Reverse angles 3 by 3, 8 pounds to the foot, lapping on the floor plates 3 inches and on the frame angle-irons 2½ inches, going on alternate frames to the top height and to the lower deck. A doubling piece of 3 by 3 inch angle, 8 pounds to the foot, on the top edge of the floor plates opposite the reverse angle-irons, going through a score in the keelson plate, and riveted through the floor plate and reverse angle-iron.

*Center keelson.*—Vertical plate, 21 inches deep over the keel, ½ inch thick.

*Floor plates.*—Molded at the thwart 21 inches, at the ends 13 inches, $\frac{1}{2}$ inch thick amidships, $\frac{7}{16}$ inch at the ends of the vessel, connected to the keelson plate by 3 by 3 inch angle-iron.

*Main keelson.*—Vertical plate, 10 inches deep, $\frac{1}{2}$ inch thick, connected to a 26 by $\frac{9}{16}$ inch gutter plate by double angle-irons $3\frac{1}{2}$ by $3\frac{1}{2}$ inch, 10 pounds to the foot, with 3 by 3 inch double angle-irons on the top edge.

*Sister keelsons.*—Intercostal of $\frac{5}{16}$-inch plates, connected to the floors, and with double angle-irons $3\frac{1}{2}$ by 6 inches, 12 pounds, on the floors the entire length of the vessel.

*Bilge keelsons.*—Double angle-irons $3\frac{1}{8}$ by 6 inches, 12 pounds, placed back to back.

*Beams.*—T-bulb iron 9 inches deep, 25 pounds to the foot, on alternate frames; hold beams, channel iron, 8 inches deep, 25 pounds.

*Stringers.*—Main deck 48 inches wide, $\frac{9}{16}$ inch thick, tapered in width and thickness toward the ends. Hold 16 inches wide, $\frac{9}{16}$ inch thick amidships. Ties on main deck 12 by $\frac{5}{8}$ inches amidships, with plate of the same athwartships on each side of the hatches.

*Plating.*—Worked in fair lines, in and out strakes, garboards $\frac{3}{4}$ inch; bottom, the same; bilge plates, $\frac{5}{8}$ inch; sides of the vessel, $\frac{1}{2}$ inch; sheer streak, $\frac{9}{16}$, then $\frac{8}{16}$, at the ends $\frac{1}{2}$ inch; width amidships, 54 inches, worked 12 inches above the beams of the deck. Butts and laps double riveted; sheer streak amidships triple rivets.

*Bulkheads.*—Five in number, of $\frac{3}{8}$-inch iron below the 14-foot water-line, $\frac{5}{16}$ inch above, stayed vertically on one side by 3 by 4 inch 8 pound angle-iron, spaced 3 feet, and horizontally on the other side by angle-irons every 5 feet. Coal-bunkers of 5 pound plate, stiffened with T-iron.

*Wood work.*—The main deck is housed by means of 5 by 6 inch oak stanchions fastened to the sheer streak, set 30 inches from center to center, and passing through a white-oak main rail 5 by 16 inches. Pine carlines are thrown across, the sides are boarded up with white pine, and the top or spar-deck is planked with $2\frac{1}{4}$ inch decking. Main-deck plank, white pine, $3\frac{7}{8}$ inches thick; hatch coamings, white oak Three white-oak fenders on each side of the vessel. Flooring of hold, two thicknesses of 1-inch pine boards, the bilge covered with 2-inch pine and the sides of the hold with 1-inch pine. One pine mast forward.

On the whole, it can be reported that the building of iron and steel vessels has made sufficient progress in the United States to have created the plant and trained the labor for producing sailing and steam craft for the merchant service of every description and of any size. No facilities exist for rolling and shaping armor-plates of the great thickness now required for iron-clads, but the merchant service is well provided for, and the industry is growing in spite of the high cost of American labor and materials. New yards are continually coming into existence, the general development of American industry is reducing the cost of materials, and the use of machinery is reducing the expenditures for labor upon vessels. The competition in rival yards is lessening the margin of profit for which their proprietors are willing to build, and the tendency is all in the direction of favoring the substitution of iron or steel tonnage in place of wooden. The total quantity of iron yearly consumed by the industry is not large, and should Congress provide the way for placing the American builder on a par with the European builder so far as the cost of iron and steel is concerned it seems probable that the tendency toward the more modern class of tonnage would be greatly accelerated. This industry is a valuable one, nationally, in many important particulars. It robs the country of none of its resources. The exportation of grain, cotton, and tobacco is the shipping away of so many thousand tons of the best constituents of American soil, and the construction of wooden tonnage destroys the forests. There are other industries which effect changes for the benefit of this generation for which future generations will have to pay. Iron-ship building appears to inflict no injury so far as consumption of materials is concerned, and it is a department of activity which employs a greater proportion of human labor to the value of material used than almost any other which can be named.

# Chapter VI.—CANAL-BOATS.

Government classification of merchant tonnage is determined by the motive power of the vessels. There are three classes in all—sailing, steam, and unrigged vessels. The latter forms a large and important element in all statistical reports as well as in the ship-building industry, and includes canal-boats, flat-boats, and river barges. The total register capacity of the present fleet of these vessels is larger than is commonly known (because barges and canal-boats are exempt from registration now), and the following is an approximate statement for the year 1880:

| Class of vessel. | No. owned in the United States. | Register tonnage. | Value. |
|---|---|---|---|
| Steam | 5, 139 | 1, 221, 207 | $80, 192, 495 |
| Sail | 16, 820 | 2, 366, 133 | 59, 152, 950 |
| Unrigged | 16, 697 | 2, 899, 970 | 16, 439, 264 |

It has been convenient to speak of barges and flat-boats in connection with river steamboats, and it only remains to speak of canal-boats, which comprise about one-half of the whole unrigged tonnage. Owing to the rapid growth of railroads the canal system of the country has been somewhat overshadowed in late years. In New England the canals have been superseded, and in one or two cases have been used as the bed of the railroads that took their place. In the middle states a few small and a few branch canals have been given up. However, many important routes still remain in existence in New York, Pennsylvania, New Jersey, Ohio, Illinois, Maryland, and Virginia; some have been enlarged and supplied with a new and superior class of boats, and their resources have been thoroughly utilized. The cheapness of transportation has rendered them valuable to the commercial world, and there has been a great deal of legislation looking toward their preservation, maintenance, and extension.

The population supported by the barges of the United States is not known, but those that live by canal-boat navigation now number about 40,000. Counting those who attend to the locks and keep the canals in order, the number is about 60,000, which is equal to that of the persons engaged in the coasting trade of the United States. The boats numbered 8,771 in 1880, having a register capacity of 1,253,688 tons, and being worth $8,273,255.

## NEW YORK STATE CANALS.

The Delaware and Hudson canal, belonging to a company of that name, extends 108 miles from Honesdale, Pennsylvania, to Rondout, New York, on the Hudson river, coming down to the river via Esopus creek, and averages 48 feet wide at the top and 32 feet on the bottom, with 6 feet of water. In 1870 there were 879 boats on this canal, all employed in the transportation of coal from the mines to the river. About a million tons are moved yearly. Coming down from the mines, the boats lie alongside of a wharf in the middle of the creek at Rondout, where the coal is taken out by steam-hoisting apparatus and dumped in immense mounds on the wharf. There are 45 derricks for hoisting coal on the wharf, all operated by one line of shafting, which supplies the power. More than 240 boats are often lying at or near this wharf at one time. The boats all rendezvous at Rondout. There are eight yards at Rondout devoted to canal work, having among them one dry-dock and nine sets of canal railways of four rails each for taking boats out of water. The company has its own yard here, at which it both builds and repairs, and in the census year 42 boats were constructed. The other yards do not often make canal-boats, but prefer to contract for the various classes of barges used in freighting on the Hudson river and Long Island sound, such as coal-barges, ice-barges, boats for cement and brick, and tugs. The barges are either scows or double-end framed boats from 90 to 130 feet in length and 26 to 34 feet on the beam, and the ice-boats have deck-houses the entire length. When not engaged in building the private yards in Rondout are busy repairing; in fact, this latter occupation forms the bulk of their business. New boats are built at the company's yard and at private yards in the country, chiefly at Ellenville, Phillipsport, Port Benjamin, and Alligerville, New York, and Honesdale and Hawley, Pennsylvania. In ordinary years there are from 50 to 70 boats built at these country yards.

The Delaware and Hudson model is what would be called sharp at both ends, and though rather full, it is sharp for a canal-boat. The floor is flat clear fore and aft. There is a deck in the bow and one in the stern of the boat, with a little cabin, 6 feet fore and aft, in the stern. The body of the boat is not decked, but is covered, when necessary, with hatches. The details of construction are prescribed by the company. The boats are 91 feet long from face of stem to outside of stern, $14\frac{1}{6}$ feet beam, and 6 feet deep; sheer, 15 inches forward, 8 inches aft. The scantling is as follows:

*Bilge log.*—Hard wood, 10 by 10 inches, with 4½ foot scarf, bolted with ⅝-inch screw bolts. Under the stem- and stern-posts the logs are connected with a strong knee.

*Keel.*—None; only a heavy garboard.

*Floor timbers.*—Hard wood, 4 by 5 inches square, spaced 18 inches, let into the bilge log 4 inches. Side timbers white oak, 4 by 5 inches, let into the bilge log 4 inches, spaced 18 inches, but set in the center of the floor-frame spaces; spaced 13 inches in the bow and 15 inches in the stern; side timbers straight.

*Keelson.*—Oak or yellow pine, 7 by 10 inches square, bolted with ⅝-inch iron.

*Stem- and stern-posts.*—White oak 8 by 16 and 13 inches, each with a knee on the keelson, and each with 3-inch knight-heads. The stem rises 10 inches above deck.

*Clamps.*—Oak, white pine, or yellow pine, 3 by 14 inches, in long lengths, three spikes and one ⅝-inch bolt riveted on a ring in each timber.

*Braces.*—Main, oak or pine, 4 by 12 inches, 32 feet long, butting under the midship beam under the clamps, the lower ends resting on the bilge log fore and aft; reverse braces, oak or yellow pine, 4 by 9 inches, two each of the following lengths, 18, 17, 15, 12, and 9 feet, and a brace 5 by 7 inches and 12 feet long, to fit the stem and upper breast-hook, heeling on the keelson.

*Beams.*—Eight of them white oak, 5 by 8 inches; forward beam, 7 feet from stem; forward cabin beam, 11 feet from stem-post; after-cabin beam, 6 feet from stern-post, the other five beams equally spaced amidships; hanging knees sided 5 inches; carlines of oak 3 by 8 inches.

*Decks.*—Two-inch white pine.

*Plank-sheer.*—Oak or yellow pine, 2 by 11 inches

*Ceiling of floor.*—Two-inch hemlock.

*Planking.*—Bottom, 2-inch hard wood, with 4½- by $\frac{5}{16}$-inch spikes in each timber; sides, 2-inch oak or yellow pine, 7 inches wide, increasing to 2½ and 3 inches in thickness on the walls.

*Breast-hooks.*—Oak, sided 6 inches, with braces, two forward, two aft.

Narrow wash-board deck along the gunwales, with white-oak coaming 4 by 9 inches square, and a high coaming of oak or yellow pine bolted on top of that 3 by 8 inches. Hatches made of 1-inch white pine.

*Bitts.*—Oak windlass bitts forward, and three oak timber heads, 5 by 10 inches, on each side of the boat, fastened to the sides with ⅝-inch bolts.

*Railings.*—Aft, oak, 3 by 4 inches, placed edgewise, and resting on 2- by 3-inch chocks, 8 inches long; forward, 14 feet long, 2 by 3 at bow, 2 by 2 at after end, bent round to the curve of the bow and bolted.

*Rudder.*—Stock, oak, 8 by 12 inches, with 5 iron bands; blade, 6½ feet long, 5 feet wide, 2 inches thick, with batten 2 inches thick and 8 inches wide from after upper corner to heel of stock; batten a foot wide on inboard end; blade cut so as to allow 10 inches drop to rudder.

*Guards at stern.*—White oak, 5 inches thick, 20 inches wide at stern-post near plank-sheer, supported with 6 knees or chocks, strongly bolted around the curve of the stern with ⅝-inch iron; stern plank, 6 feet long, 5 by 10 inches, to be let into stern-post and run over and fastened to guard; bumper, 8 by 14 inch oak, to butt the stern plank and guard, strongly bolted; a bar of iron, 4 inches wide, to extend around the guard and bumper, 5 feet each side, and to be continued around to the sides of the boat, with bars 2½ inches wide.

*Fenders.*—Forward, four on each side, oak, 3 by 4 inches, 14 feet long, bent around the curve of the bow and fastened through the planking into the timbers by 7-inch spikes; irons, 2½ inches wide, ½ inch thick on the fenders, and 14 feet long, fastened with spikes with countersunk heads.

*Bilge irons.*—Three on each side, both forward and aft, 3 inches by ½ inch, not less than 14 feet long, fastened with spikes with countersunk heads.

*Stem iron.*—Four inches wide, ¾ inch thick, extending from the after side of the stem at the head over the head and down the fore side of the stem, and under the bottom of the boat 2 feet, fastened with 6-inch round spikes, with countersunk heads, 8 inches apart.

*Cabin.*—White pine, with berths under the stern deck, and roofed with 2-inch white-pine decking.

*Paint.*—Two coats on the top sides, and over beams, decks, cabins, coamings, etc. Below water, graved with hot tar.

It requires about 21,000 feet of timber to build a boat, viz: 10,500 feet of oak or yellow pine, 5,800 feet of hard wood, 3,200 feet of hemlock, and 1,600 feet of white pine; also 3,800 pounds of iron, 100 pounds of oakum, and 2¼ barrels of pitch and tar. Each boat carries 130 tons of coal. The cost of one in 1880 was about $1,200. The company encourages the building of boats by accepting those built at private yards, assigning them to boatmen at a rating of $1,500 apiece and then employing them on the canal. About $20 is deducted from the freight money earned on each trip; from the remainder the boatman pays interest, running expenses, and living. He can pay for his boat in about six years, meanwhile having earned his support, and then has a boat which is good for from four to six years longer as his own property. A good feeling exists between the men and the company. Both parties make money, and between them they maintain a building and repairing industry which is of considerable local value. In all there are about 25 yards on the canal, producing yearly about 50 or 60 boats and doing about $100,000 of repair work. In 1880 the company had $540,000 invested in boats and barges, ten of the latter carrying 560 tons each.

In the northern part of the state of New York the yards build boats suitable only for the Erie canal, save those on the Black River canal, which is one of the branches of the Erie, and is the one of least capacity. The Erie canal is 365½ miles in length, extending from Albany, on the Hudson river, to Buffalo, on lake Erie. The average prism is 70 feet wide across the top and 52½ feet across the bottom, with 7 feet depth of water, allowing a draught of 6 feet for loaded boats. The locks are 110 feet long and 18 feet wide. The canal, completed in October, 1825, and opened for business in 1826, now gives employment to 4,350 canal-boats, 18,000 horses and mules, and about 20,000 men. The speed of the boats is limited to 4 miles per hour, but with horses moving at a walk, and with the detentions at the numerous locks of the canal, boatmen think they do well if they average 2 miles. The large boats each carry from 7,600 to 7,800 bushels of wheat, or 240 tons of coal, on one trip, or from 160,000 to 170,000 feet of lumber. To the length of the main line of the Erie canal must be added the 155 miles of Hudson River navigation to New York city and the length of the branches of the Erie which still remain in use. Some of these branches have been abandoned within the last five years as being of small capacity and having a commerce insufficient to warrant the expense of maintaining them; but there are still in operation the Champlain canal, connecting Albany with lake Champlain, 66 miles long; the Black River branch from the Erie at Rome, 78 miles long; the Cayuga and Seneca canal, 25 miles; the Oswego canal, 38 miles; the Oneida River improvement, 20 miles; also a part of the Chemung canal, 23 miles, although officially abandoned. There are several lakes in central New York, each about 40 miles long, which are navigated by canal-boats, and are virtually branches of the canal, namely, Oneida, Cayuga, and Seneca. The total of canal navigation of the Erie system thus amounts to about 860 miles. Before the war there were navigating these waters from 2,200 to 3,500 horse-boats, the number fluctuating with the activity of trade, the clearances varying from 80,000 to 104,000 a year. New boats were built in different years as follows:

| | Tons. |
|---|---|
| 1844 | 378 |
| 1846 | 477 |
| 1847 | 1,466 |
| 1848 | 457 |
| 1849 | 215 |
| 1850 | 152 |
| 1851 | 213 |
| 1853 | 590 |
| 1854 | 760 |
| 1858 | 255 |

During and since the war trade between the West and the East has grown enormously in volume, owing to the large exportation of grain and provisions which has been developed, and in consequence all the transportation lines from the West to the sea-coast have been crowded with traffic and the business of the Erie canal has about doubled. The number of boats built yearly is about 600. Owing to the large size of the modern boats the number of clearances is not so large as formerly, although the traffic has doubled. In 1880 the clearances were about 70,000.

The Black River canal was originally little more than a feeder upon which the Erie depended for a supply of water; but of late years the lumbermen, who are busily at work in the outskirts of the Adirondack region cutting spruce, hemlock, and hard wood, have found this branch a valuable route for getting their product down to market, and it has grown in importance. Every year during the warm months large rafts of lumber in the log are towed down by teams of horses, and some of the stuff is shipped by boat. The boats are small, bluff-bowed, carrying 90 tons each on 4 feet of water, and cost about $1,100 each. Not more than 10 or 15 are made yearly. There is no oak or white pine of any consequence in the region, and what is used of that kind of timber comes by way of the Erie canal from the West. Builders use the native lumber, hemlock and hard wood, as much as possible. Hemlock costs no more than $7 and $8 per thousand feet; spruce, $9 or $10, sawed.

In the lake Champlain region a large tonnage of canal-boats is employed in the business of the lake, and the principal freighting is done in carriers of that class. Iron ore comes down from Port Henry and lumber from the Canadian markets, both going to Troy, Albany, New York, and other points along the Hudson river and westward on the Erie canal. Steam tugs bring the boats down the lake, and they are then sent through the canal to the Hudson river by teams of mules and horses and forwarded on down the river in fleets drawn by tugs and side-wheel tow-boats. June 1, 1880, the following tonnage was enrolled and licensed in the district, every boat liable to trade to Canada being documented:

| | No. | Tonnage. |
|---|---|---|
| Canal-boats | 510 | 40,175 |
| Schooners | 27 | 1,730 |
| Wooden steamboats and tugs | 10 | 912 |
| Iron steamboats and tugs | 2 | 137 |
| Barges | 5 | 353 |
| Total | 554 | 43,307 |

The building points are Fort Ann, Ticonderoga, Whitehall, Essex, Crown Point, and Champlain, and there is one yard at each place, about 90 men being employed in all. The yearly product is about 90 boats, worth from $2,500 to $3,000 each, and registering from 110 to 125 tons. They are of the regular Erie canal pattern. At the Ticonderoga yard the owners build for themselves. In 1880 they had from $50,000 to $75,000 invested in canal-boats. They were preparing to put about $30,000 more into 15 new boats in 1881. Their craft are each 98 feet long, 17¼ feet wide on the floor, 17⅝ feet on the beam, and 8 feet deep, decked, and carry 150 tons on 4 feet and 250 tons on 6 feet draught.

On the Oswego Branch canal, running from the Erie canal to lake Ontario at Oswego, there are 10 yards, employing about 60 men, building a few boats every year, and doing a good business in repairing. These boats are of the largest sizes, and the harbor at Oswego is always full of them. They take part in the grain, the coal, and the lumber trade, and a large number of them, being engaged in the foreign trade, are enrolled and licensed at the Oswego custom-house. The fee for measurement is about $12 per boat.

On the Erie canal proper there are 80 yards scattered along all the way from Albany to Buffalo, employing an average of about 1,200 men for ten months in the year and producing from 300 to 400 boats yearly, while also enjoying a large business in repairing the 4,350 boats owned on the canal and its branches. In the early years from 1825 to 1860 timber was abundant in all the counties through which the route ran, and building and repairing were both well diffused along the course of the canal; but the land has now been cleared off and brought under a high state of cultivation, oak, pine, and hard wood are scarce and dear in many counties, and the result is, that while all the yards do a certain amount of repairing business the building of new boats is tending to concentrate in Rochester, Lockport, Tonawanda, and Buffalo, where timber can be obtained from the West at relatively lower prices than on the eastern portions of the canal.

The little old-time shapely boats with good bows, carrying 30 tons of cargo on about 3 feet draught of water and moving along briskly in tow of two or three horses, are now no longer seen on the Erie canal. The smallest of the horse-boats are the few that come down from the Black River branch, or those which occasionally stray up into this part of the state from Rondout, each carrying from 90 to 130 tons of freight; but where there is one of these boats there are a hundred of the class belonging to the Erie canal proper, large, heavy, almost box-shaped craft, bearing from 200 to 250 tons of goods on 6 feet of water and moving slowly along in tow of two horses. One of the old fashions was to build canal-boats with square, raking ends, and it was only abandoned in 1855 upon the peremptory command of the state authorities, issued to prevent them from injuring each other with their sharp corners. A regulation was adopted in May of that year forbidding any new boat to navigate the canals of the state unless it should have a round or elliptical bow, described with a radius of not less than 8⅔ feet. In order to give a boat all the capacity the law will allow, builders sweep in the curve of the bow with just about that radius, cutting off the sterns abruptly, so that the cubical contents come within 10 per cent. of that of a perfectly square box. It is only since steam has been introduced into canal-boats that bows and sterns have been given a better shape, but the sharper form is still confined to steam craft entirely.

A good canal-boat (Fig. 68) ought to last fifteen years, but it must be taken care of; the majority disappear in about ten years. On the other hand, there are plenty of boats running that are from twenty to thirty-four years old, well built of choice materials in the first place, and well taken care of by their owners since.

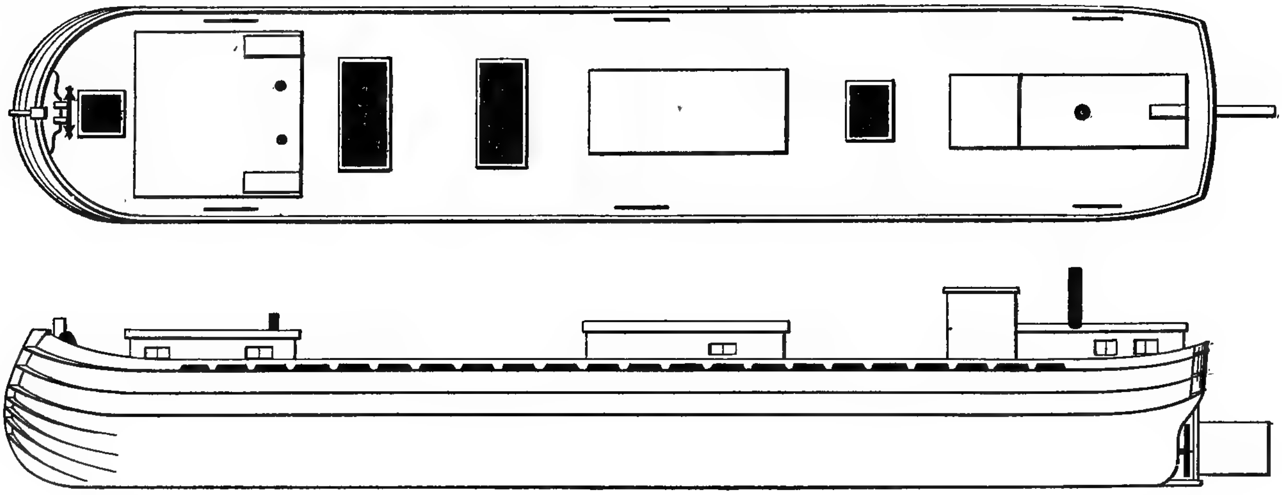


Fig. 68.—Steam canal-boat, Erie canal.

98 feet long, 17⅔ feet wide, and 10 feet deep. The hull is that of a laker, and represents the general style of the decked boats of the Erie canal.

A great many different varieties of boats are run on the Erie canal, all of them being specimens of four principal types, namely, the scow, the laker, the bull-head, and the steam canal-boat.

The scow is a straight, open boat, sometimes framed, but usually with solid sides, built up of white-pine logs 5 inches thick and from 12 to 14 inches wide, scarfed, closely fitted together and fastened by long iron rods or bolts ½, ¾, or 1 inch in diameter, spaced from 16 to 19 inches, according to the fancy of the builder, driven clear through from the topmost "gunwale" to the bottom of the bilge log. The sides are made on wooden horses and fastened, and are then raised to a perpendicular position with a derrick, and the sheer is given by a log properly trimmed. The floor is made by placing single frame timbers across the boat 4 by 6 inches square, spaced about 12 inches, perfectly straight, letting the ends into the bilge log, and planking the bottom with oak or hard wood. About six stout oak beams are fitted in at equal distances apart to strengthen the top of the boat. A short, round, smooth bow is put on by setting up 4-inch frame timbers, molded to the proper curvature, and planking them horizontally from side to side. Four iron bands or straps are spiked upon the fore foot, connecting the bow with the bottom. The stern is short, round, and regularly framed. There are usually a small deck forward, a narrow wash-board along the gunwales, and a small cabin with steering deck aft. Windlass bitts are fitted into the extreme bow, and a small house is built there for the stable, a necessary feature of a horse canal-boat; for while one team of horses is towing the boat, another team must be quartered on board feeding and resting. Three light strips of iron are fastened to each side above water for fenders. Scows are now 98 feet long over all, 17⅔ feet beam, and 9 or 10 feet deep on the side, and weigh from 40 to 45 tons, and will carry 240 tons of cargo each, or from 160,000 to 180,000 feet of lumber, on 6 feet draught of water. They register from 102 to 118 tons. Originally small and built like flat-boats, they have grown in size with every enlargement of the locks of the canal and depth of the channel until they have reached the dimensions given. Scows are best adapted for carrying coal, lumber, barrels of apples, and goods not easily damaged by the weather. They are sometimes framed, and when so built are usually ceiled on a plan calculated to give longitudinal strength. The ceiling is put on in curved lines, the foot of each curve touching the bilge log and the arc rising in the center. Over this ceiling is another, about four streaks of plank wide, the center of the arc touching the bilge log amidships and the ends rising to the gunwale at the bow and stern. But few of this style of boats are now built, the "scow side" of solid logs being the preference. It requires from 325 to 400 days of labor to build a scow, and about 18,000 feet of white pine and 10,000 feet of oak, and 3,500 pounds of round iron, 2,000 pounds of flat bar iron, 1,500 pounds of spikes, and 600 pounds of castings, or nearly 4 tons of iron; but some builders fasten more strongly and use from 4½ to 5 tons. The cost of a scow is from $2,600 to $2,800, varying with the times; it varies also with the extent to which it is decked over. The scow proper is an open boat, but is sometimes one-quarter decked over and sometimes half decked.

The laker is a regularly-framed boat, with perfectly flat bottom, square bilge, perpendicular sides, straight body, round bow and stern, and decked entirely over. It is made of oak and white pine, but if hard wood can be obtained in the locality the latter is used in the bottom planking, as it wears smoother. Sometimes the laker is made with scow sides, but molded at bow and stern, a boat thus built being four or five hundred dollars cheaper. Nevertheless the preference is for a framed boat. The lake boat has about the same dimensions as the other boats of the Erie canal, but is deeper than the scow, and it is 97 or 98 feet long, 17½ or 17⅔ feet beam, and 10 or 10½ feet in depth of side. The scantling varies slightly with the fancy of the builder or the stuff which he can buy to advantage, but a fair description of the laker as built in large yards is as follows:

*Stem- and stern-posts.*—Oak, with 2-inch oak plank aprons; stem, 13 by 14 inches at the head.

*Keel.*—None, only a heavy garboard plank.

*Frames.*—Floor timbers oak, single, 3 by 8 inches, 17 feet long, or clear across the boat, spaced 15 inches; side timbers, 3 by 5 inches, 10 feet long, joined to the floors by two sawed knees or futtocks, which are about 2 feet long, a foot wide, and 2 inches thick; bow and stern frames heavier, about 4 by 10 inches.

*Keelsons.*—Main, oak, 10 by 12 inches square, bolted into every floor; bilge keelson, 2 by 12 inches. It is not uncommon to use sticks from 75 to 80 feet in length.

*Beams.*—Chestnut, when practicable, 5 inches square, with carlines 2½ by 5 inches.

*Planking.*—Oak, 2 inches thick.

*Ceiling.*—On floor, 1½-inch white pine; clamps, 2- and 3-inch white oak.

*Decking.*—White pine, 2 inches thick.

*Rail.*—A narrow strip of 3-inch oak, resting on thin chocks, in all about 6 inches high. In the bow there is a strong oak chock, 15 inches high and 10 inches thick, running around on the gunwale to the straight body and tapering to 6 inches high, and the same in the stern.

*Houses.*—One forward for horses, with hatch on top and on side to the deck; one away aft for boatman and his family, rising about 2 feet above the deck-way to allow for windows; all of white pine.

*Breast-hooks.*—Two in bow and 2 in stern, strongly braced.

*Fenders.*—Oak, about 7 in number, butting on the stem- and stern-posts, and running around the curve of the bow and stern to the flat of the sides, spiked on, and ironed on the outer surface with 3- by ⅜-inch straps. The fenders are spread apart as they go around the curve, so that the lower ones protect the bilge. There are three wearing streaks along the top sides, being thick streaks of planking, ironed with half-round bars the whole length, 1½ or 1¾ inches wide. Two other straps of light iron are placed on the rail, on the outer and inner edges respectively.

*Stern.*—Overhang about 2 feet, enough to house the rudder-stock. There are two strong fenders or guards of oak across the overhang at the upper and lower edges of the perpendicular face, being a continuation of wearing pieces around the stern of the boat. They are about 15 inches wide and faced with iron. Between them the stern is usually pierced with a window. A strong chock above the upper guard, on which is painted the name of the boat.

*Rudder.*—Stock, about 10 inches in diameter; blade, 7 or 8 by 5 feet.

A lake boat, or laker, requires the following materials: 18,000 feet of oak and hard wood, from 20,000 to 22,000 feet of white pine and chestnut, 5,800 pounds of bolts, spikes, and nails, from 1,500 to 2,000 pounds of flat iron, 600 pounds of castings, 10 or 12 barrels of salt, $90 worth of paints and oils, and $50 worth of oakum. From 450 to 500 days of labor are required to complete a boat, and, as labor was $1 75 and $2 a day in 1880, the labor bill on a laker amounted to from $900 to $1,025. These boats are well salted in the bow and stern, on the floor timbers and top sides, register from 125 to 139 tons, weigh from 65 to 72 tons, and carry from 225 to 240 tons of cargo. They are usually painted white, and the stern is often profusely ornamented by a sign-painter, the name and home port being conspicuously painted in gilt and red and blue letters. About one-half of the boats on the Erie canal are of this type. Being good for almost any service, these boats are dispatched with cargoes to points on the small lakes in central New York, and often across lake Ontario and on long voyages on lake Champlain, and are popularly used in forwarding grain from Buffalo and Oswego to New York city via the canal and the Hudson river. Their tight decks and high hatch coamings, covered with tightly fitted hatch covers, protect their cargoes from the wash of an occasional wave. The boats cost an average of about $3,800, varying from $3,700 to $4,200.

The bull-head is either a framed or a scow-sided boat with molded bow and stern, completely housed from end to end. The house rises from 2 to 3 feet above the gunwales, and is decked over on top, there being no deck below, as in the laker. It is considered that this type of boat most perfectly protects grain and other valuable cargoes. It is most in demand when grain freights are high; when coal, lumber, and other coarse freights pay the best scows are in demand, while in other years every one builds a laker or a bull-head.

It is rare that a man builds his own boat on the Erie canal. A few have a number of boats built for themselves, but instances of this sort are not common. The great majority of yards build on contract or speculation, and most of the boats are sold on credit. The canalmen are expected to pay a certain sum down in cash, from $300 to $1,000, as they are able to gain the confidence of the builder, a certain other sum being then paid annually. Women can usually get good credit, a great many boats being owned and run by them; they do not spend their money in dissipation, are good managers, and have the name of being sure pay. Owing to the prevalence of the credit system the large builders always have a great deal of money afloat, as they express it, and run a certain amount of risk, because if the year should be a bad one the boatmen make little more than running expenses and are unable to pay their installments, the boats meanwhile depreciating in value. Good years, however, enable the boatmen to liquidate all arrears and save their investments.

As before stated, the horse packet is no longer seen on the Erie canal. Just before railroads were made through the state of New York travelers journeyed to and fro between the Hudson and the West by way of the canal. Boats were built for this traffic with sharp bows and good sterns, being well fitted up on board with berths and cabins. The horses drawing them were able to go along steadily at a trot, in strong contrast with those of the freighting boats, which toiled along painfully at a walk. Packets still exist on the canal, but they are steamers.

The steam craft of the canal are of three classes: First, the freighting propellers, patterned like lakers, each carrying a little boiler and engine away aft in the stern, leaving the hold amidships and forward entirely clear for cargo, and usually taking a consort, or regular canal-boat, which is pushed straight ahead. Next, the cable-towing boats, employed on the level of the canal between Tonawanda and Buffalo, a distance of 42 miles, the boat carrying only the towing machinery and a supply of coal. Lastly, the packets, which are either propeller launches or small steamboats.

The idea of using steam for freighting on the canal was started long ago, but the first practical boats were built in 1871. The state offered a bounty for a successful steam canal-boat which should be built at small expense and would run alone and without washing a swell over the tow-path of the canal. The prize was a large one, and resulted in the perfection of the Baxter boats, seven of which were built by a company having $100,000 capital. The original idea was to propel these boats with twin screws at the stern; but this plan was abandoned, and the later boats were each propelled by a single screw, having four blades mounted on a large central drum or hub. The state paid $35,000 for the building of the first seven boats, and seven more were constructed soon afterward by the company. The mistake was made of running the boats independently at first. Owing to the competition with the railroads horse-boats were hardly paying expenses, and, as steamers were more costly to operate, they lost money. The result was that the company failed and was sold out, and the boats passed into other hands. It was then found that by taking in tow an ordinary boat, lashing the two together in a direct line, one ahead of the other, the steamer in the rear, the average expense was greatly reduced; and the cost of towing on the Hudson being entirely avoided, the boats have since been operated with profit. The Baxter boats were 96 feet long, 17 feet beam, and 9 feet deep in the hold, and had fairly sharp bows. With 6 feet of water one was able to carry 215 tons of freight, and with 5½ feet 200 tons, making a round trip from New York to Buffalo and return in 16 days, as against 25 to 30 days on the part of a horse-boat. Cost of the trip, about $650. The machinery cost $3,000 and weighed 6 tons.

Another style of propeller is that of the Rapid, a steamer invented in 1876 by Gordon W. Hall at Havana, New York, a little town located a mile from the head of Seneca lake on an old and now abandoned canal. One peculiarity of the Rapid was that the furnace of the boiler was arranged like a base-burner stove. Once filled with coal, the furnace needed no more fuel for eight hours; and it was supplied with contrivances for shaking the grate and controlling the steam, so that the man at the helm could both steer the boat and attend to the engine without leaving his place. The Rapid was 98 feet long, 17⅔ feet beam, and 9½ feet deep in the hold, the engine, of 35-horse power, occupying with the boiler a horizontal space of 5 by 7 feet only. The coal consumption was 1,600 pounds a day, and the boat and consort were worked by 4 men. The Rapid carried 100 tons of coal from Havana by way of the lake and canal to Buffalo. She then took 8,000 bushels of wheat to Rochester, and then made several trips to New York with 7,700 bushels at a time. The time of the trip from Buffalo to New York and back again, towing two boats from Troy to New York, was from 16 to 19 days, and the total expense of the whole round trip, including tolls, insurance, and port charges, was $310. She made round trips with a consort from Buffalo for $600. The machinery of the Rapid was designed for fitting into any canal-boat by a slight alteration of the stern, and cost $1,800. Mr. Hall built several boats at Havana carrying his machinery, each one costing $6,000 complete, and then in 1880 introduced the idea into Lockport. No alteration is caused in the construction of canal-boats by putting in the propeller machinery except to give the stern a few feet of overhang and to change the location of the captain's cabin. The space in the stern occupied by the cabin in horse-boats is consumed by the machinery in the propeller and by the little house built to shelter it and the steersman. The stable being abolished, the captain's cabin is moved forward to the bow. The boats may be framed or built with scow sides. Three were built at Havana in the year 1879-'80 with 4½-inch scow sides of white pine, hard-wood bottoms, and framed bows and sterns planked with 2-inch white oak. Each took 12,000 feet of hard wood, besides 5,500 feet of oak, and 19,000 feet of white pine, with 4 tons of iron and 5 tons of machinery, and cost $6,000.

The cable boats carry no freight, but are exclusively employed in towing horse-boats between Tonawanda and Buffalo. They are each 80 feet long, 15½ and 16 feet on the beam, and 8 feet deep, drawing 5 feet of water. The principle on which they act is a novel one in America, but is in use on rivers and canals in Europe under the name of the Belgian system of cable towing. A steel wire cable, an inch in diameter, weighing 9,000 pounds to the mile, is laid on the bottom of the canal, with no anchorage except that given by its own weight. On one side of the towing-boat, outside the hull, a series of wheels, five in number, are hung on horizontal axles. The first wheel, near the bow, is 20 inches in diameter; it underruns the wire cable and lifts it from the canal bottom. Three others are amidships, and the cable passes under the first one, a tension wheel 6 feet in diameter, then over the center one, a grooved wheel 5 feet in diameter, and then under the third, another tension wheel 6 feet in diameter. The cable then runs over a 20-inch pulley at the stern of the boat corresponding to that in the bow and falls back to the bottom of the canal again. All the wheels play loosely on their axles except the grooved one amidships, which is rotated slowly by the power inside the boat, and by its grip on the cable hauls the tug, with its tow of six boats, along at a speed of about 3 miles an hour. The tug is supplied with two engines, one of 20-horse power to haul on the cable, and another of 10-horse power, driving a small screw-wheel at the stern of the boat, for use in emergencies only. Eight of these boats built at Lockport in the census year cost $8,500 each.

Business was dull in the boat-yards of the Erie canal in 1879 and 1880, as they had not escaped the general depression following the panic of 1873, and had in addition been subjected to the effects of the severe competition of the railroads. Boatmen, in consequence, felt poor in 1879 and 1880. They starved their boats during the period of low freights, avoiding every expense, and went right by the boat-yards continually, pumping water out of their leaking boats, instead of putting them into some dry-dock and having them repaired. They have had better years since.

On the eastern part of the canal there was not much building of new boats in the census year, and indeed there is not much in any year now, the chief reliance of buyers in that region being on the lake Champlain yards. The places that still do some building on the canal are Albany, West Troy, Crescent, and a few little yards around Oneida lake. In good years from 30 to 50 boats are launched among them. The other yards from Albany to Syracuse did little except repairing. Between these two cities ordinarily no boat need journey more than half a day without coming in sight of some little dry-dock or a yard where it can be taken out of water and have damages repaired, the principal places being West Troy, Crescent, Schenectady, Port Jackson, Little Falls, Constantia, West Vienna, Bernhardt's Bay, North Bay, Utica, New London, Rome, Fayetteville, Canajoharie, Liverpool, and Chittenango. The canal dry-dock is a simple structure, and is placed alongside of the tow-path, or perhaps adjoining the berm bank of the canal. It is often cut out of the solid rock, and is usually nothing more nor less than a lock large enough to hold one or two boats. Any vessel needing repairs is floated in, the upper gate is closed, the water is drawn off, as from a lock, the boat is left high and dry, and the carpenters go to work on it.

Little Falls has two dry-docks, and at each of them there has been in times past much building. In good years from 400 to 500 vessels are docked for repairs. From the books at these yards some data were obtained of the earlier times. Twenty years ago boats were 75 and 80 feet long, 14½ feet beam, and 6 feet deep, drawing 3½ and 4 feet of water, and scows were built with 3- and 4-inch sides. The hills around the town were originally well covered with valuable timber, and supplied the boat-yards with all the oak, hard wood, and pine required. At present there is no timber in the locality. During the war materials ranged high, white pine costing $70 per thousand feet, oak $50 per thousand, and the best $60 and $70. Pitch was 10 cents a pound, once rising to $50 a barrel (it was about a cent per pound, or $2 50 per barrel in 1880). Iron rods were 12½ cents a pound in war times; cut spikes, 10, 12, 15, and 17 cents; wrought spikes, 18 cents; oakum, 15 cents, 10½ cents in 1880. The prices of all materials have declined from 30 to 50 per cent. since the war, and pitch has declined more.

Going westward from Syracuse, there are dry docks at Jordan, Port Byron, Montezuma, Seneca Falls, Rochester, Lockport, Madison, Middleport, Tonawanda, and Buffalo, with small yards here and there at other places. Although 40 miles away from the canal, there are 6 yards at Ithaca, 1 at Trumansburgh, at the head of Cayuga lake, and 2 at Havana, a mile above the head of Seneca lake. The Ithaca yards buy timber to advantage, and build from 25 to 30 large-class boats every year. They are now paying some attention to fitting up their craft with machinery.

At Havana, where a number of steam canal-boats have been made, Gordon W. Hall has a machine-shop as well as a boat-yard. A steamer similar to the Rapid had just been finished when the town was visited in 1880 and lay in the canal drying its paint. It was a full-sized laker, 93 feet long on the keel, 98⅔ feet over all, 17⅔ feet beam, and 9½ feet in the depth of side, scow sided. The forward cabin was 8 feet from the bow, and was 13 feet wide, 14 feet long, and 7 feet high in the clear, extending 28 inches above the deck, containing 5 rooms, and rested partly on the lower breast-hook braces and partly on stanchions, there being a clear space of 4⅔ feet under it available for grain cargo. Amidships there was another house 16 feet wide, 8½ feet fore and aft, rising 3 feet above the deck. In the extreme stern was the engine-house, with a companion-way in the after end. It was 20 feet long fore and aft, 6 feet wide, and 3 feet high above the deck, with a steersman's house in the forward part rising 3 feet higher, a feature peculiar to steam canal-boats, as in horse-boats the man at the tiller stands out exposed to all weathers. The boat was completely decked, and had three hatches.

Nearly all the yards on the main line of the canal from Syracuse to Rochester complained of dull times. In place of from $15,000 to $25,000 worth of repair work yearly, as in old times, each was not doing more than a third or a quarter of that business, and building had virtually ceased, having all been monopolized by Rochester, Lockport, Tonawanda, and Buffalo.

The following yards were found at the places named: Rochester, 5, employing 90 men and building from 40 to 50 boats yearly; Lockport, 4 yards, 160 men, product 60 to 80 boats yearly; Tonawanda, 7 yards, 90 men, from 50 to 100 boats yearly; and Buffalo, 10 yards, 150 men, from 50 to 80 boats yearly. The banks of the canal in the parts of these towns where the yards are present a busy spectacle—new boats under construction, with piles of lumber, and often with sheds, shops, and saw-mills around them; newly painted vessels floating in the canal; dry-docks, with boats going in and out and some high and dry receiving repairs, and a constant stream of traffic moving by in both directions in unending procession. The lumber for the building yards comes almost wholly from the upper lakes, arriving in rafts and ship-loads at the ports of Buffalo and Tonawanda. Oak and white pine, sawed, each cost from $30 to $35 per thousand feet. About one-fourth of the wood is wasted in building a boat. Lakers and bull-heads consume 38,000 and 40,000 feet each; scows, 28,000 or 30,000 feet each.

In Rochester the yards mostly do new work. They sold lakers and bull-heads in 1880 for from $3,700 to $4,200 each, the bull-head being the cheaper boat. Scows were sold for about $2,600.

In Lockport a large repairing business is added to the other branch of the industry. Two firms have each 3 dry-docks, built of masonry like canal locks. Timber is bought at Tonawanda in rafts. The builder who has a saw-mill saves a few dollars per thousand feet by doing his own sawing. Mr. Morgan had been in business for sixteen years, but in 1879 he began anew with a partner and built a large fleet of boats the first year, launching 14 in one day. Morgan & Benedict reported for the census year 22 new canal-boats, worth $3,500 each, and 8 cable-towing boats, worth $8,500 each. In 1880 attention began to be paid to steam on the canal by the Lockport builders, and Mr. Hall, of Havana, came to the city and began the manufacture of his engines, wheels, and boilers, the prospect being fair for the rise of a large fleet of new propellers.

Tonawanda being a lumber market, has great advantages for boat-building, and the yards were all rushing work in 1880. Scows were popular that year, as the port was shipping immense quantities of lumber to the East. One firm, owning a large saw-mill, built 22 open coal barges in the census year, 92 feet long, 17¾ feet beam, and 10 feet sides, at a cost of $2,500 each. A ship-chandlery firm which fits out hundreds of boats yearly with tow-lines reported that a new canal-boat requires 160 pounds of manila rope; those that go out on the lakes or the Hudson river must each have in addition another line 6 inches in circumference and 25 fathoms long, weighing 180 pounds.

At Buffalo there is work for both the canal and the lake; a fact which inures to the benefit of the builders to some extent, as it keeps up the supply of good carpenters, but is probably of greater advantage to the men themselves. The canal yards are strung out along the canal, and are principally engaged in building. Wages are higher in Buffalo than in the country yards, and the owner of an old boat is pretty sure to send it to the place where its repairs can be most cheaply made. Lumber comes entirely from the upper lakes.

## CANALS IN THE WEST.

There are two canals in Ohio, the Ohio and the Miami and Erie, both of small capacity, and now falling into disuse. Both are still used for a great deal of small local traffic, and are capable of being converted into valuable routes of transportation by the deepening of their channels. The draught of water available for boats is 3½ and 4 feet, but 6 feet of water in each canal would work a great improvement in their traffic. The Ohio canal runs from Cleveland to Portsmouth, on the Ohio river, a distance of 323 miles. There are 19 miles of feeders and 67 miles of branches. The Miami and Erie canal runs from Toledo to Cincinnati, on the Ohio, a distance of 246 miles, and has 25 miles of feeders. In addition to these two works there is an improvement on the Muskingum river by which 91 miles of that stream above its junction with the Ohio at Marietta are made available for steamers and steam canal-boats. On the two canals the boats freight lumber and ice southward and coal northward, besides doing some general business in the transportation of paper stock, provisions, and general merchandise.

The old-time boats of Ohio were able to carry only about 45 tons of cargo each. They were then, as now, 80 feet long, 14 feet wide, and 4 or 4½ feet deep, drawing 3 feet of water, and were rather sharp and fast boats; but in late years they have been built fuller and given 4 feet draught, so that their capacity has been increased to 80 or 90 tons. They are neat boats, but are not large enough; and, considering that the large 240-ton boats in the state of New York find it hard to hold their own against railroad competition, it is not surprising that the smaller craft of Ohio have been hard pressed since the war, the discouragement among the boatmen being so great that very few new boats have been built for ten or twelve years. About 1870 the old Philadelphia and Erie canal was abandoned, and about 40 canal-boats were taken over to the Ohio canal. There has been almost no building on the latter since, not to exceed 5 or 6 boats being built in any one year.

Steam canal-boats have been tried in Ohio for 20 years. There is a firm at Chillicothe which in 1860 began making engines and propeller wheels for canal and river navigation. Their first boat was a small packet to run on the river to Portsmouth. During the war this boat was employed in carrying cotton from the South, and was finally destroyed. The firm had in 1881 built 50 or 60 canal-boat engines in all, 15 of them at one time, about 1865. So far as the engines are concerned, their boats have been successful. The machinery is light, weighing from 4 to 6 tons only, including boiler and wheel. The Chillicothe wheel has a special reputation in the West, and is much used. It consists of a cast-iron hub, with three short and narrow arms; to these arms are riveted the blades of the wheel, three in number, made of wrought iron, 1 inch thick nearest the hub and $\frac{1}{4}$ or $\frac{3}{8}$ inch at the outer edge. The blades are shaped like truncated triangles, bases outward, and twisted to give them the pitch. The object in putting on wrought-iron blades is to allow of their being promptly detached and straightened or replaced in case of accident. The engines do not act always directly on the shaft, but drive the propeller by means of gearing. Chillicothe machinery, owing to its light weight, is well adapted for river steamers. In 1881 the shops were building a double upright engine to drive twin screws. The cylinders were 11 by 15 inches; the boiler 3 by $16\frac{1}{2}$ feet, made of $\frac{3}{8}$-inch steel, with about 70 flues, and intended to carry 100 pounds of steam. The whole weight, including wheels, was 14,000 pounds, and the cost $5,000. A set of engines for a 100-foot boat weighed 21,000 pounds, and nine or ten have been made weighing 30,000 pounds each. The cylinders were 11 by 15, 12 by 16, and 15 by 17 inches; boilers about $3\frac{1}{3}$ by 18 feet, steel. While the engines for the canal have done well enough, the boats themselves have not, owing to the small draught of water and the heavy summer growth of grass in the canals. The wheel draws the water away from the after part of the boat and the stern drags on the bottom. With 6 feet of water in the canals these boats would do well; but as they cannot get it, they have all left the canals and gone into river service, what transportation there is being done entirely by horse-boats.

The Ohio boats are all framed, the object being to secure as light a hull as possible. The model is the same as that of the bull-head of the Erie canal. The house is not continuous from stem to stern, but consists of three small houses, one in the bow, one amidships for a stable, and one away aft for the captain, with a little roof or gangway 3 feet wide running from one to another. A few are completely housed, and are called two-deckers. The frames are sawed out of $1\frac{3}{4}$-inch oak, molded 11 or 12 inches over the keel, 9 near the bilge, $4\frac{1}{2}$ on the bilge, and 3 at the gunwale, spaced about 14 inches. There is a light ceiling of 1- or $1\frac{1}{2}$-inch oak or 2-inch white pine. The outside is planked with $1\frac{3}{4}$-inch oak. There are three fenders on the bow, one at the plank-sheer height, the other two a foot apart below, extending around the curve of the bow and ironed with 2- by $\frac{3}{4}$-inch straps. The stem is oak, 12 by 4 inches, ironed on the face with a 3- by 1-inch strap. Houses, white pine. The stern overhangs just enough to house the rudder-stock. About 13,000 feet of wood, a ton of iron, and 80 pounds of manila line are required for one of these boats, and they cost $1,100 and $1,200 each.

There are about 15 small yards scattered along the Ohio canal, and less than that number on the Miami and Erie. An old builder is C. H. Payne, of Akron, who spent 30 years in Pennsylvania, and has been 18 years at Akron. He had built 128 boats in all up to 1881, but only one boat in the latter year.

The Illinois and Michigan canal extends from Bridgeport, on the outskirts of Chicago, to La Salle, on the Illinois river, a distance of 96 miles, exclusive of feeders. The channel is 48 feet wide at the bottom and 60 feet at the top, and has 6 feet of water, the available draught for boats being $4\frac{2}{3}$ or 5 feet. There are 15 locks on the canal, each 110 feet long and 18 feet wide. They permit the construction of longer boats than are used anywhere else in the United States. The boats that go through to the Illinois river are 103 feet long, 14 feet wide on the floor, $17\frac{7}{12}$ feet wide on the beam, and 6 feet deep. Of late years a few larger ones have been built for use exclusively on the summit level, extending from Chicago to Lockport, a distance of about 20 miles. These are 120 and 128 feet long, and cannot pass through the locks. In order to assist the dispatch of boats from Chicago through to Saint Louis the state of Illinois and the United States have built two dams with locks in the Illinois river, one at Henry, the other at Copperas creek, making 90 miles of good river navigation with 7 feet of water. Navigation also extends to the Kankakee feeder, 4 miles in length, and on the Kankakee river for a distance of 12 miles. A good farming country extends along the Illinois canal, and considerable grain is shipped to market, and lumber is shipped from Chicago. The trade consists principally of grain, lumber, and stone, but it is the stone business that gives rise to the large boats of the summit level, as extensive quarries are situated along that level and beyond it to a distance of 33 miles from Chicago. Another feature of the freighting is the bringing of ice to the city of Chicago in the summer-time. The largest number of boats run on the canal in a year was 240, in 1863, the number of clearances issued being 7,044; there has been a steady decline in the number of boats from that year to this, the total number in 1881 being 138 boats and the clearances 4,459. This falling off has been counterbalanced, however, by the increase in size of the boats and the faster time made by them. In 1863 there were only 619,000 tons of freight transported on the canal, whereas in 1881 there were 826,000 tons, making the freighting of the year the largest on record with one exception. In 1873 there were 173 boats, and 849,000 tons were carried. Steam canal-boats are now taking the place of the older fashioned craft, as being better suited to the navigation of the river and the summit level. In

1881 there were 24 boats; 7 tugs were also employed. The steamers are 120 and 128 feet long, about 20 feet wide, are strong and handsome, and are oak built, with pine decks and houses. Each is provided with two pretty large engines and twin screws as a rule; the machinery weighs about 10 tons, and has power enough to push one consort and tow one other behind. The stone is carried on deck, the boat having strong bulwarks about 3 feet high to aid in stowing and securing it. Steamers are built every year at a cost of $5,500 and $6,000, and are so efficient that they replace more than their own number of the old horse-boats. In other words, while the change to steam is taking place new boats are not built as fast as the old ones are worn out. There are only three yards on the canal, namely, at Bridgeport, Lockport, and Peru, (*a*) respectively, but the work done is chiefly repairing. Among the ideas tried on this canal was the building of boats with a peculiar stern, to serve as consorts to steamers, the stern being recessed 10 feet or so, so that the bow of the steamer might just fit into it. The idea served no useful purpose.

## IN THE MIDDLE STATES.

In New Jersey there are two old and useful canals: the Delaware and Raritan, from New Brunswick to Bordentown, 44 miles, 80 feet wide on top, with 7 feet of water, and the Morris, from Jersey City to Phillipsburg, 103 miles, 45 feet wide on top, with 5 feet depth of water. The traffic in coal is large, and both canals are thronged with boats in the warmer months of the year. Formerly they were supplied with boats by local builders, but the oak and pine have been entirely cut off in the counties traversed by the canals and little is left for the local yards to do except to repair the old boats. The building is done almost entirely in Pennsylvania, in the upper Schuylkill region, where pine and oak still abound among the hills. The New Jersey yards are located as follows: Perth Amboy, 2; New Brunswick, 4; Bordentown, 2; Trenton, 1; Washington, 1.

In Pennsylvania there was originally a large network of canals having a total length of 920 miles. Some of the routes have fallen into disuse, but a few are still in operation, and are important factors in coal and iron transportation, the principal ones being as follows: Schuylkill, from Philadelphia to Pottsville, 108 miles, navigable by boats carrying from 180 to 200 tons; Union, from Middletown to Reading, 85 miles, traversed by 100-ton boats; Tide Water canal, from Columbia to Havre de Grace, 45 miles, 30 miles in Pennsylvania, navigable by 150-ton boats; Pennsylvania, from Clark's Mills to Northumberland, 85 miles, and a line to Huntingdon, 90 miles, 150-ton boats; the north and west branches of the Susquehanna, 50 and 70 miles respectively, 100-ton boats; and Lehigh, from Easton to Mauch Chunk, 50 miles, 120-ton boats; in all, about 620 miles of navigation. It is believed by the state authorities that the time will come when cheapness and not rapidity of transportation will be the great desideratum and the canal system of the state will be reconstructed on a large scale, but at present the tendency is toward a discontinuance of canal navigation. Though millions of tons of the products of the state have been moved to market economically by these valuable water-ways, it is nevertheless true that they would all fall into prompt disuse except that the Pennsylvania, Reading, and Lehigh railroads find them useful auxiliaries in the transportation of iron and coal. On the north branch of the Susquehanna there is one yard at Espy where the Pennsylvania company builds its own boats, and where small steam craft are occasionally launched. At Lewisburg, on the west branch, there is one yard. Other important building places have been Chester, Schuylkill Haven, Landingville, Philadelphia, Hamburg, Reading, Port Providence, Middletown, and Highspire. At Chester the yard has disappeared, and the industry appears to be declining at all the other places named. From 50 to 60 canal-boats are now built annually, whereas in 1871 there were about 150. Previous to 1870 the canal-boats of Pennsylvania were in the main framed boats. Those for the Schuylkill canal were 101 feet long over all, 17½ feet broad, and 9 feet deep amidships, with a draught of 16 inches when light and of 5½ feet when loaded with 180 tons. The bows and sterns were moderately full, but would be regarded as sharp on the Erie canal. The frames, planking, and keelson were of white oak; the ceiling, bridging, deck, and houses of white pine. The cost was from $1,800 to $2,000 per boat. After 1870 the majority of the boats were of the "log bilge" pattern. Those employed on the Schuylkill canal were 102½ feet long over all, 17 feet broad, and 8½ feet deep; capacity on 5½ feet draught, 195 tons of coal; cost, $2,250 each, new framed boats being worth $2,400 each. This was the price in 1873, but in 1879 the price of "log bilge" boats had fallen to $1,750. At Middletown, in 1873, boats of a smaller class were built, 86 feet long and 16½ feet wide, carrying 150 tons, for about $1,650 each, prices varying from year to year according to the times. There is, of course, much repairing of the boats on all the canals; like the other branch of the industry it is declining, but should the long-cherished plans of the state authorities ever be carried out for an enlargement of the canal system, especially for the opening of a first-class route through to the Ohio river, boat building and repairing would awaken to a new activity.

In Maryland there is a canal route 184½ miles long extending from Georgetown to Cumberland, along the valley of the Potomac river. The prism is from 50 to 60 feet wide on top and 40 feet, wide on the bottom, with 6 feet depth of water. The locks are 100 feet long by 16 wide, large enough to pass 120-ton boats. The greater portion of the boats now running on the Chesapeake and Ohio canal, as it is called, are 92 feet in length, 14½ feet wide, 6 and 6½ feet deep, and draw 5 feet of water when loaded. Nine-tenths of all the building and repairing of these boats takes place at Cumberland, where there are six firms actively engaged the year around; the rest of the

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[a] Peru is not strictly on the canal, but on the Illinois river just below the outlet of the canal, which is at La Salle.

work is done at Hancock and Williamsport. Timber is cheap in this region, particularly oak and white pine. Labor is also low, the best men getting $1 50 per day. The boats cost about the same as those on the Delaware and Hudson canal, namely, from $1,100 to $1,300, a few going as high as $1,450, and the labor bill varies from $350 to $450. At Hancock there are two canal dry-docks. Repair work is necessarily a large business on a canal so steadily employed in freighting coal, and contrary to the general rule in these cases labor is only about one-fifth or one-quarter of the expense in boat repairs on this canal. About 60 or 70 boats of the shape usual in Maryland are built at the three places named above in fairly good years, and a certain number of them are apt to be steamers, for the tendency toward steam locomotion has been felt on this canal within the last ten years, and several of the new class of boats are in operation. Their cost is $3,000 each, twice that of a first-class horse-boat; this makes their introduction slow, but their number appears to be growing. Three or four years ago this canal claimed to have the best type of steamers in the country. It certainly is one well adapted to a trade where a heavy cargo is carried in one direction and no cargo is carried on the return trip. To make the boat run on an even keel when light the boiler is placed a little forward of amidships and the steam is carried in covered pipes to the engine in the stern. The engine acts directly on the propeller shaft, and is so arranged that it can be raised or lowered so as to throw the wheel, outside the boat, up or down, adapting its immersion to the loaded or light condition of the boat. The levers for controlling the steam and changing the immersion of the wheel are all within reach of the steersman, who is thus the engineer as well. A fireman is required to attend to the boilers and "bow" the boat through the locks. The propeller is a Neafie & Levy wheel. Such a steamer made the round trip from Cumberland to Georgetown and back, a distance of 369 miles, with 75 locks to pass each way, in 4 days and 20 hours, consuming from 4½ to 5 tons of coal. The machinery complete costs about $2,000. The canal has never been a very profitable investment for the state of Maryland or the stockholders so far as dividends on its traffic are concerned, but it has been of service to the public in bringing down coal and iron from the interior at low rates of freight.

In Virginia a canal extends from Richmond to Buchanan, on the James river. It is 196½ miles in length, and is 40 feet wide, with 4 feet depth of water. This canal was begun as a route for through traffic between the Ohio river and the sea-coast, but it is now virtually abandoned.

The Dismal Swamp caonal is about 30 miles long, but is not much used for canal-boats. Its importance is due to the fact that it is part of the long interior water route along the middle Atlantic coast, and allows of the passage of vessels through from Norfolk harbor to the sounds of North Carolina.

## CHAPTER VII.—UNITED STATES NAVY-YARDS.

In a report upon the ship-building resources of the United States it seems appropriate to refer briefly to the establishments under the exclusive control of the government.

In the Revolution our fighting ships were built in private yards, and were mainly privateers for local owners, but included a few frigates for the government.

After the disbanding of the navy of the Revolution very few ships of war were required for a number of years, but in 1794 the necessity of protecting American commerce against pirates in the Mediterranean led to the construction of new vessels. The ships were built, as before, in private yards. The subject of establishing governmental navy-yards then came up, and was much discussed by public men; but no action was taken until 1801, when the President, on his own responsibility, bought sites for the establishments which were afterward created at Portsmouth, Boston, New York, Philadelphia, Washington, and Norfolk. Congress acceded to this action and appropriated the money to erect buildings and establish the plant for the construction, equipment, and repair of vessels. After that date for 60 years all the regular fighting ships of the United States were built by the government itself. The first achievement of the navy-yards was to send out a number of the frigates which gained so brilliant a fame in the war of 1812 and immortalized the navy of the United States. At the close of the war of 1812 naval stations were established at Whitehall, Sackett's Harbor, and Erie, on the northern lakes, and at Newport, Baltimore, Charleston, and New Orleans, on the coast, and the depredations by pirates in the West Indies led in 1821 to the location of a naval station at Key West and a navy-yard at Pensacola. A yard was established at Mare island, on the Napa river, in California, at a later date, and a naval station near New London, Connecticut.

No settled policy was ever followed by the government in building up the plant of its navy-yards. Expediency, and the sudden emergencies which have arisen from time to time, governed appropriations. Immense sums of money have been expended; nevertheless, nothing except the resources of the private ship-yards of the country has saved the national government from humiliation in naval operations in times of public peril. Incomplete as the navy-yards have been, however, they have been of great utility to the country. During their development in the years from 1812 to 1861 their ability to produce good ships was proved, and they reacted beneficially on the private ship-building interests of the country. There had grown up in them a race of constructors and engineers (in part recruited from the ranks of private life) whose investigations, experiments, and teachings were of vast service to the builders, outfitters, and owners of our merchant tonnage. In the years from 1860 to 1865 the government was suddenly called upon to improvise a navy, and the emergency was so great that 137 vessels were bought outright from the owners of ships, schooners, and steamers, 59 more being bought to load with stone and sink as obstructions to harbors. There also had to be built in 1861 14 screw sloops-of-war of 2,200 tons each, 23 gunboats of 500 tons each, a few western river gunboats, and a few iron-clads. The sloops were built mainly at the navy-yards, but the rest of the vessels could only be constructed at private yards. The contracts were given out all along the coast from Baltimore to Belfast, Maine. The 23 gunboats were built as follows: 1 at Baltimore; 1 at Wilmington; 3 at Philadelphia; 6 at New York; 1 each at East Haddam and Mystic river; 3 at Boston; 2 at Portland; and 1 each at Newburyport, Kennebunk, Bath, Thomaston, and Belfast; the cost varying from $52,000 to $56,500 for the hulls, and $31,500 to $47,500 for the machinery. From 10,000 to 12,000 men were employed in the four northern navy-yards at Philadelphia, New York, Boston, and Kittery, but even then the resources of the government were utterly inadequate to the emergency and the private ship-yards were the main dependence. The iron-clads and other armed vessels which were afterward built were made almost wholly by private establishments. From first to last in the four years of war the following ships of war were finished and sent into the service:

60 screw sloops, 845 guns in all, registering 116,303 tons.
47 paddle-wheel steamers, 452 guns, 44,532 tons.
23 gunboats, 123 guns, 11,661 tons.
11 tugs, propellers, 22 guns, 3,390 tons.
62 iron-clad monitors and steamers, 189 guns, 73,988 tons.

The navy-yards were much improved during the war, and did all the work of which they were capable. They proved to be valuable aids in building the sloops-of-war and in repairing the disabled and damaged vessels, but were overwhelmed by the demands upon them, and it was fortunate for the government that extensive private facilities existed. The material obtained regarding public yards is not complete, but it is such as could be gathered in the time allowed.

## KITTERY, MAINE.

The establishment here is called the Portsmouth yard, as it is located across the harbor from the city of that name in New Hampshire. The equipment is all that is required for the building and repair of wooden vessels. The shops and buildings are now old and dilapidated, however. The sectional marine railway is one of the largest in the country, as two large ships can be repaired upon it at the same time. In this yard some of the sloops-of-war were built, and much valuable work was done from 1861 to 1865. Six large vessels are now laid up here in ordinary, and the Massachusetts, now useless, is on the stocks. The yard is at present occupied with an occasional task of rebuilding some old ship and repairing the government vessels which cruise on that part of the coast. Two or three wooden ships could be undertaken at once at this yard in case of need. There is at least 24 feet of water here at low tide.

## BOSTON, MASSACHUSETTS.

At Charlestown, in Boston harbor, the government has about $10,000,000 invested in grounds, shops, machinery, and general ship-yard plant. In ordinarily busy years about 500 men are employed in building and repair work and in the manufacture of ordnance stores, cordage, blocks, iron work, boilers, and whatever happens to be required for the maintenance of ships of war. The sum of $383,000 was expended for labor in the yard in 1879–'80, and the further sum of $1,597,000 for materials. In this yard all the hemp and wire rope used in the navy is manufactured. The following statement has been prepared by Commodore Badger:

United States Navy-Yard,
*Boston, Massachusetts, September* 19, 1882.

*The Census Agent on Ship-building, Department of the Interior, Washington, D. C.*

Sir: In compliance with your request, I hereby forward the required data for the completion of your report on the capacity of the navy-yard under my command relative to the building and repairing of ships of all kinds.

The various shops in this navy-yard are all in good condition, and are as follows:

1. *The principal machine-shop.*—This is among the largest and best fitted in the country, and is capable of doing the work necessary for iron- or steel-ship building. It contains all the most improved tools and machinery, and is two stories high, the upper floor being used for light work.
2. *A smaller machine-shop.*—Especially adapted for separate light work in iron and steel.
3. *Boiler-shop.*—Fitted with machinery and tools for building stationary, portable, and heavy marine boilers.
4. *Heavy forge-shop.*—Especially fitted for rolling iron from scraps and making heavy forgings.
5. *Two iron and brass founderies.*—Fitted for heavy and light work, all the machinery and tools in prime order.
6. *Smithery.*—For engine forgings and other work.
7. *Two copper-shops.*—One for making copper and brasses for heavy marine engines, while the other is fitted for lighter work.
8. *Pattern-shop.*—For making patterns for any size of marine engines. In these shops, that is, the pattern-shop, machine-shop, etc., a number of large engines have been made and numerous extensive repairs conducted on others.
9. *Rope-walk.*—The best in this country, and contains all the newest machinery for making rope of hemp, manila, hide, or wire.
10. *Sail-loft.*—Very large, and equal to every emergency.
11. *Boat-shop*, which has always been capable of carrying on its proportion of the work.
12. *Mold-loft.*—With all necessary tools and machinery for work under that head.
13. *Spar-shed.*—Of sufficient size and capability, with a large number of mast spars on hand.
14. *Saw-mill.*—With bevel and other saws, the best of any at our navy-yards, and capable of doing, with its machinery, all the necessary work to carry on wooden-ship building.
15. *Block-shop and rigging-lofts.*—Both of sufficient size and equal to any demands.
16. *Joiner-shop.*—Most complete, with all the machinery and room necessary.
17. *Plumber-, tin-, and small cooper-shop*, also *paint-shop*, each of which is capable of performing the work coming under its head.

For convenience of carrying on work all the shops enumerated from 1 to 8, inclusive, are close together; and there is sufficient steam-power at hand to carry on the most extensive business, three of the engines having 100 horse-power each. There are, besides, provision and other store-houses in the yard for stowage of ship materials, all well supplied, and two wet-timber docks for seasoning purposes.

As to docks, slips, and sheds for the building and repair of ships, there is but one dry-dock, built of granite at a total cost of $993,915. This dock is capable of receiving any ship not over 379 feet long, 60 feet beam, or 27 feet draught of water. There are three ship-houses with building-ways and three building-slips, making in all six sites for the building of ships. Four of these sites are at present occupied by old-style ships, which will not be completed. With all of the ways clear six vessels might be built at this yard at one time, all the ways being now in good condition.

For constructing the largest iron or steel ships sheds adjacent to the ship-houses could with ease be erected in six weeks, at a cost of not more than $30,000, containing furnaces for heating plates and all the necessary appliances for completing the work.

There were during the late war about 5,000 men employed to advantage in this navy-yard, and this I consider as many as would be necessary to work the yard to its full capacity.

Since its establishment in 1800 there have been launched at this yard 39 ships-of-war, of which the most important or conspicuous were:

The Independence, ship-of-the-line, launched in 1814.
The Marion, sloop-of-war, launched in 1839.
The Bainbridge, brig, launched in 1842.
The Cumberland, frigate, launched in 1842.
The Plymouth, sloop, launched in 1843.
The Vermont, ship-of-the-line, launched in 1848.

The Princeton, frigate, launched in 1851.
The Merrimac, frigate, launched in 1855.
The Hartford, frigate, launched in 1858.
The Monadnock, double-turret monitor, launched in 1864.
The Guerriere, frigate, launched in 1865.
The Worcester, frigate, launched in 1866.
The Alaska, sloop-of-war, launched in 1868.
The Intrepid, iron torpedo-boat, launched in 1874.
The Vandalia, sloop-of-war, launched in 1874.

Several vessels were also built for the Treasury Department at this yard for duty in the light-house service, coast survey, and revenue marine, and most extensive repairs have been made to vessels of all classes.

I am, respectfully,

O. C. BADGER,
*Commodore United States navy, commanding United States navy-yard, Boston, Massachusetts.*

Captain C. C. Carpenter, equipment officer, reports the following materials used in outfits in the year ending June 30, 1880:

| | |
|---|---|
| Pounds of iron and steel | 891 |
| Pounds of hemp rope | 21,619 |
| Pounds of manila rope | 41,023 |
| Pounds of hemp rope shipped to other stations | 186,882 |
| Pounds of manila rope shipped to other stations | 297,086 |
| Yards cotton canvas used for sails | 9,570 |
| Yards flax canvas used for sails | 8,881 |

It is in this yard that some experiments have been made with a machine for bending the oaken frame timbers of ships so as to make them in one piece from keel to gunwale. The machine cost $160,000, and bent a large number of knees and timbers in a satisfactory manner. The yard is much resorted to for tests of the strength of timber growing in different parts of the United States. This establishment is highly valued by officers of the navy, as its location is an excellent one. The water is deep, the approaches are capable of defense from attack, and the harbor is easy of access but difficult to blockade. No embarrassment is likely to arise on account of ice, and the proximity of the ship-yards, engine-shops, and general mechanical facilities of the city of Boston adds materially to its resources.

## NEW LONDON, CONNECTICUT.

The yard at this point is located on the eastern bank of the Thames river. It enjoys deep water and a fine climate, and was established in 1868. The grounds have been graded and a large building erected, but at present the place is mainly a depot for the laying up of old navy vessels.

## BROOKLYN, NEW YORK.

This is the most important of the navy-yards. There are 245 acres within the inclosure, and the plant represents an investment of about $15,000,000. Located on the water-front of Brooklyn opposite the heart of the city, and directly across the East river from the business portion of New York, the land alone which it covers is estimated as worth $25,000,000. Its equipment is complete, and the important iron works and engine-shops in the great communities bordering on the East river can be depended upon for assistance in fitting out navy vessels when required. The New York shops made the best and cheapest machinery that was built during the war. There are laid up at this yard a number of old war ships, some of them of the type of frigates of 60 years ago. On the stocks are 3 wooden vessels in frame, the Java, the New York, and the Colossus, which have been there since the close of the late war, and of which the New York alone is said to be worth finishing. The yard has done little or no building of late years, but repairing and outfitting are carried on to a considerable extent, and experiments and investigations of various kinds are continually undertaken. The aid to the commodore commanding the yard has prepared the following data for this report:

NAVY-YARD, NEW YORK, *November* 24, 1882.

*The Census Agent on Ship-building, New York City.*

SIR: In reply to your request, I take pleasure in furnishing the following information:

The yard comprises some 245 acres, with a water-front of nearly 2½ miles. In addition to the shops and appliances for the construction, repair, and outfit of ships, the yard contains a complete naval hospital, a laboratory, extensive marine barracks, and receiving quarters for 6,000 men. The sewer which empties much of Brooklyn's refuse into the Wallabout bay and constantly shoals the water-way is about to be removed, an appropriation for that purpose having been made by the last Congress. Among the buildings are:

1 iron-plating shop.
1 smithery.
1 steam-engine machine-shop.
1 ordnance machine-shop.
1 boiler-maker shop.
1 plumber-shop.
1 cooper-shop.
1 joiner-shop.
1 block-shop.
1 foundery.
1 shipwright's shop.
1 saw-mill.
1 oakum mill, with drying platform.
1 wheelwright's shop.

3 buildings for the reception, preparation, and distribution of provisions and clothing, all fitted with boilers and machinery for their respective purposes.
1 mold-loft.
1 sail-loft.
1 rigging-loft.
1 yards and docks storehouse.
1 steam-engineering receiving storehouse and offices.
1 ordnance and navigation storehouse and offices.
1 chain-cable storehouse.
1 construction storehouse and offices.
1 equipment storehouse and offices.
2 steam iron derricks.
1 steam floating derrick.
1 tar shed.
6 timber sheds.
2 cart sheds.
7 sheds for general purposes.
1 spar shed.
1 boatbuilder's shed.
1 gun-carriage shed.
1 tank shed.
1 shipwright's shed.
1 foundery shed.
2 ship-houses.
2 pitch-houses.
1 gate-house.
7 officers' houses.
2 coal-houses.
2 guard-houses.
1 lyceum and offices.
1 civil engineer's office.
2 reservoir houses.
1 engine-house (steam-fire).
2 music-stands.
1 chapel.
2 oil and paint-shops.

### ON ORDNANCE DOCK.

1 gunner's house.
1 howitzer shed.
4 shell, shot, etc., houses.
1 ordnance storehouse.
1 boiler-house.

### HOSPITAL GROUNDS.

1 hospital.
1 laboratory.
1 chapel.
2 officers' houses.
2 stables.
2 boiler-houses.
1 coal-house.
1 gate-house.
1 cart shed.

### MARINE BARRACKS.

1 marine barrack.
1 commandant of marines' house.
1 general quarters for marine officers.
1 gate-house.
1 boiler-house, with sheds.

There is one stone dry-dock, with boiler and attached engine. There are no marine railways, but there are slips already built where railways could be readily added.

Iron ships can be built. There is no other yard in the country that could be so easily prepared for the demands of present iron ships. With the addition to the present plant of a furnace for the bending of angle-iron any iron ship could be constructed to meet the present demands.

More than sixty ships of war have been built at this yard, including the following:

President (frigate).
Erie (sloop-of-war).
Savannah (44-gun ship).
Sabine (44-gun ship).
Vincennes.
Peacock.
Enterprise.
Relief.
Fulton.
Levant.
Missouri.
Medina.
Albany.
San Jacinto.
Dolphin.
Iroquois.
Oneida.
Adirondack.
Octarora.
Miantonomoh (iron-clad monitor).
Ticonderoga.
Lackawanna.
Maumee.
Shamrock.
Mackinaw.
Peoria.
Tallahassee.
Algonquin.
Colossus (iron-clad monitor).
Florida.
Tennessee.
Nyack.
Mercury.
Quinnebaug.
Shawmut.
Severn.
Java.
New York.
Plymouth.
Swatara.
Alarm (iron torpedo-boat).
Trenton.

The highest number of ships building at one time was seven. In an emergency, with the present condition of the water-front, ten ships could easily be built at once, and with projected extension and deepening twice that number.

Over 7,000 men have been employed at the same time in this yard, 4,000 of them in the construction department alone. The number of men that could be employed would depend entirely upon the appropriation Congress might give, the possibilities of the yard exceeding any possible appropriation.

Very truly, yours,

W. H. JAQUES,
*Lieutenant United States Navy.*

The land occupied by this yard is in demand for commercial purposes; but the location is one of the best in the United States, and it so nearly fulfills all the conditions of a good site for a navy-yard that the officers of the navy do not advise its sale. With the completion of proper forts at the entrances to the harbor and around the city of Brooklyn the yard could not be captured. The water is deep, the plant is in excellent condition, and the lines of communication with the interior are held to be of the highest value. The chief drawbacks here are the floating ice in the river, occasional fogs, and the lack of proper facilities at the yard for docking vessels.

## PHILADELPHIA, PENNSYLVANIA.

The League Island yard, in the lower edge of the city of Philadelphia, is of recent date. The old yard was farther up the Delaware and nearer the heart of the city, but it was too small, and was removed to the island in 1868. The equipment is not yet complete. Repair work occupies the men employed here chiefly, and is all work on the topsides and top-gear and on the inside of vessels, because the facilities do not yet exist for taking the ships out of water. For calking and coppering recourse is had either to the private docks in Philadelphia or to the navy-yard at New York. A number of iron vessels are laid up at the island awaiting repairs or completion. It will require several years of dredging and filling in before there is enough solid ground at this yard for the necessary accommodation of the establishment. The following official data have been obtained from Commodore Simpson, commandant of the yard:

NAVAL CONSTRUCTOR'S OFFICE,
UNITED STATES NAVY-YARD, LEAGUE ISLAND, PENNSYLVANIA,
*September* 21, 1882.

SIR: Referring to the communication from the census agent on ship-building, dated 16th instant, requesting information relative to the facilities of this yard, I have to state that there is no plant for iron-ship building, no building-shop for building a ship of either wood or iron, no dry-dock or railway, and no derricks or other means of raising heavy weights by steam-power.

The shops devoted to the repair of vessels consist of two machine-shops, a smithery, spar shed, boat- and block-shop, paint-shop, saw-mill, mold-loft, and brass foundery, together with accommodations for plumbers, etc. There is no iron foundery or furnaces for heavy forging.

The shops are amply provided with steam-power, and the tools are sufficient for repairing two or three vessels at one time; but the machinery for a ship of large size could not be manufactured here at present, owing to the lack of tools sufficiently powerful, such as trip-hammers, boring-mills, etc.

From 800 to 1,000 workmen can be employed with the present facilities.

No vessels have been entirely constructed here, though the Juniata was quite extensively repaired.

Very respectfully, your obedient servant,

F. L. FERNALD,
*Naval Constructor, United States Navy.*

Commodore EDWARD SIMPSON, U. S. N.,
*Commandant Navy-Yard, League Island, Pennsylvania*

## WASHINGTON, DISTRICT OF COLUMBIA.

The yard at Washington is an important one, and though covering 42 acres of ground is crowded with buildings. The establishment is one of the first class. It is embarrassed at times by the shoaling of the water in the eastern branch of the Potomac, arising from the wash of earth from the neighboring hills, but the trouble is easily corrected by dredging. The following data have been obtained through the agency of Commodore Pattison, commandant at the yard, from Chief Engineer Henderson, Commander Howell, Commander Casey, Chief Engineer Menocal, Constructor Pook, and Master Carpenter Collins:

### STATEMENT OF THE AREA, BUILDINGS, EQUIPMENTS, EMPLOYÉS, WATER-FRONT, ETC., OF THE UNITED STATES NAVY-YARD AT WASHINGTON, DISTRICT OF COLUMBIA, OCTOBER 1, 1882.

The yard covers 42 acres of ground, and is filled with the shops and storehouses necessary for building, fitting, and repairing the largest vessels. It is capable of employing 4,000 men upon such work. The water-front is 1,250 feet in length. The shops cover an area of 261,246 square feet, and the storehouses 49,281 square feet. The following is a description of the different shops, ship-houses, etc., with their equipments, and the number of employés in each:

#### DEPARTMENT OF CONSTRUCTION AND REPAIR.

*Brass foundery and finishing shop.*—Area, 5,418 square feet. Employment for 60 men. Contains 1 furnace, 1 drying oven, 3 brass furnaces, 4 cranes, 22 lathes, 4 planers, 4 drill-presses, 1 boring-machine.

*Blacksmith and coppersmith shop.*—Area, 4,535 square feet. Employment for 60 men. The first contains 14 forges and 1 steam-hammer; the second 3 forges and complete outfit for all coppersmiths' work.

*Copper-rolling mill.*—Area, 24,047 square feet. Employment for 43 men. Fitted with 5 nail-machines, 4 sets sheet-rolls, 1 set rough rolls, 1 set finishing rolls, 6 furnaces, 3 shears. The daily capacity of the mill is 2,500 pounds sheathing and 3,000 pounds bolts.

*East saw-mill.*—Employment for 10 men. Contains 1 circular saw, 1 futtock saw, 1 bench saw, and 1 planer. It is situated in the ship-house, covering the marine railway.

*West saw-mill.*—Area, 15,978 square feet. Employment for 10 men. Contains 1 sash saw, 1 futtock-mill, and 1 spindle-planer.

*Mold-loft.*—Area, 11,820 square feet, over timber shed. Employment for 10 men. The largest vessels can be laid down. A draughting-room is attached.

*Ship-house.*—Area, 18,672 square feet. It is 306 feet long, and a first-class frigate can be built in it.

*Marine railway.*—Length of track, 495 feet, width 20 feet; can take a vessel of 52 feet beam. There is a hydraulic pump with 2 engines of 25 horse-power each for raising and lowering the cradle.

*Joiners' shop.*—Area, 10,111 square feet. Employment for 75 men. It contains 2 planers, 3 lathes, 1 band, 1 gig and 1 circular saw, 1 saw gummer, 1 molding-machine, 1 grating cutter, 1 mortising and 1 tenoning machine, 1 gouging-machine, 1 boring-machine, and 1 drill press.

*Boat shed*, employing 18 men.

*Paint-shop*, employing 75 men.

*Calkers' shop*, employing 150 men.

*Iron-platers' shop*, small and incomplete.

Besides the two engines for the marine railway there are two in the rolling-mill of 1½ horse-power each, one of 40 horse-power in the iron-platers' shop, 1 of 60 horse-power in the east saw-mill, and 1 in the joiners' shop and west saw-mill.

Five vessels could be built at one time, employing 1,000 men, and about 20 vessels could lie at the wharves for repairs. This department could thus employ 1,800 men.

There is no plant for building iron vessels.

### DEPARTMENT OF STEAM ENGINEERING.

*Machine- and erecting-shop.*—Area, 52,749 square feet. Employment for 620 men, including an outside gang of 200 men employed on board the ships. There are the following tools in these shops, viz: 32 vises, 17 planers, largest 36½ by 20 by 20 feet, 15 shaping machines, largest 7½ by 1½ by 4⅜ feet, 61 lathes, 7 boring machines, largest 100 inches by 20 feet, 9 slotting-machines, 20 drill-presses, 2 facing-machines, 5 screw-cutting machines, 20 other machines (various), 7 wood and 6 iron cranes.

*Boiler-shop.*—Area, 12,720 square feet. Employment for 250 men. It contains the following: 2 riveting machines, largest can rivet to center of 13-foot plate, 1 set plate rolls, 2 trip hammers, 1 punching and shearing and 6 punching machines, 2 shears, 4 iron cranes.

*Foundery for iron and brass.*—Area, 14,904 square feet. Employment for 100 men. Contains 4 cupolas, 2 of 30 tons, 1 of 12 and 1 of 5 tons, 4 blowers, 2 reverberatory furnaces, 1 for iron, of 15 tons capacity, and 1 for brass, of 4 tons, 12 brass furnaces, of 200 pounds capacity, 4 iron and 5 wooden cranes.

*Pattern-shop.*—Over machine-shop. Employment for 30 men. Area, 20,000 square feet. Contains 12 benches, 2 circular, 2 gig, and 1 band saw, 4 lathes, 3 face lathes, 3 planers, 3 molding-machines, 1 rod machine, 1 boring and 1 mortising-machine.

Two steam-engines are employed, one a Corliss engine, the other a vertical engine built in the yard.

Total area of shops is 100,373 square feet, and the total number of employés 1,000.

The shops of this department are the largest in the yard and the most complete in their outfit. The machinery is large, and the most powerful engines and largest boilers can be constructed. The machine-shop is second to none in the United States, either public or private.

### DEPARTMENT OF YARDS AND DOCKS.

In addition to the plant already referred to are the following: 2 iron cranes, one of 15 tons and the other of 20 tons; 1 masting shears of 65 tons; 1 platform scales of 10 tons.

Complete system of gas throughout the yard, buildings, etc.

Car-tracks connecting all the principal shops with wharves, cranes, scales, etc.

Store-houses and buildings for the care and protection of all public property.

### DEPARTMENT OF ORDNANCE AND GUNNERY.

*Brass foundery and blacksmith-shop.*—Area, 6,251 square feet. Employment for 50 men. They contain the following, viz: 1 cupola of 10 tons capacity; 6 brass furnaces of 200 pounds; 4 reverberatory furnaces for bronze, capacity of each 10,000 pounds; 1 wooden crane and 1 blower; 2 forges.

*Machine-shop.*—Area 16,551 square feet. Employment for 425 men. It contains 69 lathes, largest swings 4 feet 3½ inches and 56 feet 7 inches long; 7 planers, largest 21 by 7 feet; 2 slotting-machines; 5 shaping-machines; 1 machine for boring the trunnion bearings of gun-carriages; 4 drill-presses; 1 large testing-machine for metals, limit 100,000 pounds per square inch; 2 round-ball turning-machines.

*Pattern-shop.*—Area, 5,484 square feet. Employment for 20 men. Contains 1 band, 1 scroll, and 1 circular saw; 3 planers; 1 spoke planer; 1 boring-machine; 5 lathes; 9 benches.

*Shell-house.*—Area, 7,847 square feet. Employment for 150 men. Has a complete outfit for strapping shells, fitting gun-gear, etc., with a large storage capacity for shells and gear.

*Laboratory.*—Area, 4,420 square feet.

A new gun foundery has been built, covering 19,185 square feet, but never fitted.

There are two steam engines attached to this department, one for the machine-shop and a small one for the pattern-shop.

Total area of shops, 59,738 square feet, with employment for 645 men.

### EQUIPMENT DEPARTMENT.

*Forge-shop, anchor-shop, iron-rolling mill, and fagoting-shop.*—These shops are all in the same building, covering an area of 35,268 square feet, and can employ about 90 men. The forge-shop contains 3 furnaces, one capable of heating 8 tons, and two with capacity of 5 tons each; 1 large steam-hammer, weight 16,500 pounds; 4 wooden cranes, and 1 forge for heavy work. The anchor-shop contains 4 forges for heavy work and 3 furnaces for light work; 2 Dudgeon steam-hammers, one with a cylinder of 16 inches and one with a cylinder of 20 inches diameter. The rolling-mill contains 1 train of rolls 19 inches in diameter for 4 to ½-inch round iron, angle, square, and flat iron, trim to 4 feet in width by 14 feet length, and ⅜ inch thick; 1 proof-shears. The fagoting shop contains 3 scrap furnaces, capable of heating 1,600 pounds each; 2 Dudgeon steam-hammers, diameter of cylinders, 12 inches. These shops are fitted with 1 engine of 78 horse-power, 1 engine of 60 horse-power, and 1 engine of 18 horse-power, 2 blowers, 10 large wooden cranes, and 1 small iron crane.

*Blacksmith-shop, chain-cable shop, and galley-shop.*—These shops are in the same building with those of department of steam engineering. They cover an area of 20,753 square feet, and employ 220 men. The blacksmith- and chain-cable shop contains 40 forges, 1 steam-hammer of 3¼ tons, 1 chain-proving machine, 1 furnace, 2 link-benders, 1 large fan (used also by department of steam engineering), 6 iron cranes. In attached machine-shop are 1 lathe, 2 drill-presses, and 4 vises. The galley-shop contains 2 lathes, 4 drill-presses, 1 planer, 1 shaper, 1 bolt-cutter, 20 vises, 1 outfit of tinner and coppersmith tools, 5 forges, 3 wooden cranes, 1 iron crane, 1 small steam-hammer, and one combined punch and shears. In attached pattern-shop are 1 small lathe and 2 benches.

*Rigging-loft* (over iron store).—Employs 50 men, and is fitted complete for rigging largest vessels.

*Sail-loft* (over timber shed).—Employs 35 men, and is fitted for all canvas work for fitting first-class frigates. The buildings of this department cover 56,021 square feet, and employ 395 men.

This department is supplied with the necessary implements, etc., for making anchors, chains, and galleys for the entire navy.

### MEMORANDA OF VESSELS BUILT AT THE NAVY-YARD, WASHINGTON, D. C.

| Name. | | Class. | Tonnage. | Date of building. |
|---|---|---|---|---|
| | | | *Old measure.* | |
| Columbus | | Line-of-battle ship | 2,480 | 1819 |
| Potomac | | First-class frigate | 1,726 | 1821 |
| Brandywine | | ......do | 1,726 | 1825 |
| Saint Louis | | Second-class sloop | 700 | 1828 |
| Columbia | | First-class frigate | 1,726 | 1836 |
| Saint Mary's | | First-class sloop | 958 | 1844 |
| Water Witch | 1 | Side-wheel steamer | | 1844 |
| | 3 | ......do | | 1846 |
| | 4 | ......do | | 1852 |
| | | | *New measure.* | |
| Minnesota | | Steam frigate | 3,000 | 1854 |
| Nipsic | | Steam sloop | 615 | 1874 |

### MEMORANDA OF STEAM MACHINERY BUILT IN THE ENGINEERING DEPARTMENT OF THE UNITED STATES NAVY-YARD, WASHINGTON, DISTRICT OF COLUMBIA.

| Names of vessels. | When built. | Description of engines. | Displacement, in tons. | Indicated horse-power. | CYLINDERS. No. | CYLINDERS. Diameter. | Stroke. |
|---|---|---|---|---|---|---|---|
| | | | | | | *Inches.* | *Inches.* |
| Water Witch | 1852 | Inclined | 678 | 180 | 1 | 37½ | 72 |
| Union | 1846 | Horizontal, vertical shaft | | 400 | 2 | 40 | 48 |
| Hancock | 1853 | Vertical, oscillating | | 80 | 2 | 20 | 21 |
| Minnesota | 1854 | Horizontal trunk | 4,700 | 1,200 | 2 | 79½ | 36 |
| Swatara | 1863 | Horizontal, back-acting | 900 | 600 | 2 | 36 | 36 |
| Resaca | 1863 | ......do | 900 | 600 | 2 | 36 | 36 |
| Naval Academy | 1863 | ......do | | 600 | 2 | 36 | 36 |
| Saco | 1863 | ......do | 900 | 450 | 2 | 27 | 30 |
| Richmond | 1863 | ......do | 2,700 | 1,400 | 2 | 60 | 36 |
| Bon-Homme Richard | 1865 | Horizontal, direct-acting | | 4,400 | 2 | 100 | 48 |
| Epervier | 1867 | Horizontal, back-acting | | 600 | 2 | 36 | 48 |
| Swatara | 1872 | Horizontal, compound back-acting | 1,900 | 1,200 | 2 | 42 and 64 | 42 |
| Quinnebaug | 1872 | ......do | 1,900 | 1,200 | 2 | 42 and 64 | 42 |
| Marion | 1872 | ......do | 1,900 | 1,200 | 2 | 42 and 64 | 42 |
| Vandalia | 1872 | ......do | 2,200 | 1,200 | 2 | 42 and 64 | 42 |
| Galena | 1874 | ......do | 1,900 | 1,200 | 2 | 42 and 64 | 42 |
| Mohican | 1875 | ......do | 1,900 | 1,200 | 2 | 42 and 64 | 42 |
| Steam cutters, first class | About 100 to date | Vertical, direct-acting | 8 | 25 | 1 | 8 | 8 and 10 |
| Steam cutters, second class | | | 5 | 15 | 1 | 6 | 6 |

## NORFOLK, VIRGINIA.

This yard is one of the most conveniently situated on the coast for the building and repairing of vessels, and is much employed by the department for that purpose. Many of our ships of war have been rebuilt here. The yard was of great service to the confederate navy after 1861, although much of the property it contained was destroyed by fire. Several wooden vessels could be undertaken at once here, and the situation is the most favorable in the country for obtaining cheap white oak of the best quality. The yard is deficient in plant for iron-ship building, but the shops and tools exist for making engines and boilers of the largest class. One of the strong points of the location is that the harbor is never obstructed by ice, and the mildness of the climate, the ease of access to the harbor, and the ample anchorage for a large fleet make the place the most valuable rendezvous for war vessels on the whole Atlantic coast.

## PENSACOLA, FLORIDA.

The navy-yard at Pensacola is the only one on the Gulf, and on that account it is an important station. The lack of proper facilities prevents any work being done at present, except in the way of repairing tugs and small vessels. Before the war the yard was well equipped, and the department is now making every effort to have it restored to its former condition. A large dry-dock is in process of construction, a timber shed has recently been built, and machinery is also being bought. The yard was formerly in good condition, but at the close of the war of 1861 it was in a state of complete dilapidation. So far as the construction of wooden vessels is concerned Pensacola is favorably situated, live oak and yellow pine of the best quality growing in abundance in the surrounding country.

## MARE ISLAND, CALIFORNIA.

This is a large and important yard, the only one on the Pacific coast, and is situated on an island at the junction of the Napa river with the Sacramento opposite Vallejo. Appropriations for its equipment have been liberal. The grounds are large, the buildings are numerous and strong, and the machinery equipment is already extensive. A floating dry-dock is employed for examining the bottoms of vessels, but a large stone dry-dock is being built to take its place. It has long been considered desirable to create the means here for building iron vessels, and steps have been taken with that object in view, an iron-plating shop having recently been completed. The wooden war-ship Mohican, propeller, is in frame on the stocks, and is covered with a shed. The yellow fir of the Oregon region has been used in its timbers, and the ship is considered by the department as worth completion. One of the four unfinished iron monitors of the government, the Monadnock, lies upon the stocks at Vallejo, opposite and below the navy-yard. Like its sisters, the Terror at Philadelphia, the Puritan at Chester, and the Amphitrite at Wilmington, it is awaiting the appropriation necessary to put it in launching condition. This yard is held to possess many great advantages. The depth of water is from 24 to 26 feet, which is ample for any war ship of the present day, and the fresh water of the Napa river preserves the hulls of wooden vessels laid up here from the attacks of the teredo. There is an abundant supply of good timber, which can be brought down by interior routes from the north. The climate is mild, the yard almost inaccessible to attack, and the present value of the buildings is over $4,000,000.

## CHAPTER VIII.—SHIP-BUILDING TIMBER.

At the time of the settlement of her American colonies the forests of England had begun to be severely taxed for a supply of good ship-building timber. During the early part of the seventeenth century the British navy had increased rapidly in importance, and the trade to the East Indies and other distant parts of the world was leading to the production of an immense number of ships. Not only was the consumption of oak for the building of new vessels large, but the warfare continually waged by England upon the sea required the incessant repair of ships and made a demand upon the oak forests of the country for that purpose almost as large as for the building of new vessels. The cultivation of young timber was totally neglected in England, and as the local consumption was large and the forest area small the supply of navy timber grew continually less. As early as 1660 naval officers had already become apprehensive that there would soon be a deficiency of oak timber in England. The price of the wood had nearly doubled in fifty years. The contract price paid for straight timber about 1663 varied from £2 to £2 15*s.* per load of 50 cubic feet, and for knee timber the prices varied from £2 15*s.* to £3 3*s.* per load.

The scarcity of proper timber for the construction of the best class of vessels was a serious matter to a country whose safety in defense depended almost entirely on the possession of a strong navy, and the Fellows of the Royal Society were appealed to for suggestions as to the proper manner to increase the timber supply. The subject was taken up by Mr. Evelyn, one of the Fellows, who recommended "that a universal plantation of all sorts of trees should be encouraged, as the only way of insuring a sufficient supply in the future". Mr. Evelyn agitated the subject of the growing deficiency of timber for forty years, and the facts he presented to the British public so alarmed them that timber trees were planted on private property in almost every part of England, especially in the royal forests, England having in this matter heeded the profitable example of Portugal.

Oak trees large enough for the construction of vessels of considerable size are from 100 to 250 years old, so that these young plantations were not available for several generations after the time of Evelyn. The trees became large enough to cut about the time of the American revolution. A report made by Lord Melville in 1810 states "that the vast quantities of great timber consumed by our navy during the present reign were chiefly the produce of the plantations made between the Restoration and the end of the 17th century".

A fresh demand was made upon the timber resources of England shortly after the Restoration by the celebrated "navigation act", which compelled Englishmen to employ British built vessels only, and a still greater demand sprang up after the independence of the American colonies, from the fact that English merchants could then no longer own a vessel built in the colonies, and had to build their vessels at home. The destruction of British oak increased largely, therefore, year by year, reaching in 1811 about 260,000 loads annually, and although the quantity of timber required diminished somewhat after that date, owing to the fewer losses of ships by war, yet the timber supply continued to decrease also and the price of oak rose steadily. During the war of 1812 English oak brought £7 5*s.* per load, and for thirty years after that it still brought an average of about £6 per load. From the necessities of the case England soon became obliged to rely on foreign countries for a large part of the ship timber she required. The first importations were of white oak from the Canadian provinces; a further quantity was imported directly from America; in fact, every country in the world producing timber of any value was resorted to by the English builders. Many vessels were built after the war of 1812 out of European larch, and a great many others were built out of fir from the Baltic. Pitch-pine was also imported from the United States, and other kinds of timber were brought from the cape of Good Hope and from the East Indies.

After the war of 1812 there were several periods of great stagnation in the maritime enterprise of England. Several investigations into the causes were ordered by parliament, and in 1833 and 1847 the subject was inquired into exhaustively. One of the principal topics discussed by the parliamentary committees on all these occasions was the high price of ship timber and its effect upon the cost of English-built ships. It was shown that vessels built in London cost £28 per ton, and those on the other coasts of the country from £15 to £18 per ton, while vessels built on the Baltic could be constructed for £8 to £10 per ton, the cost in America being from £10 to £12. These differences were almost entirely due to varying cost and abundance of timber. The most serious feature of the high prices and scarcity in England was the fact that the causes were such that there was no room for hope for the future. With the increase in population and progress in refinement the general consumption of timber in the useful arts and the heating of houses had been increasing. More wood was required annually than could be produced by the natural growth of the forests. The high price of food had rendered the land valuable for cultivation, the fields had been cleared and plowed, and there had been an utter neglect of the planting of young trees on land that could not be tilled. Besides that, under the protecting legislation of England, the requirements of the merchant navy were constantly increasing, and the manner in which estates are owned in England soon interposed an obstacle to the cutting of timber even where forests still existed. At the time that the building of iron vessels became an industry the English oak was virtually all gone, and the difference in cost between the ship built of timber and the one built of iron was hardly worthy of mention. The invention of the iron ship was the salvation of the naval art in England, and probably of her merchant marine.

As the English forests were already giving out when colonies began to be planted in the New World, it will be seen that the emigrants enjoyed a decided advantage over their brethren at home in the manufacture of ships—an advantage improved, however, substantially only for the local needs of the colonists themselves. The multiplication of vessels in the colonies during the early part of their history was remarkable.

The country was covered with large, tall trees, suitable for ship-building, and the excellence of the timber was repeatedly mentioned in the reports and narratives of the early discoverers. Foremost were the white-oak trees, growing in dense and almost continuous forests along the whole north Atlantic coast and extending in a scattered way down even into the heart of the yellow-pine region in Georgia. The trees existed in enormous supply, generally had straight trunks, though yielding a great deal of crooked timber, grew from 60 to 80 feet in height, and averaged 3½ to 4 feet in diameter at a man's height from the ground, while sometimes found as large as 8 feet in diameter. Tough, strong, elastic, and, if cut in the right season of the year, durable, this valuable timber has proved the mainstay of American ship-building from the earliest days to the present time. It is especially suited for the frames and vertebral pieces of vessels, and in spite of its weight is the best wood for the planking of the vessels of every size. Such as grows near the sea-coast and in the swamps is remarkably free from defects of every kind, and so abundant was the timber once that early builders used nothing except the heart of oak in their vessels, sawing off the outer or sap-wood and selecting nothing except the durable inner portion. The fastidiousness of the builders led to an unnecessary destruction of the tree, for of timber thus handled at least one-half becomes waste. So cheap was American oak that vessels built of it for the first hundred years cost only about one-half the price of oak vessels in Europe. It was at first supposed that no timber should be put into a vessel's frame except that which had a natural curvature, and when the crooked timber had been culled from the forests there was some doubt whether its place could be supplied. A practice soon became general, however, of hewing the frames out of straight timber; a practice due to necessity, but found to answer nearly as well. The discovery led again to a great destruction of timber. It is estimated that frames cut from the log or from flitch waste at least one-third and often one-half of the original tree.

The causes which led to the disappearance of the oak in England also came into operation here, and within the recollection of persons now living the white oak has almost entirely disappeared as a ship-building timber in the states in which that industry has been the most actively carried on. In Maine virtually all of the oak accessible from the coast is gone, and only a few small and scattered bodies of it now exist. It is thought that in the western part of the state, in the vicinity of Wells, there is oak enough still left to supply the frames of about 200 vessels; but it grows largely on property where it is valued for its effect in the landscape, and cannot be utilized commercially. The white oak was not indigenous to the valley of the Kennebec to the north of Waterville, nor on the Penobscot north of Bangor, but it did grow inland as far as those points. Many of the more inland bodies of it were not reached for many years; but the construction of railroads finally brought them all into market, and the urgent demand for timber has led to their destruction. There are oak trees of the red and other species (very good timber) found in the mountainous and broken parts of Maine; but they are not at present accessible, nor do they exist in quantities sufficiently large to add materially to the resources of that state for ship-building timber. Owing to the great scarcity of oak on the coast people have lately been compelled to use trees of second growth and all the poorer varieties which, fifty years ago, no Maine man would have introduced into his vessel. It is not to be supposed that the gradual wasting of the forest wealth of Maine has been allowed to go on without remonstrance from the state government. In 1868 the board of agriculture of that state aroused the attention of the landholders to what was going on, the facts coming to many minds with the force of a new revelation; and in consequence of the alarm then existing the people of Maine began to cherish their forest trees as never before. It is believed at Augusta that in the older and better settled portion of the state the amount of growing wood and timber is now suffering no material diminution, and it is thought by some that the area in the state devoted to forestry is now larger than it was twenty years ago. It is to be borne in mind, however, that this is chiefly due to the fact that ship-builders have been driven to other states for the material for their vessels, especially for those of a large class, and having found in the southern states a sufficient and cheap supply, they have for the last twenty years been importing into the state all the timber they needed. This circumstance is giving the forests of the state a chance to rest and recuperate; meanwhile, the state is left without a local supply of oak, and is entirely dependent on the resources of other parts of the coast.

The southern part of New Hampshire was once densely covered with oak, and the Portsmouth vessels were always constructed from local timber. Both on account of the excellence of the wood and the good workmanship of the builders there was a time when New Hampshire vessels got the best rates of insurance in the country, but all of the timber within easy distance of the coast has now disappeared. The northern part of the state is stocked with red oak, intermingled with other timber, and when railroads are built in sufficient number to cover that region a great deal of timber will come into market; but there is no prospect at present of this being done in time to benefit the decaying ship-building industry of the state.

In Vermont white oak is still in fair supply, and is scattered over a large part of the state, more especially in the counties bordering on lake Champlain. The woods have been much culled near the rivers and lakes, but what is left is small and of good quality. Vermont has enough oak for her own limited use for a long time, with some to spare. Owing to the lack of cheap transportation much of it will not be called for until the supply elsewhere becomes so reduced that the increased price will pay the cost of hauling long distances, and by that time the supply will probably be much lessened by local consumption.

In Massachusetts nearly all the oak is gone. It is stated that, while a certain amount is still to be found in the state, much of it is preserved as a feature of patriarchal estates, and little ever comes into market except by reason of the division of estates and the necessity of paying off legacies, when the oak is cut and sent into the market as a means of raising ready money. Massachusetts oak is of excellent quality.

A small supply of oak is still to be found in the state of Connecticut; but ship-building has almost ceased in that state, and were the industry ever to reach considerable proportions again the supply would not last more than a few years.

A large part of New Jersey was originally covered with the finest white oak, but the clearing of the land for cultivation and the use of oak in the general arts has nearly removed the timber from the state. For a long period forests of this timber flourished almost untouched in the southern part of the state, but the railroads have made it accessible, and it is disappearing at a rapid rate. There are only a few places left where oak timber of any size can be cut. A little of it can be found in the vicinity of May's Landing, there being several hundred trees of large size in and around that village from 12 to 25 inches in diameter and ranging in age from 80 to 200 years. There is also a good deal of the timber in the vicinity of Maurice river, where for the last thirty-five years a considerable number of fishing and coasting vessels have been built every year; but practically the white oak is so nearly extinct in New Jersey that, except on Maurice river, the builders do not depend upon it for the frames of their vessels. The sloops, schooners, and brigantines built in eastern New Jersey are nearly all framed with Jersey yellow pine; the planking and center work only are of oak.

The largest oak forest now existing, growing close upon the Atlantic coast, is on the peninsula of Delaware and in the states of Maryland and Virginia. This region has been resorted to by the ship-builders of Maine, Massachusetts, and New York for more than fifty years. The timber originally covered the whole face of the country from the Delaware river to Chesapeake bay and beyond, and the trees were so tall that the majority of them would yield logs 2½ feet square and 60 feet in length without a spot or defect, the moist lands in which they grew and the exposure to the breezes of the sea being particularly favorable to the production of durable timber. Delaware and Maryland white oak became famous more than fifty years ago for its lasting quality and its general excellence. The possession of this abundant supply of cheap timber led to no great development of the ship-building industry of the states in which it grew; nine-tenths of all the oak felled upon the peninsulas has been cut for exportation to northern markets or to Europe. Serious inroads had already been made into the supply at the time of the war of 1861, and during that war, to supply the demands of the navy, an immense quantity of it was cut. At one time there was serious apprehension of the entire failure of the supply of large timber, and large quantities of it were cut and transported to the north for storage in the navy-yards, so that at least the government should not be without material for building vessels. At least one-half of the face of the country on the Delaware, Maryland, and Virginia peninsulas is still covered with a thick growth of oak trees, but nearly all the first growth near navigable water has now been removed. It is supposed that Worcester county, Maryland, has more oak than any other locality at present, as there was very little cut in that county before the railroad was built through it a few years ago; but since a way of transportation has been opened wood-cutters have been operating there vigorously. There is now very little good ship-timber left in eastern Maryland, except in that county, and it is estimated that in twenty years' time, at the present rate of consumption, the whole supply of large pieces for ships' frames will have been destroyed. The growing scarcity of large trees is illustrated in part by the rise in price of timber standing upon the stump. In times past it has been bought for $1 a thousand feet, standing in the tree, and even at the present time, in counties having a great deal of it, the price is sometimes as low as that; but the usual price at present is seldom lower than $3, even in places where it is difficult to get it out, the average from $4 to $10 a thousand, and before the trees have been felled, hewed into frame timber, and transported by water to Maine the value has risen to $35 a thousand feet. If the second growth of oak in this region were as good as the first, and if the demand for the timber were limited to the requirements of the United States alone, it is probable that several generations would elapse before the price would rise much higher. But it is found, in the first place, that the second growth of oak is not so good as the first. Owing to the gradual clearing up of the country the soil has grown drier, or some other change has taken place which seems to affect the quality of the timber, and many of the local builders in Delaware and Maryland who are familiar with the timber resources of their states believe that the first growth of white oak can never be replaced and that the destruction of timber now going on is permanent. In the next place, the demand is not limited to the United States, Delaware and Maryland white oak being now sent to the Canadian provinces and to Europe in large quantities. The finest pieces, intended for keels, stems, stern-posts, rudder-posts, etc., are cut expressly for the Saint John's market, and this trade has grown so large as to hasten materially the disappearance of the timber.

There is good oak in the Alleghany region south of Pennsylvania extending nearly to Georgia, but it is too far away from the sea to be cut for ship-building while any considerable quantity remains in the coast counties of Delaware, Maryland, and Virginia, and, though cheap where it stands, the expense of bringing it down for shipment would be considerable.

Along the northern lakes the white oak has disappeared with the same rapidity as on the sea-coast. Originally the country was covered with almost one unbroken forest containing oak, pine, hemlock, and hard-wood from lake Champlain to the head of lake Superior; but in the place of this grand growth of timber there now exists an almost unbroken series of cleared and cultivated fields and thriving cities for a distance of more than a thousand miles. A few small forests remain, as in the Adirondack region in New York and on the peninsulas of Michigan and Wisconsin, and some oak remains scattered in small quantities all along through the tier of states bordering on the lakes, but nine-tenths of all the timber is gone. Professor Sargent predicts that what is left of some varieties will be cut off in twenty years, and one need only go into the ship-yards on the lakes to learn that an oak famine is impending. Even in Michigan, where the best white oak in the West is found, people are now importing timber to some extent from Canada in order to eke out the local supply, and more than one large owner of tonnage on the lakes has told me that on account of the diminution of the oak supply he expects to convert his property into iron vessels in the course of a few years. The western forests have been the more severely taxed for oak because that is the only good timber the builders of the lakes have had. They are too far from the southern market to buy pitch-pine, and their white pine is too soft and perishable for use in vessels except for decking, beams, houses, and spars. Lake vessels are framed, planked, and ceiled with oak. This fact, and the general demand for oak timber for houses, cars, and other local purposes, its exportation to the East and to Europe, the clearing up of the country, and the disastrous losses by forest fires, have caused the trees to disappear with remarkable rapidity. The wood has become so scarce that the price of flitch oak has risen from $10 per thousand board feet to $20 in the last twenty years, while squared oak has risen from $15 to $25 per thousand feet, and plank to $30 and $35 per thousand.

While speaking of oak, mention should be made of the forests of the Ohio River valley. The greatest hard-wood forest in the country originally grew over the face of the territory extending from Arkansas and Missouri eastward all along both sides of the Ohio river, and up the Cumberland, Tennessee, Kanawha, and other great branches of the Ohio to the mountains of Virginia, and over the mountains down to the coast. On the northern side of the Ohio the oak has been pretty well cut off, except in scattered lowlands; but on the southern side of the river, in West Virginia, Kentucky, Tennessee, and western North Carolina, and away west in Missouri and Arkansas, there is an abundance of white-oak timber. Now that coal is the popular fuel used on river steamboats and in railroad locomotives the felling of timber is going on more slowly, and some of the forests are practically uninvaded. There is probably more white oak in that region than in all the rest of the country put together, and there are immense tracts of trees of large size. The quality is not always so good as that of the coast oak, but there is enough timber growing in moist land to make the wood sufficiently sound for ship-building purposes. The unfortunate feature of the situation is that there is no practicable way of getting it down to market, as the only route to the sea-coast is by way of the Ohio and Mississippi rivers to New Orleans. It could be floated thither in rafts, as it now is to all points along the Ohio river, by felling a certain number of poplar trees, to float the rafts; but the distance is great, and the rafts would continually be lost in the swift current of the river or by getting aground on sand-bars. The scheme is financially too perilous to be attempted, and the cost of freight from New Orleans to the northern yards would in any event be a serious drawback. It is doubtful whether this timber can ever be much used for deep-sea ship-building unless the vessels are built upon the Mississippi river, for by the time that prices on the coast are so high as to warrant the rafting of it to New Orleans or the freighting of it overland by railroad it will probably be as cheap to build ships of iron as of white oak. A good deal of oak is indeed being sent in cars to the sea-board at the present time, but not for ship-building.

From this review it will be seen that the ship-building of the United States cannot probably depend upon the oak supply of the country for many years longer. Were shipping and trade what they were two hundred years ago, the supply might last a long time; but there has been a great change since America was first settled, and timber is now being consumed in a more rapid ratio than formerly. In old times vessels were small. A 400-ton ship was a monster, and a thousand small vessels were a great fleet, worthy of national pride. Less than 200,000 feet of timber would build a large vessel of the days of the pilgrims; on the other hand, at the present time, the coasting schooners of ordinary size require from 300,000 to 400,000 feet of lumber, and the barks and deep-sea ships from 700,000 to 950,000 and even 1,100,000 feet each. That is to say, every large ship requires the felling of from 160 to 250 trees which are from 100 to 250 years old, a growth which could not be replaced in the life-time of less than four generations. Not only are vessels larger, but there are more of them than there were two centuries ago; and the larger the vessels the heavier the scantling in proportion, and more timber is used in repairing and rebuilding them. Besides the wood consumed by the vessels themselves, a great quantity is cut annually for the building and repairing of wharves and piers in the harbors in which shipping is employed, and the trees cut for those objects are unfortunately the younger ones. The forests are thus being stripped of both large and small trees. No opportunity is given them to recuperate, so that while the consumption of white oak is far greater in proportion to the number of vessels built than it was 200 years ago, the circumstances are also such that it is almost impossible to entertain the slightest hope of ever replacing the timber when it has finally been cut off.

Second only to white oak in importance in ship-building on the Atlantic coast is the yellow pine of the southern states. This tree is properly the yellow or long-leaf pine, and all from Virginia southward is of this variety. In the ship-yards it is called indiscriminately "pitch-pine" and "yellow pine"; but the yellow or pitch-pine of New Jersey is another variety. The southern pine is a tree from 60 to 80 feet in height, with a trunk from 2 to 4 feet in diameter and the grain coarse but compact and straight, and having far less sap-wood than the northern varieties, such as the pines of Virginia and New Jersey. The wood is heavy, strong, and rigid, is full of turpentine, and holds iron tenaciously, being also free from the acids which destroy an iron bolt. It does not grow much more than 100 miles inland from the sea-coast, but for at least that distance it forms almost an unbroken belt of timber from the southern boundary of Virginia all the way to Texas, skipping, however, the lower part of Louisiana. It has been cut off only along the course of the railroads and the rivers of the several states in which it is found. In Mississippi and Alabama the trees do not stand so thickly as in the other states, and are consequently larger and finer. The supply of this valuable timber is very great. It is used principally in the planking, ceiling, keelsons, water-ways, rails, and beams of vessels, and occasionally for decking and spars. Lower masts, with a core of oak and an outside of yellow pine, bolted and hooped together, are now commonly made for the large ships, and topmasts are frequently made of a single pitch-pine stick. The timber is cheap in the states in which it grows, and it is surprising that it is not utilized there for a great local ship-building industry. In a 2,000-ton ship, consuming 900,000 or 1,000,000 feet of timber, as now built in Maine, there is from 150,000 to 200,000 feet of oak, white pine, and hackmatack, and 750,000 or 800,000 feet of southern pitch-pine. It would be cheaper to freight the oak, white pine, and hackmatack to the south than to freight the vastly larger quantity of pitch-pine north. If the straight-grained pitch-pine can be used for frame timber, the whole ship could be built in the South at a large saving on northern prices, probably for from $35 to $40 per register ton. Builders and insurance companies seem afraid of pitch-pine frames, but possibly this is because the experiment has not been tried.

Next after pitch-pine the timber most valued by shipbuilders in this country is white pine. This valuable tree occupies common territory with other timber in the region extending from the valley of the Saint Lawrence to beyond the great lakes, and southward along the Alleghany Mountain system to the high ridges of Georgia. In old times the supply was immense. The trees are from 80 to 150 feet in height, those full grown being from 3 to 4 feet in diameter near the butt. The wood is soft, clear, free from knots, susceptible of a beautiful polish when worked, and extremely buoyant when placed in the water; but it is not strong enough for frame timber, and there is no record of its ever having been used for that purpose in this country. A few ships were built in England of white pine during the period of the greatest alarm there about the failure of the oak supply; but as these vessels lasted for an average of only three years, the experiment with that timber was not repeated.

White pine is most suitable for decking and the construction of cabins, as also for masts and spars. Its value for the latter use has always been so great that in the early patents granted to the colonies the trunks suitable for masts were reserved to the crown. A surveyor of the woods was appointed, who was given a license to go into the forests and mark such trees as were suitable for naval use. In a general way, trees of a diameter of 24 inches and upward just above the butt were reserved for the king, and persons who should fell one of them without permission were liable to a fine of £100. It is noted by Hutchinson that a pine, which when felled and sawed into boards would be worth scarce twenty shillings, would bring £20 when sold for a mast. The cost of masts and spars in England in that period was high. The following were the prices of American pine delivered at the yards in England in 1770, obtained from an old history:

| MASTS. | | | BOWSPRITS. | | | YARDS. | | |
|---|---|---|---|---|---|---|---|---|
| Diameter. | Length. | Value. | Diameter. | Length. | Value. | Diameter. | Length. | Value. |
| *Inches.* | *Feet.* | £ s. | *Inches.* | *Feet.* | £ s. | *Inches.* | *Feet.* | £ s. |
| 36 | 108 | 110 0 | 38 | 75 | 48 0 | 25 | 105 | 25 12 |
| 35 | 105 | 88 0 | 37 | 75 | 42 0 | 24 | 102 | 25 12 |
| 34 | 102 | 72 0 | 36 | 73½ | 36 0 | 23 | 96 | 20 8 |
| 33 | 99 | 56 0 | 35 | 70½ | 34 0 | 22 | 93 | 16 16 |
| 32 | 96 | 44 16 | 34 | 69 | 32 0 | 21 | 88½ | 14 8 |
| 31 | 93 | 35 4 | 33 | 67½ | 24 16 | 20 | 84 | 11 12 |
| 30 | 90 | 28 0 | 32 | 64½ | 23 4 | 19 | 81 | 9 4 |
| 29 | 87 | 22 8 | 31 | 63 | 20 16 | 18 | 76½ | 7 4 |
| 28 | 87 | 18 8 | 30 | 61½ | 16 0 | 17 | 73½ | 5 4 |
| 27 | 87 | 14 8 | 29 | 58½ | 12 0 | | | |
| 26 | 84 | 12 16 | 28 | 57 | 6 16 | | | |
| | | | 27 | 55½ | 5 7 | | | |
| | | | 26 | 52½ | 4 16 | | | |

In 1768, 36-inch masts were worth £153 each delivered at the king's yards in England. In 1789 the lower masts of a 90- or 74-gun war ship, made from spindles of hard wood hooped and bolted together, cost from £500 to £525 each, the topmast, single sticks, £50 each, and the maintop-gallant masts from £8 to £9. From these figures it will be understood what a boon to England was the discovery of the magnificent white-pine timber of the American coasts.

In order to encourage the importation of spars liberal bounties were granted by act of parliament, and there were annually shipped from Portland, Maine, Portsmouth, New Hampshire, and a few other New England ports an average of about fifty ship-loads of spar-timber per year until after the revolutionary war.

The white pine was one of the first trees to disappear from the New England coast, and it is now so nearly extinct that builders are obliged to depend upon sources of supply hundreds and even thousands of miles away. New Hampshire, Vermont, New York, Pennsylvania, Ohio, and Michigan have been successively resorted to, and within the last five years two cargoes of spars have been brought from Oregon. Pitch-pine spars are now being brought to New England from Georgia. There is no prospect that trees large enough for masts will ever again be raised in Maine. In New Hampshire, Vermont, and other northern states, and as far west as Michigan, the white pine is also practically exhausted, while in Michigan, Wisconsin, and Minnesota, where there are many very large pine trees in the mixed hard-wood forests, timber-cutting is going on so fast by means of saw-mills and other steam apparatus that the extinction of the big timber is now expected within the present generation. Professor C. S. Sargent, census expert in charge of the forestry investigation, reports that it is probable that the large specimens of white pine in Michigan, Wisconsin, and Minnesota will be totally exterminated within the next ten or twelve years. It has already become cheaper for the Maine men to make their masts from strips of yellow pine and oak, bound securely together with iron hoops, than it is to bring white-pine trees from the distant parts of the country in which alone they are at present found. Lower yards on large ships are now often made of two sticks spliced, and topmasts are made of yellow pine. Iron masts and yards are now being introduced.

The "hard-wood" supply of the eastern and middle states is also nearly exhausted. These woods, comprising beech, birch, maple, and chestnut, were extensively used during the early active building times, and are still used to some extent in the timbers, beams, and planking of vessels; but there is very little of that timber left, and it cannot now be relied upon as a resource of any value for the ship-building industry. It is true that a large area of primitive forest land exists in the northern part of Maine, covering from 12,000 to 14,000 square miles of territory. Professor Sargent says that the timber is principally black spruce, with some scattered second growth pine and scattering bodies of hard wood, of which the yellow birch and the sugar maple are the most valuable, and it is possible that the future construction of railroads may make this region a factor of some importance in the future of the shipping industry in Maine, but the prospect is that the northern forests of the state will not become accessible for many years to come, as the logs are too heavy to drive down the rivers, and there is now no other way of getting them out. It ought, perhaps, to be mentioned that there is much hard wood in the north of Michigan.

A good ship-building wood, which was not much used by the early builders but has been put into ships extensively of late years, is the larch, variously called "hackmatack" and "tamarack". The wood of this tree is light colored, tough, buoyant, and durable, and a large vessel built completely of this wood would carry at least 300 tons more freight than an oak-built ship. It is not strong enough, however, to be used in parts of ships exposed to stress, and the uses for which it has been found most valuable are for knees, stanchions, and top timbers. The hackmatack has the valuable peculiarity of being free from acids which will corrode iron bolts driven through it. It holds iron with a tenacious grip. In these respects it is far superior to oak, and on account of its buoyancy, tenacity, and durability nearly all the Atlantic ship-yards use it, when it can be obtained, in the tops of vessels, as the cargo-carrying power is slightly increased and the center of gravity of the ship is kept low. On the northern coast the larch is sometimes from 80 to 100 feet in height, with the trunk sometimes 2 and 3 feet in diameter, and always grows in the swamps. A considerable body of this timber exists scattered through the northern counties of Maine, but it is so far away from the railroads that it is inaccessible. The larch is a tree of quick growth. A tract of it once cleared off springs up again immediately, and in about ten or fifteen years' time the trees are large enough for knees for the smaller class of vessels. There is apparently no reason why larch may not be relied upon for a long period for the use to which it is now chiefly put.

Spruce, too, like all other forest trees of the north Atlantic coast, is fast disappearing. It has never been used within the limits of the United States to any great extent in ship-building except for the light spars of vessels, but in the Canadian provinces forests are found of coast-spruce strong, tough, and durable which have been extensively utilized for the construction of vessels. The timber is cheap, and a ship when built of it is a good carrier and of remarkable durability for one constructed of so soft a timber. A number of small vessels built in the eastern part of Maine have also been constructed largely of spruce, but that is believed to be the only locality in the whole of the United States where spruce has been so used. For the light spars of vessels this wood is invaluable, as it is as light as white pine or cedar and is elastic and strong. A great deal of it was exported in the colonial days to England, and even at the present time a large number of European vessels are supplied with spruce spars from America, but the timber is now scarce. The chief sources of supply are Canada, Maine, New Hampshire, Vermont, northern New York, and West Virginia. A system prevails in Maine of cutting only the large trees from the spruce woods, leaving the smaller ones; and as the tree is one of rapid growth, the woods can be profitably worked at intervals of from fifteen to twenty-five years.

One other ship-building wood grows upon the Atlantic coast in limited supply, and has been used to some extent for a hundred years. This is the live-oak of Florida, a timber so durable that a ship built of it would last a hundred years, but so heavy as to make its use undesirable. A great deal of this timber was utilized during the twenty years following 1840 in navy vessels, steam propellers, and large clipper ships, particularly in the bows and sterns. Two large vessels have been built on Long Island within the last five years with live-oak frames, but experience has proved that vessels into which this wood enters to any considerable extent are inferior cargo carriers. Live-oak vessels have, as a rule, changed hands faster than those built of any other wood. There is a good deal of this timber left in Florida, but no one wants it.

Speaking in a general way, it must be admitted that the supply of valuable ship-building timber on the Atlantic coast has been materially impaired by the past two centuries of steady pillaging; and it is diminishing now so fast that wooden ships are likely to rise materially in price in the course of the next twenty years. If relief is to be looked for from any quarter, it is probable that it will come from the far northwest, on the Pacific coast.

Washington territory and Oregon, west of the Cascade mountains, are covered with the heaviest continuous belt of forest growth now existing in the United States, and perhaps in the world. Perhaps the single exception to this remark is the magnificent redwood belt of the California ranges. Nine-tenths of the forests first named are the yellow or red fir. There is a valuable cedar and several varieties of pine are scattered among the firs; there are also hemlock, spruce, a poor quality of oak, and some laurel. The tide-land spruce of that region makes excellent knees, and the laurel supplies stem pieces and other parts of the ship for which hard wood is positively required. The fir is valuable for all the rest of the ship. The trees grow to gigantic size, being from 150 to 300 feet in height, with the trunk from 5 to 8 and even 10 feet in diameter. They grow so straight that the lumbermen often fail, even with the aid of a plumb-line, to discover the slightest deflection from a true perpendicular. The wood is lighter and coarser grained than white oak, but is as strong, elastic, and tough as oak, and when cut at the right season of the year is equally as durable.

This timber first came to the notice of the officers of the United States navy more than thirty years ago. One or two war vessels having been sent into Puget sound to protect the settlers from the Indians, the officers were captivated with the timber, growing as it did from the water's edge as far inland as the eye could reach, and running up even on the sides of the colossal peaks of the region. Word being sent to Washington that it seemed desirable to test the qualities of the wood for ship-building, Admiral Farragut caused a quantity of it to be sent to the navy-yard near San Francisco and special tests to be made, with a view to ascertaining the size of scantling required to construct a vessel of fir having the same strength as though it were built of eastern white oak. Specifications for the sloop-of-war Manzanita were prepared from the results of these experiments. The fir was tested both there and at various eastern yards and found to be a satisfactory material for wooden vessels.

The following is an extract from a report by Constructor George W. Much, of the United States navy, in January, 1879, to Rear-Admiral Rodgers, on this subject:

> In compliance with bureau order of October 12, 1878, to furnish the information required in your letter of October 3, 1878, relative to amended specifications for building the screw-steamer Manzanita with the Atlantic coast wood crossed out, also whether the carbolized laurel in the yard schooner Freda remains perfectly sound, etc., I have the honor to report that upon the receipt of the order I instituted inquiries as to the best Pacific coast and other woods that could be obtained in San Francisco for ship-building purposes, and by the information received from old settlers, timber dealers, vessel-owners, ship-builders, shipwrights, and others conversant in timber and timber material, find from their experience that there is no material on this or the Atlantic coast better adapted for outside and inside planking, for keels, keelsons, clamps, bilge strakes, knees, and breast-hooks than the Washington territory yellow fir, or yellow Oregon pine. It has also been adopted for frame timber in all vessels built on the coast for the last ten years, and so far with good results, and I have therefore adopted it in the specifications.
>
> The Washington territory yellow fir or Oregon yellow pine can be readily procured, free from sap or other defects, of any desired size up to 90 feet in length, is in strength fully equal to Atlantic coast white oak, and has fully the same tenacity to hold fastening, and never becomes iron sick as it does when corroded by the acid contained in white oak. The great length of the Washington territory yellow fir saves to the ship-builder in fastening butts and scarfs and gives greater elasticity to the hull, and consequently diminishes the danger of springing a leak. Owing to the straight growth of this timber, there are comparatively but few natural crooks, but by judicious and careful selection the proper growth or shape could be obtained from the larger trees, and, if they were not readily found, the sharper floors, futtocks, and hooks could be built in the same manner as those built at this yard for the United States schooner Freda. For mast and spar timber the Washington territory yellow fir has no superior. Shipwrights and ship-builders of this coast, from their experience in repairs to sail and steam vessels, fully indorse the lasting qualities of this wood. Innumerable instances might be given of vessels built on this coast constructed entirely of Washington territory yellow fir. Some of them built as early as 1857 are still remaining perfectly sound, strong, and staunch.

The length of the fir timber is a strong point in its favor, as from trees 300 feet in height sticks of any required length can be obtained, while on the Atlantic coast oak and hard wood cannot be bought of a greater average length than 45 feet. Plank and logs of 60 feet are costly and hard to get; on the other hand, in the yellow-fir region logs for keels, keelsons, and planking can be obtained of any length that the saw-mills can handle. Keel and keelson pieces from 110 to 120 feet in length are habitually used. In the transfer steamboat Solano, of 3,549 tons, built at Oakland in 1879 and 1880, keelson pieces were used 150 feet long and 24 inches square without a particle of sap, rent, or check, and sound, straight, and free from knots and defects of every kind. In the curved parts of frames no longer sticks can be employed than in the eastern yards, but in all the longitudinal pieces of the ship, upon which the rigidity of the hull depends, the builders find it convenient to use stuff of an average length of 90 feet, and can get all they want of it without extra cost. The long stuff is preferred, because it gives strength and elasticity to the ship, and because it saves much labor in construction, owing to the fewer number of butts.

Professor Sargent says that any estimate of the actual amount of timber standing in the territory is scarcely possible with the existing knowledge of the country; but the area of the forests is enormous, and the quantity of timber to the acre is remarkable. One estimate of the quantity of timber standing, apparently an extravagant one, makes it equal to the whole amount of the wood cut in the United States from the first settlement down to the present time. An important fact about the Pacific fir is that it reproduces itself so fast in its rainy home that it can be made to last almost indefinitely.

A large number of coasting vessels have been built out of Pacific coast fir, and several ships have been constructed for the grain trade with Liverpool. There was a great difference in the length of time for which these vessels respectively lasted. Some speedily decayed, others were sound after twenty years' use, and builders were for a few years greatly puzzled to account for this phenomenon; but attention has been called of late to the time of year at which the timber for the different vessels was cut, and it is now believed that the trouble in the cases of early decay arose entirely from using summer-cut trees. Builders intend hereafter to select fall- and winter-cut timber for their vessels, and the experts of the Pacific coast believe that fir felled when the sap is out of the wood and salted after being put into the vessel will last as long as white oak.

The cost of fir will also have some bearing on the question of iron or wood as a material for sailing vessels. As long as it can be bought for $10 and $12 per thousand board feet or less than $25 or $30 a thousand, while iron costs anything like present prices, the wooden ship will be a cheaper vessel than one of iron.

The following is a statement of the specific gravities and weights of the ship-building woods of the United States, prepared for this report by Professor C. S. Sargent, of Brookline, Massachusetts, chief special agent in charge of forestry statistics of the census of 1880:

| Woods. | Specific gravity. | Weight per cubic foot. | Woods. | Specific gravify. | Weight per cubic foot. | Woods. | Specific gravity. | Weight per cubic foot. |
|---|---|---|---|---|---|---|---|---|
| | | *Pounds.* | | | *Pounds.* | | | *Pounds.* |
| White oak | 0.7438 | 46.35 | Live oak | 0.9504 | 59.23 | White laurel | 0.6517 | 40.61 |
| Pitch-pine of New England | 0.4957 | 30.89 | Chestnut | 0.4504 | 28.07 | Western white cedar | 0.4623 | 28.81 |
| Jersey pine | 0.4957 | 30.89 | Locust | 0.7333 | 45.70 | Cedar of Puget sound | 0.3796 | 23.64 |
| Southern pine | 0.6999 | 43.62 | Rock maple | 0.6827 | 42.53 | Alaska cedar | 0.4782 | 29.80 |
| White pine | 0.3842 | 23.94 | Black sugar maple | 0.6921 | 43.13 | Southern cypress | 0.4600 | 28.67 |
| White cedar | 0.3322 | 20.70 | American beech | 0.6883 | 42.89 | Madeira wood | 0.9533 | 59.41 |
| Red cedar | 0.4926 | 30.70 | Yellow birch | 0.6553 | 40.84 | Horse-flesh dogwood | 0.8734 | 54.43 |
| Hemlock | 0.4202 | 26.19 | Southern poplar | 0.3889 | 24.23 | Mastic | 1.0109 | 63.00 |
| Hackmatack | 0.6236 | 38.86 | Yellow fir | 0.5155 | 32.13 | | | |
| Black spruce | 0.4584 | 28.57 | Redwood | 0.4208 | 26.22 | | | |

These are the weights of absolutely dry woods; for woods used for ordinary industrial purposes an addition of from 10 to 15 per cent. should be made for moisture remaining in the wood. For ship timber the weights should be corrected by adding about 25 per cent. For instance, white oak partially seasoned weighs on the average 56 pounds per cubic foot, and yellow fir 42 pounds per cubic foot in the ship-yard.

Constructor Samuel H. Pook, of the United States navy, has supplied the following data of actual weights of woods in the ship-yards:

| | Weight per cubic foot in pounds. |
|---|---|
| White oak | 56 |
| Pitch-pine | 40 to 50 |
| White pine | 35 |
| Spruce | 33 |
| Maple | 40 |
| Beech | 49 |
| Live oak | 76 |
| Hackmatack | 42 |
| Chestnut | 36 |
| Hemlock | 30 |
| Sycamore | 35 |
| White holly | 47 |
| White cedar | 21 |
| Red cedar | 35 |
| Cypress | 31 |
| Hickory | 53 |

# CHAPTER IX.

# STATISTICS OF SHIP-BUILDING.

## NUMBER, TONNAGE, AND VALUE OF NEW VESSELS, AND NUMBER AND VALUE OF BOATS BUILT DURING THE CENSUS YEAR, BY STATES AND TERRITORIES.

| State and Territory. | NEW VESSELS. (*a*) | | | BOATS. | | CANAL-BOATS. (*b*) | | | Value of repairing. | Total value of all products. |
|---|---|---|---|---|---|---|---|---|---|---|
| | Number built. | Tonnage. | Value. | Number built. | Value. | Number built. | Tonnage. | Value. | | |
| The United States | 2, 415 | 498, 878 | $19, 225, 714 | 8, 026 | $876, 999 | 643 | 66, 707 | $1, 739, 975 | $16, 697, 614 | $36, 800, 327 |
| Alabama | | | | | | | | | 60, 000 | 60, 000 |
| Arkansas | 3 | 300 | 28, 000 | | | | | | | 28, 000 |
| California | 21 | 7, 361 | 770, 696 | 200 | 57, 545 | | | | 969, 398 | 1, 797, 639 |
| Connecticut | 52 | 11, 473 | 413, 009 | 280 | 37, 200 | | | | 317, 451 | 767, 660 |
| Delaware | 55 | 31, 123 | 1, 614, 969 | 100 | 18, 437 | | | | 529, 097 | 2, 162, 503 |
| Florida | 13 | 217 | 25, 000 | 45 | 16, 050 | | | | 44, 000 | 85, 050 |
| Georgia | 2 | 539 | 17, 000 | | | | | | | 17, 000 |
| Illinois | 11 | 1, 397 | 137, 300 | 85 | 9, 050 | 1 | 88 | 8, 300 | 745, 743 | 892, 093 |
| Indiana | 64 | 26, 524 | 726, 680 | 52 | 3, 100 | | | | 80, 875 | 810, 655 |
| Iowa | 2 | 860 | 70, 000 | | | | | | 42, 000 | 112, 000 |
| Kansas | 1 | 178 | 26, 000 | | | | | | | 26, 000 |
| Kentucky | 23 | 2, 130 | 86, 215 | 25 | 1, 000 | | | | 161, 800 | 249, 015 |
| Louisiana | 36 | 1, 231 | 105, 525 | 80 | 15, 600 | | | | 222, 400 | 343, 525 |
| Maine | 88 | 41, 396 | 2, 174, 650 | 970 | 53, 818 | | | | 681, 378 | 2, 909, 846 |
| Maryland | 131 | 7, 499 | 320, 260 | 133 | 45, 000 | 60 | 4, 270 | 84, 000 | 1, 423, 370 | 1, 788, 630 |
| Massachusetts | 39 | 5, 605 | 391, 655 | 3, 765 | 186, 727 | | | | 1, 703, 284 | 2, 281, 666 |
| Michigan | 69 | 15, 909 | 1, 390, 050 | 210 | 13, 117 | | | | 631, 469 | 2, 034, 636 |
| Minnesota | | | | | | | | | 15, 000 | 15, 000 |
| Mississippi | 3 | 33 | 3, 500 | | | | | | 2, 000 | 5, 500 |
| Missouri | 17 | 3, 451 | 358, 487 | | | | | | 206, 700 | 565, 187 |
| Nebraska | 1 | 52 | 9, 000 | | | | | | | 9, 000 |
| New Hampshire | | | | 44 | 4, 440 | | | | 25, 630 | 30, 070 |
| New Jersey | 53 | 7, 455 | 409, 714 | 134 | 34, 460 | 10 | 1, 010 | 14, 600 | 940, 455 | 1, 384, 629 |
| New York | 635 | 76, 418 | 3, 145, 536 | 1, 221 | 263, 957 | 441 | 49, 887 | 1, 370, 525 | 4, 575, 551 | 7, 985, 044 |
| North Carolina | 8 | 487 | 22, 650 | | | | | | 34, 569 | 57, 219 |
| Ohio | 55 | 25, 132 | 1, 127, 600 | 91 | 18, 400 | 1 | 11 | 2, 300 | 406, 210 | 1, 552, 210 |
| Oregon | 19 | 2, 162 | 176, 600 | | | | | | 29, 900 | 206, 500 |
| Pennsylvania | 802 | 204, 507 | 4, 676, 258 | 318 | 47, 888 | 122 | 10, 711 | 237, 450 | 1, 965, 324 | 6, 689, 470 |
| Rhode Island | 17 | 379 | 129, 000 | 68 | 27, 610 | | | | 360, 431 | 517, 041 |
| South Carolina | 27 | 1, 615 | 92, 900 | | | | | | 51, 100 | 144, 000 |
| Tennessee | 1 | 48 | 5, 000 | | | | | | | 5, 000 |
| Texas | 10 | 758 | 55, 780 | | | | | | 22, 000 | 77, 780 |
| Vermont | 5 | 550 | 17, 800 | | | 5 | 550 | 17, 800 | | 17, 800 |
| Virginia | 26 | 514 | 62, 050 | 48 | 9, 800 | 3 | 180 | 5, 000 | 109, 174 | 181, 024 |
| Washington | 14 | 1, 769 | 161, 600 | 80 | 1, 900 | | | | 21, 000 | 184, 500 |
| West Virginia | 85 | 16, 727 | 221, 230 | | | | | | 9, 900 | 231, 130 |
| Wisconsin | 21 | 3, 079 | 254, 000 | 77 | 11, 900 | | | | 310, 405 | 576, 305 |

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*a* Includes wooden and iron vessels and canal-boats.

*b* Included with new vessels.

## NUMBER, TONNAGE, AND VALUE OF NEW VESSELS, AND NUMBER AND VALUE OF BOATS BUILT DURING THE CENSUS YEAR, BY COUNTIES.

| States and counties. | NEW VESSELS. (*a*) | | | BOATS. | | CANAL-BOATS. (*b*) | | | Value of repairing. | Total value of all products. |
|---|---|---|---|---|---|---|---|---|---|---|
| | Number built. | Tonnage. | Value. | Number built. | Value. | Number built. | Tonnage. | Value. | | |
| ALABAMA. | | | | | | | | | | |
| Mobile | | | | | | | | | $60,000 | $60,000 |
| ARKANSAS. | | | | | | | | | | |
| Johnson | 1 | 125 | $12,000 | | | | | | | 12,000 |
| Pulaski | 1 | 86 | 8,000 | | | | | | | 8,000 |
| Sebastian | 1 | 89 | 8,000 | | | | | | | 8,000 |
| Total | 3 | 300 | 28,000 | | | | | | | 28,000 |
| CALIFORNIA. | | | | | | | | | | |
| Alameda | 5 | 5,964 | 638,296 | | | | | | 51,000 | 689,296 |
| Humboldt | 1 | 347 | 15,000 | | | | | | | 15,000 |
| Mendocino | | | | | | | | | 5,500 | 5,500 |
| San Francisco (city) | 15 | 1,050 | 117,400 | 200 | $57,545 | | | | 912,898 | 1,087,843 |
| Total | 21 | 7,361 | 770,696 | 200 | 57,545 | | | | 969,398 | 1,797,639 |
| CONNECTICUT. | | | | | | | | | | |
| Fairfield | 3 | 68 | 10,300 | 34 | 2,320 | | | | 11,500 | 24,120 |
| Hartford | | | | | | | | | 32,600 | 32,600 |
| Middlesex | 2 | 228 | 10,000 | 13 | 1,625 | | | | 135,502 | 147,127 |
| New Haven | 34 | 4,486 | 128,000 | 65 | 6,666 | | | | 30,660 | 165,326 |
| New London | 13 | 6,691 | 264,709 | 168 | 26,589 | | | | 107,189 | 398,487 |
| Total | 52 | 11,473 | 413,009 | 280 | 37,200 | | | | 317,451 | 767,660 |
| DELAWARE. | | | | | | | | | | |
| Kent | 1 | 400 | 12,000 | | | | | | | 12,000 |
| New Castle | 44 | 27,704 | 1,432,669 | 100 | 18,437 | | | | 523,097 | 1,974,203 |
| Sussex | 10 | 3,019 | 170,300 | | | | | | 6,000 | 176,300 |
| Total | 55 | 31,123 | 1,614,969 | 100 | 18,437 | | | | 529,097 | 2,162,503 |
| FLORIDA. | | | | | | | | | | |
| Duval | | | | 10 | 3,050 | | | | | 3,050 |
| Franklin | 4 | 32 | 3,400 | | | | | | | 3,400 |
| Hernando | 1 | 19 | 5,000 | | | | | | | 5,000 |
| Hillsborough | 1 | 11 | 1,800 | | | | | | | 1,800 |
| Levy | 1 | 6 | 450 | 15 | 5,000 | | | | 6,000 | 11,450 |
| Manatee | 1 | 13 | 1,500 | | | | | | 5,000 | 6,500 |
| Marion | 1 | 94 | 9,000 | | | | | | | 9,000 |
| Monroe | 3 | 29 | 2,850 | 20 | 8,000 | | | | 33,000 | 43,850 |
| Volusia | 1 | 13 | 1,000 | | | | | | | 1,000 |
| Total | 13 | 217 | 25,000 | 45 | 16,050 | | | | 44,000 | 85,050 |
| GEORGIA. | | | | | | | | | | |
| Glynn | 1 | 243 | 8,000 | | | | | | | 8,000 |
| Telfair | 1 | 296 | 9,000 | | | | | | | 9,000 |
| Total | 2 | 539 | 17,000 | | | | | | | 17,000 |
| ILLINOIS. | | | | | | | | | | |
| Alexander | | | | | | | | | 9,860 | 9,860 |
| Cook | 3 | 138 | 16,200 | 85 | 9,050 | 1 | 88 | 8,300 | 633,883 | 659,133 |
| Jasper | 1 | 10 | 2,000 | | | | | | | 2,000 |
| Jersey | 1 | 102 | 12,000 | | | | | | | 12,000 |
| Massac | 3 | 750 | 59,500 | | | | | | 40,000 | 99,500 |
| Peoria | 2 | 68 | 6,600 | | | | | | | 6,600 |
| Pulaski | 1 | 329 | 41,000 | | | | | | 62,000 | 103,000 |
| Total | 11 | 1,397 | 137,300 | 85 | 9,050 | 1 | 88 | 8,300 | 745,743 | 892,093 |
| INDIANA. | | | | | | | | | | |
| Clark | 28 | 17,010 | 489,700 | 40 | 2,500 | | | | 17,000 | 509,200 |
| Daviess | 1 | 28 | 2,800 | | | | | | | 2,800 |
| Floyd | 7 | 5,307 | 65,700 | | | | | | | 65,700 |
| Hendricks | 1 | 49 | 4,500 | | | | | | | 4,500 |
| Jefferson | 6 | 3,006 | 110,000 | | | | | | 40,000 | 150,000 |
| Martin | 1 | 28 | 4,000 | | | | | | | 4,000 |
| Perry | | | | | | | | | 2,500 | 2,500 |
| Switzerland | 1 | 28 | 4,000 | | | | | | | 4,000 |
| Tippecanoe | 1 | 29 | 3,000 | | | | | | | 3,000 |
| Vanderburgh | 17 | 1,016 | 38,980 | 12 | 600 | | | | 21,375 | 60,955 |
| Warrick | 1 | 23 | 4,000 | | | | | | | 4,000 |
| Total | 64 | 26,524 | 726,680 | 52 | 3,100 | | | | 80,875 | 810,655 |

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*a* Includes wooden and iron vessels and canal-boats.

*b* Included with new vessels.

## NUMBER, TONNAGE, AND VALUE OF NEW VESSELS, ETC.—Continued.

| States and counties. | NEW VESSELS. (a) | | | BOATS. | | CANAL-BOATS. (b) | | | Value of repairing. | Total value of all products. |
|---|---|---|---|---|---|---|---|---|---|---|
| | Number built. | Tonnage. | Value. | Number built. | Value. | Number built. | Tonnage. | Value. | | |
| IOWA. | | | | | | | | | | |
| Dubuque | 2 | 860 | $70,000 | | | | | | $42,000 | $112,000 |
| KANSAS. | | | | | | | | | | |
| Leavenworth | 1 | 178 | 26,000 | | | | | | | 26,000 |
| KENTUCKY. | | | | | | | | | | |
| Barren | 1 | 23 | 3,000 | | | | | | | 3,000 |
| Boyd | 3 | 135 | 15,000 | 25 | $1,000 | | | | 8,000 | 24,000 |
| Franklin | 1 | 60 | 6,500 | | | | | | | 6,500 |
| Jefferson | 1 | 30 | 30,000 | | | | | | 15,000 | 45,000 |
| Kenton | 16 | 1,861 | 29,715 | | | | | | 58,800 | 88,515 |
| McCracken | | | | | | | | | 80,000 | 80,000 |
| Union | 1 | 21 | 2,000 | | | | | | | 2,000 |
| Total | 23 | 2,130 | 86,215 | 25 | 1,000 | | | | 161,800 | 249,015 |
| LOUISIANA. (c) | | | | | | | | | | |
| Calcasieu | 3 | 86 | 13,925 | | | | | | | 13,925 |
| Catahoula | 1 | 11 | 6,000 | | | | | | | 6,000 |
| Claiborne | 1 | 18 | 8,000 | | | | | | | 8,000 |
| Iberville | 3 | 13 | 950 | | | | | | | 950 |
| Jefferson | 2 | 35 | 6,500 | | | | | | | 6,500 |
| Orleans | 7 | 250 | 25,050 | 80 | 15,600 | | | | 222,400 | 263,050 |
| Rapides | 1 | 84 | 9,000 | | | | | | | 9,000 |
| Saint Landry | 1 | 21 | 8,000 | | | | | | | 8,000 |
| Saint Mary | 9 | 603 | 18,300 | | | | | | | 18,300 |
| Saint Tammany | 6 | 88 | 7,600 | | | | | | | 7,600 |
| Tangipahoa | 1 | 13 | 1,500 | | | | | | | 1,500 |
| Terrebonne | 1 | 9 | 700 | | | | | | | 700 |
| Total | 36 | 1,231 | 105,525 | 80 | 15,600 | | | | 222,400 | 343,525 |
| MAINE. | | | | | | | | | | |
| Aroostook | | | | 80 | 2,000 | | | | | 2,000 |
| Cumberland | 8 | 7,125 | 401,442 | 225 | 11,950 | | | | 189,718 | 603,110 |
| Hancock | 10 | 1,580 | 84,480 | 124 | 5,435 | | | | 85,784 | 175,699 |
| Knox | 9 | 6,297 | 306,550 | 79 | 6,395 | | | | 133,014 | 445,959 |
| Lincoln | 5 | 1,477 | 78,600 | 14 | 1,135 | | | | 32,264 | 111,999 |
| Penobscot | | | | 130 | 4,896 | | | | 57,321 | 62,217 |
| Sagadahoc | 32 | 20,223 | 986,758 | 58 | 10,640 | | | | 79,530 | 1,076,928 |
| Waldo | 1 | 350 | 14,000 | 15 | 900 | | | | 18,755 | 33,655 |
| Washington | 10 | 838 | 61,100 | 201 | 8,776 | | | | 71,992 | 141,868 |
| York | 13 | 3,506 | 241,720 | 44 | 1,691 | | | | 13,000 | 256,411 |
| Total | 88 | 41,396 | 2,174,650 | 970 | 53,818 | | | | 681,378 | 2,909,846 |
| MARYLAND. | | | | | | | | | | |
| Allegany | 59 | 4,140 | 80,600 | | | 59 | 4,140 | $80,600 | 30,500 | 111,100 |
| Anne Arundel | | | | | | | | | 4,000 | 4,000 |
| Baltimore (city) | 23 | 2,162 | 136,210 | 80 | 23,900 | | | | 1,284,970 | 1,445,080 |
| Calvert | | | | | | | | | 5,300 | 5,300 |
| Cecil | 1 | 130 | 3,400 | | | 1 | 130 | 3,400 | | 3,400 |
| Dorchester | 13 | 374 | 31,400 | 6 | 2,300 | | | | 18,200 | 51,900 |
| Harford | 1 | 22 | 3,000 | | | | | | 25,000 | 28,000 |
| Queen Anne | 1 | 6 | 900 | | | | | | | 900 |
| Saint Mary's | 2 | 30 | 3,500 | | | | | | | 3,500 |
| Somerset | 9 | 121 | 10,850 | 20 | 8,000 | | | | 7,200 | 26,050 |
| Talbot | 11 | 135 | 14,100 | 12 | 4,800 | | | | 11,200 | 30,100 |
| Wicomico | 6 | 161 | 14,800 | 15 | 6,000 | | | | 16,000 | 36,800 |
| Worcester | 5 | 218 | 21,500 | | | | | | 21,000 | 42,500 |
| Total | 131 | 7,499 | 320,260 | 133 | 45,000 | 60 | 4,270 | 84,000 | 1,423,370 | 1,788,630 |
| MASSACHUSETTS. | | | | | | | | | | |
| Barnstable | | | | 72 | 14,075 | | | | 45,823 | 59,898 |
| Bristol | 1 | 12 | 1,000 | 235 | 28,047 | | | | 202,739 | 231,786 |
| Dukes | | | | 6 | 1,910 | | | | 47,569 | 49,479 |
| Essex | 17 | 1,761 | 131,050 | 2,951 | 73,799 | | | | 180,485 | 385,334 |
| Middlesex | | | | 46 | 7,500 | | | | | 7,500 |
| Norfolk | 2 | 038 | 48,000 | 259 | 14,850 | | | | | 62,850 |
| Plymouth | | | | 6 | 1,171 | | | | 2,500 | 3,671 |
| Suffolk | 19 | 2,894 | 211,605 | 170 | 43,375 | | | | 1,224,168 | 1,479,148 |
| Worcester | | | | 20 | 2,000 | | | | | 2,000 |
| Total | 39 | 5,605 | 391,655 | 3,765 | 186,727 | | | | 1,703,284 | 2,281,666 |
| MICHIGAN. | | | | | | | | | | |
| Allegan | 1 | 23 | 3,500 | | | | | | | 3,500 |
| Alpena | 1 | 6 | 1,500 | | | | | | | 1,500 |
| Berrien | 4 | 409 | 41,200 | | | | | | | 41,200 |
| Huron | 6 | 80 | 6,800 | | | | | | | 6,800 |
| Iosco | 1 | 403 | 18,000 | | | | | | | 18,000 |

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a Includes wooden and iron vessels and canal-boats.

b Included with new vessels.

c Parishes.

## NUMBER, TONNAGE, AND VALUE OF NEW VESSELS, ETC.—Continued.

| States and counties. | NEW VESSELS. (*a*) | | | BOATS. | | CANAL-BOATS. (*b*) | | | Value of repairing. | Total value of all products. |
|---|---|---|---|---|---|---|---|---|---|---|
| | Number built. | Tonnage. | Value. | Number built. | Value. | Number built. | Tonnage. | Value. | | |
| MICHIGAN—continued. | | | | | | | | | | |
| Macomb | 4 | 759 | $57,500 | | | | | | | $57,500 |
| Manistee | 1 | 22 | 2,000 | | | | | | | 2,000 |
| Manitou | 1 | 11 | 850 | | | | | | | 950 |
| Mason | 1 | 12 | 900 | | | | | | | 900 |
| Muskegon | 2 | 34 | 4,800 | | | | | | | 4,800 |
| Ottawa | 9 | 681 | 87,850 | | | | | | $17,900 | 105,750 |
| Saginaw | 14 | 5,314 | 340,550 | 87 | $2,950 | | | | 71,000 | 414,500 |
| Saint Clair | 7 | 644 | 34,900 | 30 | 1,992 | | | | 118,169 | 155,061 |
| Sanilac | | | | 10 | 2,100 | | | | | 2,100 |
| Van Buren | 4 | 96 | 4,600 | | | | | | | 4,600 |
| Wayne | 13 | 7,415 | 785,000 | 83 | 6,075 | | | | 424,400 | 1,215,475 |
| Total | 69 | 15,909 | 1,390,050 | 210 | 13,117 | | | | 631,469 | 2,034,636 |
| MINNESOTA. | | | | | | | | | | |
| Washington | | | | | | | | | 15,000 | 15,000 |
| MISSISSIPPI. | | | | | | | | | | |
| Hancock | 1 | 17 | 2,000 | | | | | | | 2,000 |
| Harrison | 2 | 16 | 1,500 | | | | | | 2,000 | 3,500 |
| Total | 3 | 33 | 3,500 | | | | | | 2,000 | 5,500 |
| MISSOURI. | | | | | | | | | | |
| Butler | 1 | 86 | 8,000 | | | | | | | 8,000 |
| Clay | 1 | 29 | 9,000 | | | | | | | 9,000 |
| Cole | 1 | 42 | 7,000 | | | | | | | 7,000 |
| Gasconade | 1 | 91 | 9,000 | | | | | | | 9,000 |
| Howard | 2 | 109 | 10,475 | | | | | | | 10,475 |
| Jackson | 1 | 48 | 15,000 | | | | | | | 15,000 |
| Saint Louis (city) | 10 | 3,046 | 300,012 | | | | | | 206,700 | 506,712 |
| Total | 17 | 3,451 | 358,487 | | | | | | 206,700 | 565,187 |
| NEBRASKA. | | | | | | | | | | |
| Cass | 1 | 52 | 9,000 | | | | | | | 9,000 |
| NEW HAMPSHIRE. | | | | | | | | | | |
| Rockingham | | | | 44 | 4,440 | | | | 25,630 | 30,070 |
| NEW JERSEY. | | | | | | | | | | |
| Atlantic | 4 | 48 | 5,100 | | | | | | 1,300 | 6,400 |
| Burlington | 6 | 259 | 10,400 | 4 | 1,820 | 1 | 200 | $1,800 | 13,400 | 25,620 |
| Camden | 11 | 2,139 | 200,087 | 26 | 8,000 | | | | 230,489 | 438,576 |
| Cape May | 7 | 396 | 30,200 | | | | | | | 30,200 |
| Cumberland | 6 | 1,879 | 112,300 | | | | | | 19,400 | 131,700 |
| Essex | | | | | | | | | 22,500 | 22,500 |
| Gloucester | 1 | 19 | 2,500 | | | | | | | 2,500 |
| Hudson | 2 | 300 | 6,000 | 78 | 21,050 | | | | 516,716 | 543,766 |
| Mercer | | | | | | | | | 31,000 | 31,000 |
| Middlesex | 1 | 164 | 9,000 | | | | | | 54,750 | 63,750 |
| Monmouth | 10 | 882 | 16,800 | | | 9 | 810 | 12,800 | 20,000 | 36,800 |
| Ocean | 1 | 9 | 1,200 | 4 | 1,600 | | | | | 2,800 |
| Union | 4 | 1,360 | 16,127 | 22 | 1,990 | | | | 30,900 | 49,017 |
| Total | 53 | 7,455 | 409,714 | 134 | 34,460 | 10 | 1,010 | 14,600 | 940,455 | 1,384,629 |
| NEW YORK. | | | | | | | | | | |
| Albany | 7 | 793 | 22,800 | | | 6 | 780 | 18,300 | 90,000 | 112,800 |
| Cayuga | 1 | 132 | 3,600 | 18 | 2,850 | 1 | 132 | 3,600 | 7,350 | 13,800 |
| Chautauqua | 1 | 124 | 2,500 | | | 1 | 124 | 2,500 | | 2,500 |
| Clinton | 6 | 722 | 24,600 | | | 6 | 722 | 24,600 | | 24,600 |
| Duchess | 4 | 120 | 16,300 | | | | | | | 16,300 |
| Erie | 134 | 16,188 | 668,390 | 47 | 2,800 | 108 | 13,189 | 384,475 | 495,766 | 1,166,956 |
| Essex | 13 | 1,709 | 36,800 | | | 13 | 1,709 | 36,800 | 18,000 | 54,800 |
| Greene | 9 | 2,345 | 200,300 | | | | | | 32 000 | 232,300 |
| Herkimer | | | | | | | | | 31,400 | 31,400 |
| Jefferson | 6 | 408 | 35,800 | | | | | | | 35,800 |
| Kings | 78 | 11,259 | 649,995 | 92 | 19,241 | | | | 1,330,552 | 1,999,788 |
| Lewis | 4 | 160 | 6,800 | | | 4 | 160 | 6,800 | 2,200 | 9,000 |
| Madison | 8 | 1,052 | 27,600 | | | 8 | 1,052 | 27,600 | 17,387 | 44,987 |
| Monroe | 38 | 5,035 | 153,100 | 48 | 5,510 | 37 | 4,885 | 147,100 | | 158,610 |
| Montgomery | | | | | | | | | 6,000 | 6,000 |
| New York | 2 | 18 | 2,100 | 642 | 163,360 | | | | 1,905,545 | 2,071,005 |
| Niagara | 58 | 6,911 | 233,700 | | | 58 | 6,911 | 233,700 | 29,700 | 263,400 |
| Oneida | 22 | 2,196 | 62,900 | | | 20 | 1,931 | 50,900 | 21,476 | 84,376 |
| Onondaga | 7 | 850 | 23,800 | 12 | 1,100 | 7 | 850 | 23,800 | 5,800 | 30,700 |
| Ontario | | | | 24 | 11,720 | | | | | 11,720 |
| Orange | 6 | 724 | 126,000 | | | | | | 57,400 | 183,400 |
| Oswego | 33 | 4,517 | 113,200 | 22 | 1,190 | 31 | 4,117 | 92,400 | 31,173 | 145,563 |
| Queens | 1 | 8 | 1,200 | | | | | | | 1,200 |
| Richmond | 13 | 1,582 | 100,000 | 12 | 1,400 | | | | 87,400 | 188,800 |
| Rockland | 3 | 130 | 21,000 | | | | | | 9,000 | 30,000 |
| Saint Lawrence | | | | 30 | 4,000 | | | | 5,467 | 9,467 |
| Saratoga | 12 | 1,560 | 38,000 | | | 12 | 1,560 | 38,000 | 11,000 | 49,000 |
| Schenectady | | | | | | | | | 5,500 | 5,500 |
| Schuyler | 6 | 739 | 33,500 | 20 | 800 | 6 | 739 | 33,500 | | 34,300 |
| Seneca | 1 | 130 | 3,500 | | | 1 | 130 | 3,500 | 4,600 | 8,100 |

*a* Includes wooden and iron vessels and canal-boats.

*b* Included with new vessels.

## NUMBER, TONNAGE, AND VALUE OF NEW VESSELS, ETC.—Continued.

| States and counties. | NEW VESSELS. (a) | | | BOATS. | | CANAL-BOATS. (b) | | | Value of repairing. | Total value of all products. |
|---|---|---|---|---|---|---|---|---|---|---|
| | Number built. | Tonnage. | Value. | Number built. | Value. | Number built. | Tonnage. | Value. | | |
| **NEW YORK—continued.** | | | | | | | | | | |
| Suffolk | 18 | 2,567 | $147,750 | 124 | $31,040 | | | | $131,188 | $309,978 |
| Sullivan | 18 | 1,367 | 21,950 | | | 18 | 1,367 | $21,950 | 8,000 | 29,950 |
| Tompkins | 24 | 2,938 | 86,000 | | | 24 | 2,938 | 86,000 | | 86,000 |
| Ulster | 73 | 5,634 | 157,700 | | | 57 | 3,697 | 70,400 | 188,847 | 346,547 |
| Warren | | | | 50 | 2,000 | | | | | 2,000 |
| Washington | 23 | 2,894 | 64,600 | | | 23 | 2,894 | 64,600 | 6,000 | 70,600 |
| Wayne | | | | | | | | | 3,000 | 3,000 |
| Westchester | 6 | 1,606 | 60,051 | 85 | 16,946 | | | | 33,800 | 110,797 |
| Total | 635 | 76,418 | 3,145,536 | 1,221 | 263,957 | 441 | 49,887 | 1,370,525 | 4,575,551 | 7,985,044 |
| **NORTH CAROLINA.** | | | | | | | | | | |
| Beaufort | 5 | 395 | 14,800 | | | | | | 2,069 | 16,869 |
| Brunswick | | | | | | | | | 15,500 | 15,500 |
| Craven | 1 | 10 | 900 | | | | | | | 900 |
| Dare | | | | | | | | | 6,000 | 6,000 |
| Pamlico | 1 | 11 | 950 | | | | | | | 950 |
| Pasquotank | | | | | | | | | 11,000 | 11,000 |
| Pitts | 1 | 71 | 6,000 | | | | | | | 6,000 |
| Total | 8 | 487 | 22,650 | | | | | | 34,569 | 57,219 |
| **OHIO.** | | | | | | | | | | |
| Ashtabula | 1 | 6 | 1,000 | | | | | | | 1,000 |
| Brown | 1 | 23 | 6,000 | | | | | | | 6,000 |
| Columbiana | 1 | 44 | 9,000 | | | | | | | 9,000 |
| Cuyahoga | 3 | 4,940 | 286,000 | 36 | 4,200 | | | | 228,050 | 518,250 |
| Defiance | | | | | | | | | 1,200 | 1,200 |
| Erie | 4 | 1,503 | 114,000 | 23 | 6,300 | | | | 9,000 | 129,300 |
| Fairfield | | | | | | | | | 3,000 | 3,000 |
| Hamilton | 18 | 13,305 | 470,000 | (c) | 2,000 | | | | 94,700 | 566,700 |
| Jefferson | 8 | 1,447 | 9,000 | | | | | | | 9,000 |
| Lawrence | 4 | 435 | 41,500 | | | | | | 9,000 | 50,500 |
| Lorain | 6 | 776 | 60,000 | | | | | | | 60,000 |
| Lucas | 4 | 832 | 59,300 | 32 | 5,900 | | | | 35,100 | 100,300 |
| Scioto | 1 | 1,351 | 11,000 | | | | | | | 11,000 |
| Stark | | | | | | | | | 5,000 | 5,000 |
| Summit | 1 | 11 | 2,300 | | | 1 | 11 | 2,300 | 21,160 | 23,460 |
| Washington | 3 | 459 | 58,500 | | | | | | | 58,500 |
| Total | 55 | 25,132 | 1,127,600 | 91 | 18,400 | 1 | 11 | 2,300 | 406,210 | 1,552,210 |
| **OREGON.** | | | | | | | | | | |
| Benton | 1 | 23 | 2,800 | | | | | | | 2,800 |
| Clackamas | | | | | | | | | 12,000 | 12,000 |
| Clatsop | 1 | 9 | 3,000 | | | | | | | 3,000 |
| Columbia | 1 | 16 | 3,000 | | | | | | | 3,000 |
| Coos | 1 | 51 | 3,000 | | | | | | | 3,000 |
| Multnomah | 11 | 1,574 | 63,300 | | | | | | 7,900 | 71,200 |
| Wasco | 4 | 489 | 101,500 | | | | | | 10,000 | 111,500 |
| Total | 19 | 2,162 | 176,600 | | | | | | 29,900 | 206,500 |
| **PENNSYLVANIA.** | | | | | | | | | | |
| Allegheny | 503 | 132,978 | 652,840 | 80 | 5,600 | | | | 191,400 | 849,840 |
| Armstrong (d) | | | 8,000 | | | | | | | 8,000 |
| Beaver | 9 | 3,332 | 234,400 | | | | | | | 234,400 |
| Bucks | 3 | 270 | 8,400 | | | 3 | 270 | 8,400 | 3,000 | 11,400 |
| Carbon | 13 | 1,176 | 23,400 | | | 13 | 1,176 | 23,400 | | 23,400 |
| Clarion (d) | | | 28,580 | | | | | | | 28,580 |
| Columbia | 3 | 221 | 24,000 | | | 3 | 221 | 24,000 | | 24,000 |
| Dauphin | | | | 20 | 700 | | | | | 700 |
| Delaware | 5 | 10,611 | 1,800,699 | 9 | 1,500 | | | | 4,600 | 1,806,799 |
| Erie | | | | 6 | 1,500 | | | | 8,000 | 9,500 |
| Luzerne | 1 | 90 | 2,200 | | | 1 | 90 | 2,200 | | 2,200 |
| Perry | 3 | 276 | 7,000 | | | 3 | 276 | 7,000 | | 7,000 |
| Philadelphia | 28 | 10,351 | 1,487,769 | 203 | 38,588 | | | | 1,741,624 | 3,267,981 |
| Schuylkill | 24 | 3,168 | 59,100 | | | 24 | 3,168 | 59,100 | | 59,100 |
| Union | 25 | 2,250 | 50,600 | | | 25 | 2,250 | 50,600 | | 50,600 |
| Washington | 135 | 36,524 | 226,520 | | | | | | 8,000 | 234,520 |
| Wayne | 48 | 3,110 | 60,050 | | | 48 | 3,110 | 60,050 | 5,400 | 65,450 |
| York | 2 | 150 | 2,700 | | | 2 | 150 | 2,700 | 3,300 | 6,000 |
| Total | 802 | 204,507 | 4,676,258 | 318 | 47,888 | 122 | 10,711 | 237,450 | 1,965,324 | 6,689,470 |
| **RHODE ISLAND.** | | | | | | | | | | |
| Bristol | 16 | 283 | 115,000 | 6 | 540 | | | | 19,800 | 135,340 |
| Newport | | | | 40 | 13,370 | | | | 215,000 | 228,370 |
| Providence | | | | 10 | 5,700 | | | | 125,631 | 131,331 |
| Washington | 1 | 96 | 14,000 | 12 | 8,000 | | | | | 22,000 |
| Total | 17 | 379 | 129,000 | 68 | 27,610 | | | | 360,431 | 517,041 |

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a Includes wooden and iron vessels and canal boats.
b Included with new vessels.
c Number not given.
d Bottoms only.

## NUMBER, TONNAGE, AND VALUE OF NEW VESSELS, ETC.—Continued.

| States and counties. | NEW VESSELS. (a) | | | BOATS. | | CANAL-BOATS. (b) | | | Value of repairing. | Total value of all products. |
|---|---|---|---|---|---|---|---|---|---|---|
| | Number built. | Tonnage. | Value. | Number built. | Value. | Number built. | Tonnage. | Value. | | |
| SOUTH CAROLINA. | | | | | | | | | | |
| Beaufort | | | | | | | | | $3,400 | $3,400 |
| Charleston | 27 | 1,615 | $92,900 | | | | | | 47,700 | 140,600 |
| Total | 27 | 1,615 | 92,900 | | | | | | 51,100 | 144,000 |
| TENNESSEE. | | | | | | | | | | |
| Shelby | 1 | 48 | 5,000 | | | | | | | 5,000 |
| TEXAS. | | | | | | | | | | |
| Calhoun | | | | | | | | | 3,000 | 3,000 |
| Chambers | 2 | 23 | 2,250 | | | | | | | 2,250 |
| Denton | 1 | 8 | 450 | | | | | | | 450 |
| Galveston | 6 | 84 | 7,100 | | | | | | | 7,100 |
| Harris | 4 | 590 | 36,500 | | | | | | 19,000 | 55,500 |
| Matagorda | 2 | 32 | 2,480 | | | | | | | 2,480 |
| Orange | 1 | 21 | 7,000 | | | | | | | 7,000 |
| Total | 16 | 758 | 55,780 | | | | | | 22,000 | 77,780 |
| VERMONT. | | | | | | | | | | |
| Addison | 3 | 330 | 11,000 | | | 3 | 330 | $11,000 | | 11,000 |
| Franklin | 1 | 110 | 3,800 | | | 1 | 110 | 3,800 | | 3,800 |
| Rutland | 1 | 110 | 3,000 | | | 1 | 110 | 3,000 | | 3,000 |
| Total | 5 | 550 | 17,800 | | | 5 | 550 | 17,800 | | 17,800 |
| VIRGINIA. | | | | | | | | | | |
| Campbell | | | | | | | | | 4,000 | 4,000 |
| Elizabeth City | 5 | 44 | 9,600 | 22 | $3,600 | | | | 8,000 | 21,200 |
| Fairfax | 1 | 7 | 600 | | | | | | 13,474 | 14,074 |
| Halifax | | | | 6 | 1,600 | | | | | 1,600 |
| Henrico | 3 | 180 | 5,000 | | | 3 | 180 | 5,000 | 18,500 | 23,500 |
| Isle of Wight | 1 | 10 | 1,100 | | | | | | | 1,100 |
| Mathews | 3 | 19 | 2,400 | | | | | | | 2,400 |
| Middlesex | 2 | 81 | 13,500 | | | | | | | 13,500 |
| Nansemond | 1 | 14 | 1,800 | | | | | | | 1,800 |
| Norfolk | 3 | 67 | 16,300 | | | | | | 42,200 | 58,500 |
| Northumberland | 4 | 63 | 8,600 | 20 | 4,600 | | | | 13,000 | 26,200 |
| York | 3 | 29 | 3,150 | | | | | | 10,000 | 13,150 |
| Total | 26 | 514 | 62,050 | 48 | 9,800 | 3 | 180 | 5,000 | 109,174 | 181,024 |
| WASHINGTON TERRITORY. | | | | | | | | | | |
| Clallam | 1 | 43 | 3,500 | | | | | | | 3,500 |
| Clarke | 1 | 48 | 6,000 | | | | | | | 6,000 |
| Island | 1 | 6 | 800 | | | | | | | 800 |
| Jefferson | 4 | 745 | 80,000 | | | | | | | 80,000 |
| King | 4 | 840 | 57,500 | | | | | | 21,000 | 78,500 |
| Pacific | 1 | 15 | 2,000 | | | | | | | 2,000 |
| Pierce | 1 | 38 | 2,800 | | | | | | | 2,800 |
| Thurston | | | | 80 | 1,900 | | | | | 1,900 |
| Walla Walla | 1 | 34 | 9,000 | | | | | | | 9,000 |
| Total | 14 | 1,769 | 161,600 | 80 | 1,900 | | | | 21,000 | 184,500 |
| WEST VIRGINIA. | | | | | | | | | | |
| Braxton | | | 5,280 | | | | | | | 5,280 |
| Jackson | 4 | 1,341 | 73,000 | | | | | | | 73,000 |
| Kanawha | 51 | 9,145 | 31,100 | | | | | | 3,900 | 35,000 |
| Mason | 14 | 4,603 | 61,300 | | | | | | 6,000 | 67,300 |
| Ohio | 9 | 730 | 27,550 | | | | | | | 27,550 |
| Pleasant | 6 | 720 | 5,000 | | | | | | | 5,000 |
| Tyler | 1 | 188 | 18,000 | | | | | | | 18,000 |
| Total | 85 | 16,727 | 221,230 | | | | | | 9,900 | 231,130 |
| WISCONSIN. | | | | | | | | | | |
| Brown | 3 | 604 | 59,000 | | | | | | 24,000 | 83,000 |
| Dane | | | | 25 | 2,000 | | | | | 2,000 |
| Door | 3 | 134 | 18,000 | | | | | | | 18,000 |
| La Crosse | 3 | 300 | 28,000 | | | | | | 17,600 | 45,600 |
| Manitowoc | 7 | 1,382 | 81,000 | | | | | | 24,000 | 105,000 |
| Milwaukee | 3 | 621 | 61,000 | 32 | 3,400 | | | | 237,305 | 301,705 |
| Racine | 1 | 14 | 5,000 | | | | | | 7,500 | 12,500 |
| Sheboygan | 1 | 24 | 2,000 | | | | | | | 2,000 |
| Walworth | | | | 20 | 6,500 | | | | | 6,500 |
| Total | 21 | 3,079 | 254,000 | 77 | 11,900 | | | | 310,405 | 576,305 |

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*a* Includes wooden and iron vessels and canal-boats.

*b* Included with new vessels.

## NUMBER, TONNAGE, AND VALUE OF IRON VESSELS BUILT AND REPAIRED DURING THE CENSUS YEAR, BY COUNTIES.

| States and counties. | NEW VESSELS. | | | Value of repairing. | Total value of all products. |
|---|---|---|---|---|---|
| | Number built. | Tonnage. | Value. | | |
| The United States | 67 | 31, 347 | $5, 096, 293 | $1, 298, 545 | $6, 394, 838 |
| DELAWARE. | | | | | |
| New Castle | 22 | 8, 925 | 1, 262, 800 | 440, 545 | 1, 703, 345 |
| MARYLAND. | | | | | |
| Baltimore (city) | 1 | 55 | 17, 500 | 160, 000 | 177, 500 |
| MASSACHUSETTS. | | | | | |
| Suffolk | ..... | ..... | ..... | 80, 000 | 80, 000 |
| MICHIGAN. | | | | | |
| Wayne | 3 | 1, 533 | 387, 500 | ..... | 387, 500 |
| MISSOURI. | | | | | |
| Saint Louis (*a*) | 7 | 2, 740 | 241, 000 | ..... | 241, 000 |
| NEW JERSEY. | | | | | |
| Camden | 4 | 382 | 75, 875 | 29, 000 | 104, 875 |
| NEW YORK. | | | | | |
| Erie | 4 | 150 | 15, 000 | 27, 000 | 42, 000 |
| Orange | 2 | 529 | 74, 000 | ..... | 74, 000 |
| Total | 6 | 679 | 89, 000 | 27, 000 | 116, 000 |
| PENNSYLVANIA. | | | | | |
| Allegheny | 5 | 550 | 84, 000 | ..... | 84, 000 |
| Delaware | 5 | 10, 611 | 1, 792, 699 | ..... | 1, 792, 699 |
| Philadelphia | 14 | 5, 872 | 1, 145, 919 | 562, 000 | 1, 707, 919 |
| Total | 24 | 17, 033 | 3, 022, 618 | 562, 000 | 3, 584, 618 |

*a* Includes city of Saint Louis.

## NUMBER AND TONNAGE OF VESSELS, NUMBER OF ESTABLISHMENTS, CAPITAL, AVERAGE VALUE OF

### A—AGGREGATE.

| | States and Territories. | Boats. | Vessels repaired, as reported. | New vessels. | Tonnage of new vessels. | No. of establishments. | Capital. | Average number of hands employed. | Total amount paid in wages on vessels in the ship-yard. |
|---|---|---|---|---|---|---|---|---|---|
| | | *Number.* | *Number.* | *Number.* | | | *Dollars.* | | *Dollars.* |
| | The United States | 8, 026 | 16, 507 | 2, 415 | 498, 878 | 2, 188 | 20, 979, 874 | 21, 345 | 12, 713, 813 |
| 1 | Alabama | ...... | ...... | ...... | ...... | 1 | 25, 000 | 25 | 22, 500 |
| 2 | Arkansas | ...... | ...... | 3 | 300 | 3 | 2, 500 | 25 | 3, 600 |
| 3 | California | 200 | ...... | 21 | 7, 361 | 62 | 1, 806, 923 | 534 | 589, 564 |
| 4 | Connecticut | 280 | 840 | 52 | 11, 473 | 94 | 334, 300 | 500 | 256, 849 |
| 5 | Delaware | 100 | ...... | 55 | 31, 123 | 18 | 935, 200 | 1, 576 | 900, 322 |
| 6 | Florida | 45 | ...... | 13 | 217 | 48 | 30, 750 | 46 | 33, 580 |
| 7 | Georgia | ...... | ...... | 2 | 539 | 2 | 3, 000 | 4 | 2, 250 |
| 8 | Illinois | 85 | ...... | 11 | 1, 397 | 28 | 457, 000 | 465 | 247, 395 |
| 9 | Indiana | 52 | ...... | 64 | 26, 524 | 23 | 194, 250 | 312 | 211, 736 |
| 10 | Iowa | ...... | ...... | 2 | 860 | 1 | 25, 000 | 75 | 37, 000 |
| 11 | Kansas | ...... | ...... | 1 | 178 | 1 | 1, 000 | 11 | 1, 900 |
| 12 | Kentucky | 25 | ...... | 23 | 2, 130 | 11 | 88, 450 | 157 | 92, 171 |
| 13 | Louisiana | 80 | ...... | 36 | 1, 231 | 38 | 152, 100 | 218 | 113, 526 |
| 14 | Maine | 970 | 1, 687 | 88 | 41, 396 | 379 | 811, 750 | 1, 967 | 838, 559 |
| 15 | Maryland | 133 | 712 | 131 | 7, 499 | 166 | 1, 606, 535 | 1, 178 | 657, 789 |
| 16 | Massachusetts | 3, 765 | 3, 269 | 39 | 5, 605 | 276 | 1, 765, 450 | 1, 328 | 804, 571 |
| 17 | Michigan | 210 | ...... | 69 | 15, 909 | 72 | 476, 775 | 1, 537 | 745, 933 |
| 18 | Minnesota | ...... | ...... | ...... | ...... | 1 | 10, 000 | 16 | 8, 000 |
| 19 | Mississippi | ...... | ...... | 3 | 33 | 3 | 2, 500 | 4 | 2, 860 |
| 20 | Missouri | ...... | ...... | 17 | 3, 451 | 14 | 247, 900 | 293 | 196, 005 |
| 21 | Nebraska | ...... | ...... | 1 | 52 | 1 | 300 | 9 | 1, 400 |
| 22 | New Hampshire | 44 | 8 | ...... | ...... | 15 | 15, 330 | 26 | 12, 243 |
| 23 | New Jersey | 134 | 2, 680 | 53 | 7, 455 | 93 | 943, 070 | 930 | 548, 807 |
| 24 | New York | 1, 221 | 6, 469 | 635 | 76, 418 | 457 | 3, 944, 100 | 4, 661 | 2, 907, 129 |
| 25 | North Carolina | ...... | ...... | 8 | 487 | 11 | 15, 400 | 38 | 19, 256 |
| 26 | Ohio | 91 | ...... | 55 | 25, 132 | 54 | 423, 050 | 773 | 414, 360 |
| 27 | Oregon | ...... | ...... | 19 | 2, 162 | 14 | 63, 300 | 85 | 77, 150 |
| 28 | Pennsylvania | 318 | ...... | 802 | 204, 507 | 125 | 5, 797, 731 | 3, 298 | 2, 279, 629 |
| 29 | Rhode Island | 68 | 840 | 17 | 379 | 22 | 227, 700 | 318 | 194, 662 |
| 30 | South Carolina | ...... | ...... | 27 | 1, 615 | 16 | 46, 300 | 94 | 55, 990 |
| 31 | Tennessee | ...... | ...... | 1 | 48 | 1 | 500 | 6 | 600 |
| 32 | Texas | ...... | ...... | 16 | 758 | 16 | 23, 350 | 43 | 30, 170 |
| 33 | Vermont | ...... | ...... | 5 | 550 | 3 | 20, 700 | 12 | 4, 400 |
| 34 | Virginia | 48 | 2 | 26 | 514 | 65 | 185, 960 | 146 | 75, 526 |
| 35 | Washington | 80 | ...... | 14 | 1, 769 | 11 | 33, 000 | 62 | 51, 298 |
| 36 | West Virginia | ...... | ...... | 85 | 16, 727 | 19 | 55, 000 | 99 | 51, 510 |
| 37 | Wisconsin | 77 | ...... | 21 | 3, 079 | 24 | 208, 700 | 474 | 223, 573 |

### B—NEW VESSELS.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | The United States | ...... | ...... | 2, 415 | 498, 878 | 640 | 8, 777, 150 | 10, 039 | 5, 616, 071 |
| 1 | Arkansas | ...... | ...... | 3 | 300 | 3 | 2, 500 | 25 | 3, 600 |
| 2 | California | ...... | ...... | 21 | 7, 361 | 13 | 45, 050 | 181 | 199, 485 |
| 3 | Connecticut | ...... | ...... | 52 | 11, 473 | 8 | 34, 700 | 211 | 106, 400 |
| 4 | Delaware | ...... | ...... | 55 | 31, 123 | 12 | 904, 400 | 1, 105 | 623, 997 |
| 5 | Florida | ...... | ...... | 13 | 217 | 13 | 2, 150 | 9 | 7, 030 |
| 6 | Georgia | ...... | ...... | 2 | 539 | 2 | 3, 000 | 4 | 2, 250 |
| 7 | Illinois | ...... | ...... | 11 | 1, 397 | 8 | 20, 250 | 50 | 24, 960 |
| 8 | Indiana | ...... | ...... | 64 | 26, 524 | 16 | 146, 450 | 246 | 172, 186 |
| 9 | Iowa | ...... | ...... | 2 | 860 | (a) | 5, 000 | 20 | 11, 000 |
| 10 | Kansas | ...... | ...... | 1 | 178 | 1 | 1, 000 | 11 | 1, 900 |
| 11 | Kentucky | ...... | ...... | 23 | 2, 130 | 5 | 15, 300 | 28 | 16, 721 |
| 12 | Louisiana | ...... | ...... | 36 | 1, 231 | 27 | 9, 900 | 34 | 21, 350 |
| 13 | Maine | ...... | ...... | 88 | 41, 396 | 51 | 433, 200 | 1, 390 | 576, 502 |
| 14 | Maryland | ...... | ...... | 131 | 7, 499 | 37 | 100, 300 | 208 | 96, 405 |
| 15 | Massachusetts | ...... | ...... | 39 | 5, 605 | 26 | 83, 200 | 217 | 116, 560 |
| 16 | Michigan | ...... | ...... | 69 | 15, 909 | 47 | 178, 600 | 920 | 431, 058 |
| 17 | Mississippi | ...... | ...... | 3 | 33 | 2 | 1, 500 | 2 | 1, 360 |
| 18 | Missouri | ...... | ...... | 17 | 3, 451 | 10 | 59, 900 | 168 | 103, 705 |
| 19 | Nebraska | ...... | ...... | 1 | 52 | 1 | 300 | 9 | 1, 400 |
| 20 | New Jersey | ...... | ...... | 53 | 7, 455 | 30 | 309, 000 | 227 | 115, 488 |
| 21 | New York | ...... | ...... | 635 | 76, 418 | 142 | 736, 250 | 1, 742 | 884, 887 |
| 22 | North Carolina | ...... | ...... | 8 | 487 | 6 | 4, 400 | 12 | 5, 056 |
| 23 | Ohio | ...... | ...... | 55 | 25, 132 | 21 | 214, 350 | 429 | 232, 613 |
| 24 | Oregon | ...... | ...... | 19 | 2, 162 | 12 | 47, 000 | 64 | 57, 950 |
| 25 | Pennsylvania | ...... | ...... | 802 | 204, 507 | 58 | 5, 184, 200 | 2, 221 | 1, 525, 120 |
| 26 | Rhode Island | ...... | ...... | 17 | 379 | 2 | 40, 500 | 63 | 38, 000 |
| 27 | South Carolina | ...... | ...... | 27 | 1, 615 | 9 | 13, 700 | 54 | 32, 530 |
| 28 | Tennessee | ...... | ...... | 1 | 48 | 1 | 500 | 6 | 600 |
| 29 | Texas | ...... | ...... | 16 | 758 | 15 | 18, 050 | 24 | 15, 970 |
| 30 | Vermont | ...... | ...... | 5 | 550 | 3 | 20, 700 | 12 | 4, 400 |
| 31 | Virginia | ...... | ...... | 26 | 514 | 20 | 8, 500 | 44 | 20, 180 |
| 32 | Washington | ...... | ...... | 14 | 1, 769 | 8 | 24, 000 | 49 | 37, 898 |
| 33 | West Virginia | ...... | ...... | 85 | 16, 727 | 18 | 48, 000 | 87 | 45, 350 |
| 34 | Wisconsin | ...... | ...... | 21 | 3, 079 | 13 | 61, 300 | 167 | 82, 160 |

*a* Included in "Repairing of vessels".

## NUMBER OF HANDS EMPLOYED, AMOUNT OF WAGES PAID, MATERIALS USED, AND PRODUCTS.

### A—AGGREGATE.

| PRINCIPAL MATERIALS. | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hard pine. | White pine. | White oak. | Knees. | Total quantity of lumber, including other kinds. | Iron. | Yellow metal and brass. | Duck. | Manila rope. | Hemp cordage. | Total value of all materials. | Total value of all products. | |
| *Feet.*<br>39, 327, 372 | *Feet.*<br>47, 506, 048 | *Feet.*<br>69, 701, 360 | *Number.*<br>97, 192 | *Feet.*<br>179, 873, 966 | *Pounds.*<br>125, 701, 922 | *Pounds.*<br>7, 669, 826 | *Yards.*<br>4, 684, 464 | *Pounds.*<br>1, 996, 163 | *Pounds.*<br>1, 125, 131 | *Dollars.*<br>19, 736, 358 | *Dollars.*<br>36, 800, 327 | |
| 30, 000 | ...... | ...... | ...... | 30, 000 | 40, 000 | 20, 000 | ...... | ...... | ...... | 25, 000 | 60, 000 | 1 |
| 32, 000 | 24, 000 | 115, 000 | ...... | 171, 000 | 176, 000 | 3, 100 | 700 | 900 | ...... | 21, 700 | 28, 000 | 2 |
| ...... | ...... | 196, 000 | 1, 621 | 6, 580, 000 | 2, 092, 656 | 1, 058, 730 | 151, 453 | 73, 840 | 36, 880 | 959, 349 | 1, 797, 639 | 3 |
| 2, 777, 000 | 604, 080 | 722, 900 | 3, 820 | 4, 793, 450 | 1, 042, 156 | 60, 800 | 85, 870 | 38, 981 | 41, 142 | 430, 425 | 767, 660 | 4 |
| 1, 966, 500 | 1, 886, 500 | 2, 217, 800 | 4, 651 | 6, 411, 800 | 13, 045, 744 | 135, 866 | 65, 602 | 67, 097 | 74, 804 | 964, 275 | 2, 162, 503 | 5 |
| 95, 100 | ...... | 38, 800 | ...... | 176, 400 | 138, 160 | 800 | 19, 520 | 6, 530 | 200 | 43, 250 | 85, 050 | 6 |
| 95, 000 | 8, 000 | 14, 000 | ...... | 117, 000 | 90, 000 | 1, 200 | 550 | 750 | ...... | 13, 700 | 17, 000 | 7 |
| ...... | 1, 234, 500 | 3, 631, 800 | 45 | 5, 137, 300 | 1, 130, 400 | 7, 250 | 761, 350 | 2, 580 | ...... | 492, 010 | 892, 093 | 8 |
| ...... | 1, 569, 100 | 4, 878, 300 | ...... | 7, 046, 400 | 3, 173, 600 | 47, 900 | 28, 800 | 36, 300 | ...... | 529, 840 | 810, 655 | 9 |
| ...... | 160, 000 | 300, 000 | ...... | 460, 000 | 139, 000 | 4, 000 | 1, 600 | 1, 250 | ...... | 62, 000 | 112, 000 | 10 |
| ...... | 30, 000 | 60, 000 | ...... | 90, 000 | 72, 000 | 1, 000 | 400 | 380 | ...... | 23, 000 | 26, 000 | 11 |
| 2, 500 | 1, 352, 500 | 1, 451, 000 | ...... | 3, 291, 000 | 569, 699 | 3, 700 | 2, 250 | 2, 350 | ...... | 126, 550 | 249, 015 | 12 |
| 233, 100 | ...... | 72, 500 | 40 | 423, 600 | 362, 230 | 5, 100 | 85, 030 | 7, 120 | 680 | 162, 405 | 343, 525 | 13 |
| 13, 882, 112 | 3, 064, 208 | 5, 193, 710 | 26, 560 | 25, 866, 351 | 9, 981, 416 | 467, 956 | 601, 298 | 446, 862 | 373, 712 | 1, 935, 857 | 2, 909, 846 | 14 |
| 4, 596, 700 | 3, 430, 200 | 2, 376, 500 | 3, 440 | 10, 536, 400 | 3, 299, 358 | 514, 554 | 408, 940 | 118, 920 | 151, 600 | 884, 299 | 1, 788, 630 | 15 |
| 2, 197, 760 | 2, 065, 860 | 1, 877, 650 | 8, 750 | 6, 958, 745 | 2, 955, 965 | 1, 044, 611 | 423, 275 | 94, 235 | 125, 000 | 1, 173, 640 | 2, 281, 666 | 16 |
| ...... | 2, 482, 600 | 6, 122, 600 | 6, 383 | 8, 636, 200 | 9, 479, 730 | 48, 300 | 147, 776 | 84, 320 | 19, 650 | 1, 089, 985 | 2, 034, 636 | 17 |
| ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | 2, 500 | 15, 000 | 18 |
| 9, 000 | ...... | 8, 000 | ...... | 19, 000 | 11, 600 | ...... | 610 | 430 | 150 | 1, 950 | 5, 500 | 19 |
| ...... | 978, 000 | 2, 165, 500 | ...... | 3, 336, 500 | 2, 421, 260 | 8, 000 | 4, 600 | 4, 150 | ...... | 313, 392 | 565, 187 | 20 |
| ...... | 15, 000 | 23, 000 | ...... | 38, 000 | 18, 000 | 400 | 200 | 300 | ...... | 7, 000 | 9, 000 | 21 |
| 10, 000 | 39, 600 | 16, 400 | 70 | 74, 000 | 19, 300 | ...... | 10, 900 | ...... | ...... | 14, 369 | 30, 070 | 22 |
| 1, 827, 800 | 1, 665, 300 | 2, 274, 300 | 5, 620 | 6, 279, 900 | 2, 455, 048 | 211, 958 | 87, 940 | 47, 687 | 58, 316 | 649, 194 | 1, 384, 629 | 23 |
| 7, 652, 800 | 10, 461, 000 | 14, 535, 900 | 23, 103 | 35, 905, 020 | 16, 292, 176 | 3, 072, 264 | 811, 130 | 267, 121 | 34, 477 | 4, 055, 637 | 7, 985, 044 | 24 |
| 232, 000 | 13, 000 | 25, 000 | 310 | 270, 000 | 124, 400 | 2, 600 | 1, 300 | 1, 560 | ...... | 32, 075 | 57, 219 | 25 |
| 40, 000 | 1, 937, 000 | 7, 793, 500 | 2, 518 | 10, 166, 500 | 7, 635, 020 | 74, 900 | 157, 750 | 100, 350 | 16, 300 | 985, 960 | 1, 552, 210 | 26 |
| ...... | ...... | 12, 500 | 125 | 836, 000 | 420, 700 | 5, 200 | 3, 210 | 8, 500 | 2, 080 | 124, 400 | 206, 500 | 27 |
| 2, 099, 300 | 10, 960, 800 | 7, 908, 900 | 6, 055 | 24, 321, 600 | 43, 810, 621 | 763, 487 | 639, 580 | 523, 520 | 162, 400 | 3, 610, 367 | 6, 689, 470 | 28 |
| 185, 000 | 178, 300 | 190, 600 | 1, 330 | 726, 900 | 952, 058 | 65, 000 | 4, 100 | 5, 400 | ...... | 266, 858 | 517, 041 | 29 |
| 584, 600 | 10, 400 | 40, 100 | 436 | 680, 100 | 220, 600 | 900 | 16, 080 | 2, 810 | ...... | 55, 250 | 144, 000 | 30 |
| 8, 000 | 3, 000 | 18, 000 | ...... | 29, 000 | 28, 000 | 300 | 200 | 300 | ...... | 4, 100 | 5, 000 | 31 |
| 278, 100 | 8, 300 | 167, 100 | ...... | 459, 500 | 129, 500 | 14, 750 | 8, 180 | 13, 840 | 18, 590 | 40, 340 | 77, 780 | 32 |
| ...... | 120, 400 | 63, 800 | 102 | 184, 200 | 52, 000 | ...... | ...... | 1, 420 | ...... | 9, 200 | 17, 800 | 33 |
| 493, 000 | 30, 300 | 190, 600 | 931 | 720, 900 | 183, 125 | 8, 500 | 9, 270 | 7, 240 | 4, 350 | 74, 578 | 181, 024 | 34 |
| ...... | ...... | 16, 000 | 147 | 890, 000 | 519, 700 | 7, 000 | 6, 600 | 6, 700 | 3, 800 | 121, 300 | 184, 500 | 35 |
| ...... | 2, 093, 000 | 1, 228, 000 | ...... | 3, 363, 000 | 389, 300 | 3, 200 | 3, 900 | 6, 400 | ...... | 162, 300 | 231, 130 | 36 |
| ...... | 1, 081, 100 | 3, 755, 600 | 1, 635 | 4, 848, 200 | 2, 231, 400 | 6, 500 | 134, 500 | 16, 020 | 1, 000 | 268, 303 | 576, 305 | 37 |

### B—NEW VESSELS.

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 29, 653, 232 | 33, 072, 968 | 52, 461, 950 | 69, 903 | 131, 234, 191 | 99, 296, 779 | 1, 294, 808 | 670, 704 | 1, 374, 618 | 736, 931 | 11, 944, 212 | 19, 225, 714 | |
| 32, 000 | 24, 000 | 116, 000 | ...... | 171, 000 | 176, 000 | 3, 100 | 700 | 900 | ...... | 21, 700 | 28, 000 | 1 |
| ...... | ...... | 101, 000 | 1, 615 | 3, 880, 000 | 1, 811, 156 | 51, 650 | 20, 653 | 33, 540 | 16, 880 | 548, 618 | 770, 696 | 2 |
| 2, 445, 000 | 154, 080 | 446, 000 | 1, 965 | 3, 467, 600 | 817, 676 | 28, 300 | 17, 385 | 26, 331 | 38, 142 | 276, 550 | 413, 009 | 3 |
| 1, 881, 500 | 1, 853, 500 | 2, 029, 800 | 4, 101 | 6, 100, 800 | 11, 390, 744 | 135, 866 | 46, 602 | 67, 097 | 74, 804 | 758, 289 | 1, 614, 969 | 4 |
| 38, 100 | ...... | 34, 800 | ...... | 77, 900 | 54, 400 | 800 | 2, 020 | 2, 350 | 200 | 17, 450 | 25, 000 | 5 |
| 95, 000 | 8, 000 | 14, 000 | ...... | 117, 000 | 90, 000 | 1, 200 | 550 | 750 | ...... | 13, 700 | 17, 000 | 6 |
| ...... | 212, 500 | 611, 800 | 45 | 859, 300 | 365, 900 | 7, 050 | 1, 350 | 2, 580 | ...... | 100, 890 | 137, 300 | 7 |
| ...... | 1, 434, 100 | 4, 578, 300 | ...... | 6, 611, 400 | 2, 971, 100 | 47, 900 | 13, 800 | 36, 300 | ...... | 500, 290 | 726, 680 | 8 |
| ...... | 160, 000 | 280, 000 | ...... | 440, 000 | 115, 000 | 4, 000 | 1, 600 | 1, 250 | ...... | 53, 000 | 70, 000 | 9 |
| ...... | 30, 000 | 60, 000 | ...... | 90, 000 | 72, 000 | 1, 000 | 400 | 380 | ...... | 23, 000 | 26, 000 | 10 |
| 2, 500 | 512, 500 | 261, 000 | ...... | 981, 000 | 329, 699 | 3, 700 | 2, 250 | 2, 350 | ...... | 62, 150 | 86, 215 | 11 |
| 223, 100 | ...... | 72, 000 | 40 | 375, 100 | 360, 030 | 4, 300 | 7, 130 | 6, 320 | 680 | 73, 089 | 105, 525 | 12 |
| 13, 166, 072 | 2, 327, 038 | 4, 686, 600 | 21, 823 | 23, 295, 811 | 8, 806, 343 | 321, 202 | 228, 738 | 413, 962 | 335, 512 | 1, 532, 346 | 2, 174, 650 | 13 |
| 527, 200 | 1, 321, 200 | 1, 581, 500 | 1, 690 | 3, 429, 900 | 1, 252, 448 | 3, 700 | 25, 240 | 37, 660 | 31, 600 | 201, 545 | 320, 260 | 14 |
| 1, 066, 760 | 347, 550 | 767, 150 | 2, 857 | 2, 280, 460 | 1, 266, 986 | 19, 291 | 31, 345 | 38, 750 | 43, 000 | 255, 361 | 391, 655 | 15 |
| ...... | 1, 577, 200 | 5, 229, 600 | 4, 473 | 6, 806, 800 | 8, 321, 570 | 46, 500 | 51, 996 | 83, 940 | 19, 650 | 842, 115 | 1, 390, 050 | 16 |
| 9, 000 | ...... | 8, 000 | ...... | 19, 000 | 11, 600 | ...... | 610 | 430 | 150 | 1, 450 | 3, 500 | 17 |
| ...... | 278, 000 | 335, 500 | ...... | 628, 500 | 1, 871, 260 | 8, 000 | 4, 600 | 4, 150 | ...... | 231, 392 | 358, 487 | 18 |
| ...... | 15, 000 | 23, 000 | ...... | 38, 000 | 18, 000 | 400 | 200 | 300 | ...... | 7, 000 | 9, 000 | 19 |
| 1, 122, 500 | 430, 700 | 1, 240, 800 | 3, 409 | 2, 862, 400 | 1, 568, 794 | 26, 185 | 26, 750 | 42, 267 | 58, 316 | 248, 561 | 409, 714 | 20 |
| 5, 892, 000 | 7, 833, 600 | 10, 862, 800 | 16, 691 | 26, 431, 820 | 9, 919, 842 | 48, 681 | 45, 510 | 150, 931 | 34, 477 | 1, 921, 523 | 3, 145, 536 | 21 |
| 232, 000 | 13, 000 | 25, 000 | 310 | 270, 000 | 124, 400 | 2, 600 | 1, 300 | 1, 560 | ...... | 14, 875 | 22, 650 | 22 |
| 40, 000 | 1, 779, 000 | 7, 415, 500 | 2, 248 | 9, 594, 500 | 6, 682, 800 | 58, 800 | 35, 550 | 98, 730 | 16, 300 | 821, 550 | 1, 127, 600 | 23 |
| ...... | ...... | 12, 500 | 125 | 836, 000 | 420, 700 | 5, 200 | 3, 210 | 8, 500 | 2, 080 | 114, 300 | 176, 600 | 24 |
| 1, 919, 800 | 10, 071, 500 | 7, 372, 100 | 5, 240 | 22, 516, 000 | 36, 721, 231 | 380, 733 | 60, 285 | 256, 040 | 37, 400 | 2, 706, 107 | 4, 676, 258 | 25 |
| 60, 000 | 79, 000 | 63, 000 | 990 | 375, 000 | 448, 000 | 52, 000 | 2, 600 | 3, 400 | ...... | 65, 500 | 129, 000 | 26 |
| 469, 600 | 10, 400 | 16, 100 | 436 | 535, 100 | 163, 600 | 900 | 3, 080 | 2, 810 | ...... | 37, 550 | 92, 900 | 27 |
| 8, 000 | 3, 000 | 18, 000 | ...... | 29, 000 | 28, 000 | 300 | 200 | 300 | ...... | 4, 100 | 5, 000 | 28 |
| 258, 100 | 8, 300 | 157, 100 | ...... | 429, 500 | 113, 500 | 14, 750 | 8, 180 | 13, 840 | 18, 590 | 34, 940 | 55, 780 | 29 |
| ...... | 120, 400 | 63, 800 | 102 | 184, 200 | 52, 000 | ...... | ...... | 1, 420 | ...... | 9, 200 | 17, 800 | 30 |
| 165, 000 | 16, 300 | 98, 200 | 641 | 284, 000 | 133, 900 | ...... | 6, 870 | 6, 360 | 4, 350 | 31, 500 | 62, 050 | 31 |
| ...... | ...... | 16, 000 | 147 | 856, 000 | 509, 100 | 7, 000 | 6, 600 | 6, 700 | 3, 800 | 114, 100 | 161, 600 | 32 |
| ...... | 2, 068, 000 | 1, 198, 000 | ...... | 3, 303, 000 | 367, 300 | 3, 200 | 3, 900 | 6, 400 | ...... | 159, 600 | 221, 230 | 33 |
| ...... | 890, 100 | 2, 668, 000 | 955 | 3, 058, 100 | 1, 941, 700 | 6, 500 | 9, 500 | 16, 020 | 1, 000 | 140, 880 | 254, 000 | 34 |

## NUMBER AND TONNAGE OF VESSELS, NUMBER OF ESTABLISHMENTS, CAPITAL, AVERAGE

### C—REPAIRING OF VESSELS.

| | States and Territories. | Boats. | New vessels. | Tonnage of new vessels. | Boats built. | No. of establishments. | Capital. | Average number of hands employed. | Total amount paid in wages on vessels in the ship-yard. |
|---|---|---|---|---|---|---|---|---|---|
| | | *Number.* | *Number.* | | *Number.* | | *Dollars.* | | *Dollars.* |
| | The United States | | | | | 812 | 11, 882, 059 | 10, 671 | 6, 730, 136 |
| 1 | Alabama | | | | | 1 | 25, 000 | 25 | 22, 500 |
| 2 | California | | | | | 40 | 1, 754, 423 | 326 | 368, 746 |
| 3 | Connecticut | | | | | 22 | 279, 900 | 255 | 136, 520 |
| 4 | Delaware | | | | | 5 | 25, 800 | 465 | 272, 713 |
| 5 | Florida | | | | | 6 | 25, 700 | 25 | 18, 600 |
| 6 | Illinois | | | | | 17 | 435, 450 | 408 | 218, 635 |
| 7 | Indiana | | | | | 5 | 47, 000 | 63 | 37, 950 |
| 8 | Iowa | | | | | 1 | 20, 000 | 55 | 26, 000 |
| 9 | Kentucky | | | | | 5 | 73, 000 | 127 | 75, 000 |
| 10 | Louisiana | | | | | 9 | 139, 700 | 173 | 85, 176 |
| 11 | Maine | | | | | 100 | 346, 775 | 520 | 238, 380 |
| 12 | Maryland | | | | | 70 | 1, 497, 125 | 931 | 542, 529 |
| 13 | Massachusetts | | | | | 140 | 1, 586, 925 | 974 | 610, 917 |
| 14 | Michigan | | | | | 17 | 290, 700 | 603 | 307, 943 |
| 15 | Minnesota | | | | | 1 | 10, 000 | 16 | 8, 000 |
| 16 | Mississippi | | | | | 1 | 1, 000 | 2 | 1, 500 |
| 17 | Missouri | | | | | 4 | 188, 000 | 125 | 92, 300 |
| 18 | New Hampshire | | | | | 7 | 11, 930 | 22 | 10, 048 |
| 19 | New Jersey | | | | | 48 | 621, 700 | 679 | 419, 992 |
| 20 | New York | | | | | 192 | 3, 126, 550 | 2, 750 | 1, 908, 892 |
| 21 | North Carolina | | | | | 5 | 11, 000 | 26 | 14, 200 |
| 22 | Ohio | | | | | 28 | 202, 600 | 333 | 174, 142 |
| 23 | Oregon | | | | | 2 | 16, 300 | 21 | 19, 200 |
| 24 | Pennsylvania | | | | | 48 | 599, 281 | 1, 044 | 733, 795 |
| 25 | Rhode Island | | | | | 8 | 172, 000 | 234 | 144, 927 |
| 26 | South Carolina | | | | | 7 | 32, 600 | 40 | 23, 460 |
| 27 | Texas | | | | | 1 | 5, 300 | 19 | 14, 200 |
| 28 | Virginia | | | | | 13 | 175, 800 | 89 | 49, 648 |
| 29 | Washington | | | | | 2 | 8, 000 | 12 | 12, 400 |
| 30 | West Virginia | | | | | 1 | 7, 000 | 12 | 6, 160 |
| 31 | Wisconsin | | | | | 6 | 145, 500 | 297 | 135, 663 |

### D—BOATS.

| | States and Territories. | Boats. | New vessels. | Tonnage of new vessels. | Boats built. | No. of establishments. | Capital. | Average number of hands employed. | Total amount paid in wages on vessels in the ship-yard. |
|---|---|---|---|---|---|---|---|---|---|
| | The United States | | | | 8, 026 | 736 | 320, 665 | 635 | 367, 606 |
| 1 | California | | | | 200 | 9 | 7, 450 | 27 | 21, 333 |
| 2 | Connecticut | | | | 280 | 64 | 19, 700 | 34 | 13, 929 |
| 3 | Delaware | | | | 100 | 1 | 5, 000 | 6 | 3, 612 |
| 4 | Florida | | | | 45 | 29 | 2, 900 | 12 | 7, 950 |
| 5 | Illinois | | | | 85 | 3 | 1, 300 | 7 | 3, 800 |
| 6 | Indiana | | | | 52 | 2 | 800 | 3 | 1, 600 |
| 7 | Kentucky | | | | 25 | 1 | 150 | 2 | 450 |
| 8 | Louisiana | | | | 80 | 2 | 2, 500 | 11 | 7, 000 |
| 9 | Maine | | | | 970 | 228 | 31, 775 | 57 | 23, 677 |
| 10 | Maryland | | | | 133 | 59 | 9, 110 | 39 | 18, 855 |
| 11 | Massachusetts | | | | 3, 765 | 110 | 95, 325 | 137 | 77, 094 |
| 12 | Michigan | | | | 210 | 8 | 7, 475 | 14 | 6, 932 |
| 13 | New Hampshire | | | | 44 | 8 | 3, 400 | 4 | 2, 195 |
| 14 | New Jersey | | | | 134 | 15 | 12, 370 | 24 | 13, 327 |
| 15 | New York | | | | 1, 221 | 123 | 81, 300 | 169 | 113, 350 |
| 16 | Ohio | | | | 91 | 5 | 6, 100 | 11 | 7, 605 |
| 17 | Pennsylvania | | | | 318 | 19 | 14, 250 | 33 | 20, 714 |
| 18 | Rhode Island | | | | 68 | 12 | 15, 200 | 31 | 11, 735 |
| 19 | Virginia | | | | 48 | 32 | 1, 660 | 13 | 5, 698 |
| 20 | Washington | | | | 80 | 1 | 1, 000 | 1 | 1, 000 |
| 21 | Wisconsin | | | | 77 | 5 | 1, 900 | 10 | 5, 750 |

### E—OCEAN, COAST, AND RIVER VESSELS.

| | States and Territories. | Boats. | New vessels. | Tonnage of new vessels. | Boats built. | No. of establishments. | Capital. | Average number of hands employed. | Total amount paid in wages on vessels in the ship-yard. |
|---|---|---|---|---|---|---|---|---|---|
| | The United States | 7, 240 | 731 | 159, 325 | | 1, 645 | 16, 806, 599 | 14, 284 | 9, 092, 538 |
| 1 | Alabama | | | | | 1 | 25, 000 | 25 | 22, 500 |
| 2 | California | 200 | 21 | 7, 361 | | 62 | 1, 806, 923 | 534 | 589, 564 |
| 3 | Connecticut | 280 | 52 | 11, 473 | | 94 | 334, 300 | 500 | 256, 849 |
| 4 | Delaware | 100 | 55 | 31, 123 | | 18 | 935, 200 | 1, 576 | 900, 322 |
| 5 | Florida | 45 | 13 | 217 | | 48 | 30, 750 | 46 | 33, 580 |
| 6 | Georgia | | 2 | 539 | | 2 | 3, 000 | 4 | 2, 250 |
| 7 | Louisiana | 80 | 28 | 864 | | 31 | 147, 900 | 203 | 102, 626 |
| 8 | Maine | 970 | 88 | 41, 396 | | 379 | 811, 750 | 1, 967 | 838, 559 |
| 9 | Maryland | 133 | 71 | 3, 229 | | 159 | 1, 587, 535 | 1, 103 | 624, 539 |
| 10 | Massachusetts | 3, 765 | 39 | 5, 605 | | 276 | 1, 765, 450 | 1, 328 | 804, 571 |
| 11 | Mississippi | | 3 | 33 | | 3 | 2, 500 | 4 | 2, 860 |
| 12 | New Hampshire | 44 | | | | 15 | 15, 330 | 26 | 12, 243 |
| 13 | New Jersey | 134 | 43 | 6, 445 | | 74 | 821, 170 | 787 | 469, 762 |
| 14 | New York | 1, 061 | 159 | 22, 574 | | 275 | 2, 601, 850 | 2, 821 | 2, 041, 988 |
| 15 | North Carolina | | 8 | 487 | | 11 | 15, 400 | 38 | 19, 256 |
| 16 | Oregon | | 19 | 2, 162 | | 14 | 63, 300 | 85 | 77, 150 |
| 17 | Pennsylvania | 232 | 33 | 20, 962 | | 55 | 5, 324, 231 | 2, 588 | 1, 890, 673 |
| 18 | Rhode Island | 68 | 17 | 370 | | 22 | 227, 700 | 318 | 194, 662 |
| 19 | South Carolina | | 27 | 1, 615 | | 16 | 46, 300 | 94 | 55, 090 |
| 20 | Texas | | 16 | 758 | | 16 | 23, 350 | 43 | 30, 170 |
| 21 | Virginia | 48 | 23 | 334 | | 63 | 184, 660 | 132 | 71, 126 |
| 22 | Washington | 80 | 14 | 1, 769 | | 11 | 33, 000 | 62 | 51, 298 |

## NUMBER OF HANDS EMPLOYED, AMOUNT OF WAGES PAID, MATERIALS USED, ETC.—Continued.

### C—REPAIRING OF VESSELS.

| PRINCIPAL MATERIALS. | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hard pine. | White pine. | White oak. | Knees. | Total quantity of lumber, including other kinds. | Iron. | Yellow metal and brass. | Duck. | Manila rope. | Hemp cordage. | Total value of all materials. | Total value of all products. | |
| *Feet.* 9,279,340 | *Feet.* 13,048,370 | *Feet.* 16,505,620 | *Number.* 23,527 | *Feet.* 45,355,100 | *Pounds.* 26,016,654 | *Pounds.* 6,355,383 | *Yards.* 3,965,105 | *Pounds.* 586,800 | *Pounds.* 388,200 | *Dollars.* 7,422,914 | *Dollars.* 16,697,614 | |
| 30,000 | .... | .... | .... | 30,000 | 40,000 | 20,000 | .... | .... | .... | 25,000 | 60,000 | 1 |
| .... | .... | 89,000 | 6 | 2,654,000 | 277,700 | 1,007,080 | 130,000 | 40,000 | 20,000 | 393,992 | 969,398 | 2 |
| 330,000 | 409,000 | 258,500 | 1,135 | 1,233,500 | 200,800 | 32,500 | 56,165 | 2,000 | 3,000 | 136,789 | 317,451 | 3 |
| 85,000 | 30,000 | 180,000 | 550 | 295,000 | 1,617,000 | .... | 19,000 | .... | .... | 195,325 | 529,097 | 4 |
| 41,000 | .... | 4,000 | .... | 68,000 | 66,000 | .... | 13,000 | .... | .... | 18,000 | 44,000 | 5 |
| .... | 1,010,000 | 3,000,000 | .... | 4,240,000 | 763,000 | .... | 760,000 | .... | .... | 388,840 | 745,743 | 6 |
| .... | 135,000 | 300,000 | .... | 435,000 | 202,500 | .... | 15,000 | .... | .... | 28,050 | 80,875 | 7 |
| .... | .... | 20,000 | .... | 20,000 | 24,000 | .... | .... | .... | .... | 9,000 | 42,000 | 8 |
| .... | 840,000 | 1,190,000 | .... | 2,310,000 | 240,000 | .... | .... | .... | .... | 64,300 | 161,800 | 9 |
| .... | .... | .... | .... | .... | .... | .... | 76,000 | .... | .... | 84,325 | 222,400 | 10 |
| 716,040 | 519,870 | 423,520 | 4,497 | 2,220,100 | 1,130,443 | 146,354 | 371,740 | 32,200 | 38,200 | 376,917 | 681,378 | 11 |
| 3,834,000 | 2,097,000 | 787,000 | 1,750 | 6,832,000 | 2,041,150 | 510,374 | 380,000 | 80,000 | 120,000 | 666,296 | 1,423,370 | 12 |
| 1,130,000 | 1,048,700 | 871,800 | 3,405 | 3,539,300 | 1,620,450 | 1,024,620 | 380,300 | 46,100 | 82,000 | 836,478 | 1,703,284 | 13 |
| .... | 866,000 | 870,000 | 1,610 | 1,761,000 | 1,150,000 | 1,800 | 95,000 | .... | .... | 243,347 | 631,469 | 14 |
| .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 2,500 | 15,000 | 15 |
| .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 500 | 2,000 | 16 |
| .... | 700,000 | 1,830,000 | .... | 2,708,000 | 550,000 | .... | .... | .... | .... | 82,000 | 206,700 | 17 |
| 10,000 | 23,000 | 8,000 | 50 | 49,000 | 6,500 | .... | 10,900 | .... | .... | 12,284 | 25,630 | 18 |
| 705,300 | 1,210,100 | 1,010,900 | 2,199 | 3,331,300 | 879,204 | 185,473 | 60,000 | 5,000 | .... | 384,058 | 940,455 | 19 |
| 1,758,000 | 2,431,700 | 3,464,900 | 6,060 | 8,822,900 | 6,255,829 | 3,007,718 | 762,000 | 114,500 | .... | 2,021,964 | 4,575,551 | 20 |
| .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 17,200 | 34,569 | 21 |
| .... | 108,000 | 361,000 | 270 | 497,000 | 933,000 | 16,000 | 120,000 | .... | .... | 155,760 | 406,210 | 22 |
| .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 10,100 | 29,900 | 23 |
| 178,000 | 820,000 | 505,000 | 775 | 1,683,000 | 7,081,500 | 381,964 | 578,000 | 267,000 | 125,000 | 883,895 | 1,965,324 | 24 |
| 125,000 | 77,000 | 112,000 | 250 | 314,000 | 498,078 | 13,000 | .... | .... | .... | 189,183 | 360,431 | 25 |
| 115,000 | .... | 24,000 | .... | 145,000 | 57,000 | .... | 13,000 | .... | .... | 17,700 | 51,100 | 26 |
| 20,000 | .... | 10,000 | .... | 30,000 | 16,000 | .... | .... | .... | .... | 5,400 | 22,000 | 27 |
| 202,000 | 14,000 | 91,000 | 290 | 307,000 | 47,500 | 8,500 | .... | .... | .... | 40,538 | 109,174 | 28 |
| .... | .... | .... | .... | 18,000 | 9,000 | .... | .... | .... | .... | 6,800 | 21,000 | 29 |
| .... | 30,000 | 30,000 | .... | 60,000 | 22,000 | .... | .... | .... | .... | 2,700 | 9,900 | 30 |
| .... | 679,000 | 1,065,000 | 680 | 1,752,000 | 288,000 | .... | 125,000 | .... | .... | 123,673 | 310,405 | 31 |

### D—BOATS.

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 394,800 | 1,384,710 | 733,790 | 3,762 | 3,284,675 | 388,489 | 19,635 | 48,655 | 34,745 | .... | 369,232 | 876,999 | |
| .... | .... | 6,000 | .... | 46,000 | 3,800 | .... | 800 | 300 | .... | 16,739 | 57,545 | 1 |
| 2,000 | 41,000 | 18,400 | 220 | 92,350 | 23,680 | .... | 12,320 | 10,650 | .... | 17,086 | 37,200 | 2 |
| .... | 3,000 | 8,000 | .... | 16,000 | 38,000 | .... | .... | .... | .... | 10,661 | 18,437 | 3 |
| 16,000 | .... | .... | .... | 30,500 | 17,760 | .... | 4,500 | 4,180 | .... | 7,800 | 16,050 | 4 |
| .... | 12,000 | 20,000 | .... | 38,000 | 1,500 | 200 | .... | .... | .... | 2,280 | 9,050 | 5 |
| .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1,500 | 3,100 | 6 |
| .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 100 | 1,000 | 7 |
| 10,000 | .... | 500 | .... | 48,500 | 2,200 | 800 | 1,900 | 800 | .... | 5,000 | 15,600 | 8 |
| .... | 217,300 | 83,590 | 240 | 350,440 | 44,630 | 400 | 820 | 700 | .... | 26,594 | 53,818 | 9 |
| 235,500 | 12,000 | 8,000 | .... | 274,500 | 5,760 | 480 | 3,700 | 1,260 | .... | 16,458 | 45,000 | 10 |
| 1,000 | 669,610 | 238,700 | 2,488 | 1,138,985 | 68,529 | 700 | 11,630 | 9,385 | .... | 81,801 | 186,727 | 11 |
| .... | 39,400 | 23,000 | 300 | 68,400 | 8,160 | .... | 780 | 380 | .... | 4,523 | 13,117 | 12 |
| .... | 16,600 | 8,400 | 20 | 25,000 | 12,800 | .... | .... | .... | .... | 2,085 | 4,440 | 13 |
| .... | 24,500 | 22,600 | 12 | 86,200 | 7,050 | 300 | 1,190 | 420 | .... | 16,575 | 34,460 | 14 |
| 2,800 | 195,700 | 208,200 | 352 | 650,300 | 116,505 | 15,865 | 3,620 | 1,690 | .... | 112,150 | 263,957 | 15 |
| .... | 50,000 | 17,000 | .... | 75,000 | 19,220 | 100 | 2,200 | 1,620 | .... | 8,650 | 18,400 | 16 |
| 1,500 | 69,300 | 31,800 | 40 | 122,600 | 7,890 | 790 | 1,295 | 480 | .... | 20,365 | 47,888 | 17 |
| .... | 22,300 | 15,600 | 00 | 37,900 | 5,980 | .... | 1,500 | 2,000 | .... | 12,175 | 27,610 | 18 |
| 126,000 | .... | 1,400 | .... | 129,900 | 1,725 | .... | 2,400 | 880 | .... | 2,540 | 9,800 | 19 |
| .... | .... | .... | .... | 16,000 | 1,600 | .... | .... | .... | .... | 400 | 1,900 | 20 |
| .... | 12,000 | 22,600 | .... | 38,100 | 1,700 | .... | .... | .... | .... | 3,750 | 11,900 | 21 |

### E—OCEAN, COAST, AND RIVER VESSELS.

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 38,501,272 | 16,434,348 | 19,999,260 | 75,093 | 91,580,066 | 85,876,577 | 7,403,526 | 3,184,138 | 1,402,242 | 1,083,434 | 13,011,784 | 25,149,750 | |
| 30,000 | .... | .... | .... | 30,000 | 40,000 | 20,000 | .... | .... | .... | 25,000 | 60,000 | 1 |
| .... | .... | 196,000 | 1,621 | 6,580,000 | 2,092,656 | 1,058,730 | 151,453 | 73,840 | 36,880 | 959,349 | 1,797,639 | 2 |
| 2,777,000 | 604,080 | 722,900 | 3,320 | 4,793,450 | 1,042,156 | 60,800 | 85,870 | 38,981 | 41,142 | 430,425 | 767,660 | 3 |
| 1,966,500 | 1,886,500 | 2,217,800 | 4,651 | 6,411,800 | 13,045,744 | 135,866 | 65,602 | 67,097 | 74,804 | 964,275 | 2,162,503 | 4 |
| 95,100 | .... | 38,800 | .... | 176,400 | 138,160 | 800 | 19,520 | 6,530 | 200 | 43,250 | 85,050 | 5 |
| 95,000 | 8,000 | 14,000 | .... | 117,000 | 90,000 | 1,200 | 550 | 750 | .... | 13,700 | 17,000 | 6 |
| 134,100 | .... | 39,500 | 40 | 240,600 | 102,230 | 1,400 | 83,630 | 4,870 | 680 | 115,905 | 279,525 | 7 |
| 13,882,112 | 3,064,208 | 5,193,710 | 26,560 | 25,866,351 | 9,981,416 | 467,936 | 601,298 | 446,862 | 373,712 | 1,935,857 | 2,909,846 | 8 |
| 4,593,700 | 2,175,200 | 1,454,500 | 3,422 | 8,356,400 | 2,644,358 | 514,354 | 408,940 | 106,340 | 151,600 | 814,799 | 1,674,130 | 9 |
| 2,197,760 | 2,065,860 | 1,877,650 | 8,750 | 6,958,745 | 2,955,965 | 1,044,611 | 423,275 | 94,235 | 125,000 | 1,173,640 | 2,281,666 | 10 |
| 9,000 | .... | 8,000 | .... | 19,000 | 11,600 | .... | 610 | 430 | 150 | 1,950 | 5,500 | 11 |
| 10,000 | 39,600 | 16,400 | 70 | 74,000 | 19,300 | .... | 10,900 | .... | .... | 14,369 | 30,070 | 12 |
| 1,776,800 | 1,421,600 | 1,938,400 | 5,165 | 5,649,300 | 2,319,483 | 203,958 | 87,940 | 46,737 | 58,316 | 583,264 | 1,214,829 | 13 |
| 7,145,200 | 2,748,500 | 4,547,300 | 14,765 | 16,022,420 | 9,334,277 | 3,064,014 | 595,170 | 166,290 | 29,730 | 2,700,146 | 5,441,588 | 14 |
| 232,000 | 13,000 | 25,000 | 310 | 270,000 | 124,400 | 2,600 | 1,300 | 1,560 | .... | 32,075 | 57,219 | 15 |
| .... | .... | 12,500 | 125 | 836,000 | 420,700 | 5,200 | 3,210 | 8,500 | 2,080 | 124,400 | 206,500 | 16 |
| 2,091,300 | 2,180,500 | 1,092,400 | 3,450 | 5,776,200 | 39,533,149 | 725,887 | 600,640 | 303,830 | 162,400 | 2,524,654 | 5,063,680 | 17 |
| 185,000 | 178,300 | 190,600 | 1,330 | 726,900 | 952,058 | 65,000 | 4,100 | 5,400 | .... | 266,858 | 517,041 | 18 |
| 584,600 | 10,400 | 40,100 | 436 | 680,100 | 220,600 | 900 | 16,080 | 2,810 | .... | 55,250 | 144,000 | 19 |
| 278,100 | 8,300 | 167,100 | .... | 459,500 | 129,500 | 14,750 | 8,180 | 13,840 | 18,590 | 40,340 | 77,780 | 20 |
| 418,000 | 30,300 | 190,600 | 981 | 645,900 | 159,125 | 8,500 | 9,270 | 6,640 | 4,350 | 70,978 | 172,024 | 21 |
| .... | .... | 16,000 | 147 | 890,000 | 519,700 | 7,000 | 6,600 | 6,700 | 3,800 | 121,300 | 184,500 | 22 |

## NUMBER AND TONNAGE OF VESSELS, NUMBER OF ESTABLISHMENTS, CAPITAL, AVERAGE

### F—NORTHERN LAKES.

| | States. | Boats. | New vessels. | Tonnage of new vessels. | No. of establishments. | Capital. | Average number of hands employed. | Total amount paid in wages on vessels in the ship-yard. |
|---|---|---|---|---|---|---|---|---|
| | The United States | *Number.*<br>629 | *Number.*<br>142 | 30, 752 | 199 | *Dollars.*<br>1, 865, 325 | 3, 352 | *Dollars.*<br>1, 664, 917 |
| 1 | Illinois | 85 | 2 | 50 | 19 | 352, 300 | 339 | 176, 975 |
| 2 | Michigan | 210 | 69 | 15, 909 | 72 | 476, 775 | 1, 537 | 745, 933 |
| 3 | New York | 160 | 35 | 3, 957 | 59 | 592, 500 | 629 | 321, 081 |
| 4 | Ohio | 91 | 18 | 8, 057 | 26 | 246, 050 | 439 | 231, 905 |
| 5 | Pennsylvania | 6 | | | 1 | 10, 000 | 8 | 4, 200 |
| 6 | Wisconsin | 77 | 18 | 2, 779 | 22 | 187, 700 | 400 | 184, 823 |

### G—WESTERN RIVERS.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | The United States | 157 | 899 | 242, 094 | 155 | 1, 227, 500 | 1, 996 | 1, 183, 072 |
| 1 | Arkansas | | 3 | 300 | 3 | 2, 500 | 25 | 3, 600 |
| 2 | Illinois | | 8 | 1, 259 | 7 | 102, 000 | 118 | 65, 720 |
| 3 | Indiana | 52 | 64 | 26, 524 | 23 | 194, 250 | 312 | 211, 736 |
| 4 | Iowa | | 2 | 860 | 1 | 25, 000 | 75 | 37, 000 |
| 5 | Kansas | | 1 | 178 | 1 | 1, 000 | 11 | 1, 900 |
| 6 | Kentucky | 25 | 23 | 2, 130 | 11 | 88, 450 | 157 | 92, 171 |
| 7 | Louisiana | | 8 | 367 | 7 | 4, 200 | 15 | 10, 900 |
| 8 | Minnesota | | | | 1 | 10, 000 | 16 | 8, 000 |
| 9 | Missouri | | 17 | 3, 451 | 14 | 247, 900 | 293 | 196, 005 |
| 10 | Nebraska | | 1 | 52 | 1 | 300 | 9 | 1, 400 |
| 11 | Ohio | | 36 | 17, 064 | 14 | 155, 000 | 266 | 153, 420 |
| 12 | Pennsylvania | 80 | 647 | 172, 834 | 50 | 320, 400 | 520 | 310, 360 |
| 13 | Tennessee | | 1 | 48 | 1 | 500 | 6 | 600 |
| 14 | West Virginia | | 85 | 16, 727 | 19 | 55, 000 | 99 | 51, 510 |
| 15 | Wisconsin | | 3 | 300 | 2 | 21, 000 | 74 | 38, 750 |

### H—CANAL-BOATS.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | The United States | | 643 | 66, 707 | 189 | 1, 080, 450 | 1, 713 | 773, 286 |
| 1 | Illinois | | 1 | 88 | 2 | 2, 700 | 8 | 4, 700 |
| 2 | Maryland | | 60 | 4, 270 | 7 | 19, 000 | 75 | 33, 250 |
| 3 | New Jersey | | 10 | 1, 010 | 19 | 121, 900 | 143 | 79, 045 |
| 4 | New York | | 441 | 49, 887 | 123 | 749, 750 | 1, 211 | 544, 060 |
| 5 | Ohio | | 1 | 11 | 14 | 22, 000 | 68 | 29, 035 |
| 6 | Pennsylvania | | 122 | 10, 711 | 19 | 143, 100 | 182 | 74, 396 |
| 7 | Vermont | | 5 | 550 | 3 | 20, 700 | 12 | 4, 400 |
| 8 | Virginia | | 3 | 180 | 2 | 1, 300 | 14 | 4, 400 |

### I—IRON VESSELS. (*a*)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | The United States | | 67 | 31, 347 | 16 | 7, 497, 000 | 4, 262 | 2, 732, 599 |
| 1 | Delaware | | 22 | 8, 925 | 2 | 800, 000 | 1, 252 | 753, 953 |
| 2 | Maryland | | 1 | 55 | 2 | 1, 000, 000 | 223 | 134, 000 |
| 3 | Massachusetts | | | | 2 | 500, 000 | 60 | 35, 500 |
| 4 | Michigan | | 3 | 1, 533 | 1 | 100, 000 | 240 | 155, 600 |
| 5 | Missouri | | 7 | 2, 740 | 1 | 30, 000 | 120 | 78, 412 |
| 6 | New Jersey | | 4 | 382 | 1 | 200, 000 | 72 | 43, 600 |
| 7 | New York | | 6 | 679 | 2 | 62, 000 | 77 | 46, 000 |
| 8 | Pennsylvania | | 24 | 17, 033 | 5 | 4, 805, 000 | 2, 218 | 1, 485, 534 |

---

*a* Also included with preceding classes.

## NUMBER OF HANDS EMPLOYED, AMOUNT OF WAGES PAID, MATERIALS USED, ETC.—Continued.

### F—NORTHERN LAKES.

| PRINCIPAL MATERIALS. | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Hard pine.** | **White pine.** | **White oak.** | **Knees.** | **Total quantity of lumber, including other kinds.** | **Iron.** | **Yellow metal and brass.** | **Duck.** | **Manila rope.** | **Hemp cordage.** | **Total value of all materials.** | **Total value of all products.** | |
| *Feet.* | *Feet.* | *Feet.* | *Number.* | *Feet.* | *Pounds.* | *Pounds.* | *Yards.* | *Pounds.* | *Pounds.* | *Dollars.* | *Dollars.* | |
| 3,000 | 5,951,300 | 18,967,700 | 13,733 | 25,172,600 | 19,175,755 | 86,000 | 1,398,176 | 155,956 | 41,697 | 2,642,455 | 4,870,645 | |
| ............ | 458,500 | 1,777,300 | 27 | 2,241,800 | 506,500 | 650 | 760,000 | 150 | ............ | 356,220 | 650,833 | 1 |
| ............ | 2,482,600 | 6,122,600 | 6,383 | 8,636,200 | 9,479,730 | 48,300 | 147,776 | 84,320 | 19,650 | 1,089,985 | 2,034,636 | 2 |
| 3,000 | 1,421,600 | 3,145,500 | 3,186 | 4,764,200 | 2,906,825 | 8,250 | 215,960 | 16,746 | 4,747 | 455,307 | 848,321 | 3 |
| ............ | 585,000 | 4,365,500 | 2,502 | 4,958,500 | 4,211,020 | 23,800 | 140,600 | 39,470 | 16,300 | 476,400 | 796,650 | 4 |
| ............ | 2,500 | 1,200 | ............ | 3,700 | 280 | ............ | 540 | 150 | ............ | 3,600 | 9,500 | 5 |
| ............ | 1,001,100 | 3,555,600 | 1,635 | 4,568,200 | 2,071,400 | 5,000 | 133,300 | 15,120 | 1,000 | 260,943 | 530,705 | 6 |

### G—WESTERN RIVERS.

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 181,500 | 16,008,600 | 20,619,000 | ............ | 41,684,100 | 15,141,519 | 170,950 | 102,150 | 322,310 | ............ | 2,856,745 | 4,450,587 | |
| 32,000 | 24,000 | 115,000 | ............ | 171,000 | 176,000 | 3,100 | 700 | 900 | ............ | 21,700 | 28,000 | 1 |
| ............ | 766,000 | 1,830,500 | ............ | 2,861,500 | 622,400 | 6,400 | 1,350 | 2,430 | ............ | 133,190 | 232,960 | 2 |
| ............ | 1,569,100 | 4,878,300 | ............ | 7,046,400 | 3,173,600 | 47,900 | 28,800 | 36,300 | ............ | 529,840 | 810,655 | 3 |
| ............ | 160,000 | 300,000 | ............ | 460,000 | 139,000 | 4,000 | 1,600 | 1,250 | ............ | 62,000 | 112,000 | 4 |
| ............ | 30,000 | 60,000 | ............ | 90,000 | 72,000 | 1,000 | 400 | 380 | ............ | 23,000 | 26,000 | 5 |
| 2,500 | 1,352,500 | 1,451,000 | ............ | 3,291,000 | 569,699 | 3,700 | 2,250 | 2,350 | ............ | 126,550 | 249,015 | 6 |
| 99,000 | ............ | 33,000 | ............ | 183,000 | 260,000 | 3,700 | 1,400 | 2,250 | ............ | 46,500 | 64,000 | 7 |
| ............ | ............ | ............ | ............ | ............ | ............ | ............ | ............ | ............ | ............ | 2,500 | 15,000 | 8 |
| ............ | 978,000 | 2,165,500 | ............ | 3,336,500 | 2,421,260 | 8,000 | 4,600 | 4,150 | ............ | 313,392 | 565,187 | 9 |
| ............ | 15,000 | 23,000 | ............ | 38,000 | 18,000 | 400 | 200 | 300 | ............ | 7,000 | 9,000 | 10 |
| 40,000 | 1,346,000 | 3,408,000 | ............ | 5,182,000 | 3,419,600 | 51,100 | 17,150 | 60,700 | ............ | 494,200 | 701,700 | 11 |
| ............ | 7,592,000 | 4,908,700 | ............ | 15,352,700 | 3,692,660 | 36,650 | 38,400 | 203,700 | ............ | 923,113 | 1,355,340 | 12 |
| 8,000 | 3,000 | 18,000 | ............ | 29,000 | 28,000 | 800 | 200 | 300 | ............ | 4,100 | 5,000 | 13 |
| ............ | 2,093,000 | 1,228,000 | ............ | 3,363,000 | 389,300 | 3,200 | 3,900 | 6,400 | ............ | 162,300 | 231,130 | 14 |
| ............ | 80,000 | 200,000 | ............ | 280,000 | 160,000 | 1,500 | 1,200 | 900 | ............ | 7,360 | 45,600 | 15 |

### H—CANAL-BOATS.

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 641,600 | 9,111,800 | 10,115,400 | 8,366 | 21,437,200 | 5,508,071 | 9,350 | ............ | 115,655 | ............ | 1,225,374 | 2,329,345 | |
| ............ | 10,000 | 24,000 | 18 | 34,000 | 1,500 | 200 | ............ | ............ | ............ | 2,600 | 8,300 | 1 |
| 3,000 | 1,255,000 | 922,000 | 18 | 2,180,000 | 655,000 | 200 | ............ | 12,580 | ............ | 69,500 | 114,500 | 2 |
| 51,000 | 243,700 | 335,900 | 455 | 630,600 | 135,565 | 8,000 | ............ | 950 | ............ | 65,930 | 169,800 | 3 |
| 504,600 | 6,290,900 | 6,843,100 | 5,152 | 15,118,400 | 4,051,074 | ............ | ............ | 84,085 | ............ | 900,184 | 1,695,135 | 4 |
| ............ | 6,000 | 20,000 | 16 | 26,000 | 4,400 | ............ | ............ | 180 | ............ | 15,360 | 53,860 | 5 |
| 8,000 | 1,185,800 | 1,006,600 | 2,605 | 3,189,000 | 584,532 | 950 | ............ | 15,840 | ............ | 159,000 | 260,950 | 6 |
| ............ | 120,400 | 63,800 | 102 | 184,200 | 52,000 | ............ | ............ | 1,420 | ............ | 9,200 | 17,800 | 7 |
| 75,000 | ............ | ............ | ............ | 75,000 | 24,000 | ............ | ............ | 600 | ............ | 3,600 | 9,000 | 8 |

### I—IRON VESSELS. (a)

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2,254,000 | 3,353,000 | 639,100 | ............ | 6,663,100 | 54,326,737 | 501,332 | 47,000 | 51,450 | 31,400 | 2,851,073 | 6,394,838 | |
| 723,000 | 1,264,000 | 207,000 | ............ | 2,425,000 | 11,981,186 | 118,945 | 17,800 | 15,700 | 8,000 | 692,435 | 1,703,345 | 1 |
| ............ | 5,000 | 1,000 | ............ | 6,000 | 468,000 | 400 | ............ | 250 | ............ | 28,000 | 177,500 | 2 |
| ............ | ............ | ............ | ............ | ............ | 196,000 | ............ | ............ | ............ | ............ | 35,000 | 80,000 | 3 |
| ............ | 285,000 | 40,000 | ............ | 325,000 | 4,502,000 | 16,000 | 2,400 | 1,500 | ............ | 187,000 | 387,500 | 4 |
| ............ | 122,000 | 41,500 | ............ | 163,500 | 1,585,000 | 4,000 | 2,500 | 1,500 | ............ | 153,000 | 241,000 | 5 |
| 3,000 | 34,000 | 2,000 | ............ | 39,000 | 1,220,000 | 15,600 | 800 | 1,800 | ............ | 39,200 | 104,875 | 6 |
| ............ | 56,000 | 17,000 | ............ | 76,000 | 875,000 | 5,000 | 1,100 | 900 | ............ | 55,000 | 116,000 | 7 |
| 1,528,000 | 1,587,000 | 330,600 | ............ | 3,628,600 | 33,499,551 | 341,387 | 22,400 | 29,800 | 23,400 | 1,661,438 | 3,584,618 | 8 |

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a Also included with preceding classes.

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